SRM VALLIAMMAI ENGINEERINGCOLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur-603203.

DEPARTMENT OF INFORMATION TECHNOLOGY

(Regulation 2023)

Lab Manual

IT3562 -OBJECT ORIENTED SOFTWARE ENGINEERING LAB

(V semester)

Prepared By

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IT3562 -OBJECT ORIENTED SOFTWARE ENGINEERING LAB

OBJECTIVES:

- To design & implement complex software solutions using state of the art software solutions using state of art software Engineering Techniques.
- To provide working knowledge of UML (Unified Modeling Languages) Sources control and project Management.
- To provide working knowledge of the technologies essentially for incorporating in the project.
- To develop the project using any programming language
- To expertise for testing and document software.

LIST OF EXPERIMENTS:

1. Identify a software system that needs to be developed.
2. Document the Software Requirements Specification (SRS) for the identified system.
3. Identify use cases and develop the Use Case model.
4. Identify the conceptual classes and develop a Domain Model and also derive a Class Diagram from that.
5. Using the identified scenarios, find the interaction between objects and represent them using UML Sequence and Collaboration Diagrams
6. Draw relevant State Chart and Activity Diagrams for the same system.
7. Implement the system as per the detailed design
8. Test the software system for all the scenarios identified as per the use case diagram
9. Improve the reusability and maintainability of the software system by applying appropriate design patterns.
10. Implement the modified system and test it for various scenarios

SUGGESTED DOMAINS FOR MINI-PROJECT:

1. Passport automation system.
2. Book bank
3. Exam registration
4. Stock maintenance system.
5. Online course reservation system
6. Airline/Railway reservation system
7. Software personnel management system
8. Credit card processing
9. e-book management system
10. Recruitment system
11. Foreign trading system
12. Conference management system
13. BPO management system
14. Library management system
15. Student information system

OUTCOMES:

At the end of the course, students should be able to

- Identify and map basic software requirements in UML mapping
- Draw the UML diagrams for the given specification
- Use the technologies to create a code from design
- Develop the project using any programming language.
- Test the software system thoroughly for all scenarios and documents it.

SOFTWARE REQUIREMENTS

- Systems with ArgoUML that supports UML 1.4 and higher

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

1. To ensure graduates will be proficient in utilizing the fundamental knowledge of basic sciences, mathematics and Information Technology for the applications relevant to various streams of Engineering and Technology.
2. To enrich graduates with the core competencies necessary for applying knowledge of computers and telecommunications equipment to store, retrieve, transmit, manipulate and analyze data in the context of business enterprise.
3. To enable graduates to think logically, pursue lifelong learning and will have the capacity to understand technical issues related to computing systems and to design optimal solutions.
4. To enable graduates to develop hardware and software systems by understanding the importance of social, business and environmental needs in the human context.
5. To enable graduates to gain employment in organizations and establish themselves as professionals by applying their technical skills to solve real world problems and meet the diversified needs of industry, academia and research.

PROGRAM OUTCOMES (POs) ENGINEERING GRADUATES WILL BE ABLE TO:

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one‘s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OBJECTIVES (PSOs)

1. To create, select, and apply appropriate techniques, resources, modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

2. To manage complex IT projects with consideration of the human, financial, ethical and environmental factors and an understanding of risk management processes, and operational and policy implications.

COURSE OUTCOMES:

Course Name: IT3562 -OBJECT ORIENTED SOFTWARE ENGINEERING LAB
Year of study: 2025 –2026(ODD)

IT3562.1	Perform OO analysis and design for a given problem specification.
IT3562.2	Identify and map basic software requirements in UML mapping.
IT3562.3	Use the UML analysis and design diagrams.
IT3562.4	Improve the software quality using design patterns and to explain the rationale behind applying specific design patterns.
IT3562.5	Create code from design.

CO-PO Matrix:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
IT3562.1	2	1	1	-	-	-	-	-	-	-	-
IT3562.2	2	2	1	-	-	-	-	-	-	-	-
IT3562.3	2	2	1	-	-	-	-	-	-	-	-
IT3562.4	2	2	2	-	-	-	-	-	-	-	-
IT3562.5	2	2	1	-	-	-	-	-	-	-	-

Justification:

Course Outcome	Program Outcome	Value	Justification
IT3562.1	PO1	2	Applying the basic engineering knowledge to perform the analysis of the problem domain to get solution.
	PO2	1	Identify the problem domain and perform analysis using UML and appropriate design diagram to find solution
	PO3	1	Apply the knowledge,of engineering fundamentals, to the solution of complex engineering problems using the UML analysis and design diagrams
IT3562.2	PO1	2	Describing the Ideas and key features for UML Mapping. Identifying the approach for mapping requirements to design solutions for complex problems.
	PO2	2	Selection and application of appropriate techniques and tools for mapping the requirements
	PO3	1	Apply the knowledge,of engineering fundamentals, to the solution of complex engineering problems using the UML analysis and design diagrams
IT3562.3	PO1	2	Identify the problem domain and perform analysis using UML and appropriate design diagram to find solution.
	PO2	2	Identify and map basic software requirements in UML mapping using complex problem domain
	PO3	1	To solve complex problem Use the UML analysis and design diagrams
IT3562.4	PO1	2	Deriving the appropriate pattern for designing the system
	PO2	2	Improve the software quality using design patterns and to explain the rationale behind applying specific design patterns using various diagrams
	PO5	2	Analyzing the design pattern and implementing the solution using modern tools.

IT3562.5	PO1	2	Apply the knowledge of mathematics, engineering fundamentals, to the solution of complex engineering problems using the UML analysis and design diagrams
	PO2	2	Design solutions for complex engineering problems and design system components using the UML design diagrams.
	PO3	1	Identify, formulate, review research literature, and analyze complex engineering problems to provide valid solutions.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
IT3562	2	2	2	-	-	-	-	-	-	-	-	-

8. CO-PSO Matrix:

CO	PSO1	PSO2	PSO3
IT3562.1	-	2	-
IT3562.2	-	2	-
IT3562.3	-	2	-
IT3562.4	-	2	-
IT3562.5	-	2	-

Justification:

Course Outcome	Program Specific Outcome	Value	Justification
IT3562.1	PSO 2	2	Solutions of the existing system are used for problem solving and designing.
IT3562.2	PSO 2	2	Requirements are identified and mapped using UML diagrams.
IT3562.3	PSO 2	2	Developing the solutions for modern business environment usingdesign diagrams and tools
IT3562.4	PSO 4	2	Implementing the solution using appropriate design pattern and defining the test activities to ensure the product meets the requirements and needs.
IT3562.5	PSO 2	2	Developing code from design diagram for implementation.

CO	PSO 1	PSO 2	PSO 3
IT3562	-	2	-

ASSESSMENT METHOD

MARK SPLIT UP	
AIM&PRE LAB VIVA QUESTIONS	20
OBSERVATION	30
CONDUCTION & EXECUTION	30
OUTPUT& RESULT	10
POST LAB VIVA QUESTIONS	10
TOTAL	100

TABLE OF CONTENTS

***Topic beyond the syllabus**

Ex.No: 1a PASSPORT AUTOMATION SYSTEM

AIM:

To write the problem statement for the Passport automation system.

PROBLEM STATEMENT:

Passport Automation System is used to process the passport application form and dispatch passport to the applicants. This system adopts a comprehensive approach to minimize the manual work and schedule resources, time in an effective manner. The core of the system is to get the online application form (with details such as personal information, address details, etc) filled by the applicant whose testimonials are verified for its genuineness by the system with respect to already existing information in the database. This forms the first and foremost step in the processing of passport application.

After the first round of verification done by the system, the information is in turn forwarded to the regional administrator's office. The system forwards the necessary details to the police for its separate verification, whose report is then presented to the administrator. After all the necessary criteria have been met, the original information is added to the database and the passport is sent to the applicant. The administrator will be provided with the option to display the current status of the application to the applicant, which they can view in their online interface. The system also provides the user with the facility to apply for the renewal of expired passports and to make changes to current details in the passport.

RESULT:

Thus the problem statement for the Passport automation system has been done successfully.

Ex.No: 1b SOFTWARE REQUIREMENT SPECIFICATION

AIM:

To write the software requirement specification for Passport Automation System.

1. Introduction:

Passport Automation System is an interface between the applicant and the authority responsible for the issue of passport. It aims at improving the efficiency in the issue of passport and reduce the complexities involved in it to the maximum extent possible.

1.1Purpose:

If the entire process of 'issue of passport' is done in a manual manner then it would take several months for the passport to reach the applicant. Considering the fact that the number of applicants for passport is increasing every year, an automated system becomes essential to meet the demand. So this system uses several programming and database techniques to elucidate the work involved in this process. As it is a matter of national security, the system has to carefully verify to satisfy it.

1.2 Scope:

This system provides an online interface for the applicant to submit the application form filled with details. It also provides payment facilities for the user to pay online. The details given by the applicant is cross-checked with already existing information in other databases. The system also provides the user with options to check the status of his application, for renewal of expired passports and make changes to existing information. The passport officer can update the status of the application, view the verification report submitted by the police and access the information submitted by the applicant for verification. The police can submit the verification report using this system.

1.3 Definitions, Acronyms and Abbreviations

- Administrator/Passport Officer - refers to the authority who is vested with the privilege to manage the entire system. It can be a higher official in the Regional Passport Office of the Ministry of External Affairs
- Applicant – one who applies for the passport
- PAS – Passport Automation System
- SRS – Software Requirements Specification
- LAN - Local Area Network
- GUI – Graphical User Interface
-

1.4 References

IEEE Software Requirements Specification format from http://www.ieee.org

1.5 Overview:

SRS includes three chapters.

The 1st chapter is the Introduction specifying the purpose and scope of the PAS system.

The 2nd chapter is the Overall Description which includes the product perspective, product functions, the user characteristics and the constraints.

The 3rd chapter is the Specific Requirements which includes the software product features, the functional requirements, the product requirements for safety and performance, and the system attributes.

2. Overall Description

2.1 Product Perspective

The PAS acts as an interface between the applicant and the passport officer. It tries to make the interface as simple as possible at the same time not risking the security of data stored. The processing of the application is automated and this reduces the time duration in which the user receives the passport.

2.2 System Interfaces

The PAS will use a relational database as backend for data storage. The client system should be able to share the data available in the database through the network connection.

2.2.1 User Interfaces

The PAS will provide an easy to use GUI as part of the working environment for the applicant and the passport officer to interact with the system.

2.2.2 Hardware Interfaces

A scanner is used to scan and upload the documents needed for verification.

2.2.3 Software Interfaces

The System uses ODBC drive version 6.0 to connect and control the database.

2.2.4 Communication Interfaces

LAN is used for communication among the client and server system.

2.2.5 Memory Constraints

A minimum of 64MB RAM is needed for the client system.

2.2.6 Operations

The applicant is required to fill and submit the application form and also scan and upload documents needed for the verification process.

The police must verify the details forwarded by the system and submit the verification report to the passport officer.

The passport officer must verify and approve the dispatch of passport for the applicants based on the verification report submitted by the police. He must also update the status of the application in each stage of the process.

2.3 Product Functions

- Secure registration of information by the applicants
- Display of passport application status

- SMS and e-mail updates to the applicants from the passport office
- Passport officer can generate reports from the information and add eligible application to the database

2.4 **User Characteristics**

Applicant – person who applies for the passport and submits information. He need not be a person with special skills and training. He is the average common man.

Passport Officer – person with the privilege to update the application status, approve the issue of passport and access the applicant information. He should have the skills and necessary training to manage the database and the system.

Police – person who verifies the details on receiving intimation from the passport officer. He should have basic computer knowledge to communicate via the PAS to submit the verification report.

2.5 **Constraints**

- The applicant requires a computer with a scanner to upload documents for verification
- Security is of much importance as there is always a chance of intrusion in the web world
- Should support many users simultaneously
- Must display appropriate error messages while filling the application form

2.6 **Assumptions and Dependencies**

If the applicant is under 18 years of age, the details of the parents passport information can be used to obtain the passport.

3. Specific Requirements

3.1 **Functional Requirements**

3.1.1 **Apply**

Input: The Applicant fills in the application form available in the online interface giving the personal details and family information, and submits the application form.

Process: The details furnished by the applicant are stored in the database

Output: The database is updated with the new applicant details and appropriate message is sent to the applicant

3.1.2 Check Status

Input: The applicant enters the application number and login password

Process: The applicant password is verified and if correct, the database table containing the status information is searched with the application number provided by the user.

Output: The status message from the table is displayed for the applicant on the screen

3.1.3 Renewal

Input: The passport holder gives the passport number, passport holder's name and the expiry date for the validity**.**

Process: The given details are verified in reference with the existing information in the database. If found to be valid, the passport is renewed and the database updated.

Output: The renewed passport is dispatched to the user.

3.1.4 Update Status

Input: The passport officer gives the application number and the status for that application

Process: The database is updated with the new status message

Output: The updated database and the message to the applicant

3.1.5 Verification

Input: The details furnished by the applicant in the application form

Process: The details are cross checked with information in already existing databases

Output: The verification report

3.1.6 Online Payment

Input: The account details of the applicant

Process: The service of an external module provided by the bank is used to process the payment.

Output: The updated status and message to the applicant

3.2 **Performance Requirements**

The system should have a very short response time while displaying forms and messages.

As the system handles personal information and payment details, it should ensure privacy to avoid malpractices.

The system should recover from crashes without any serious loss of data and should always maintain a backup of important information.

3.3 **Design Constraints**

The user interface should be an easy to use GUI that contains forms with hints to fill in the form in correct format and display error messages when not in required format.

The database should be accessible only to the passport officer.

The system should easily adapt to future changes and hence must be modular.

3.4 **Software System Attributes**

3.4.1 **Reliability**

To make the PAS system reliable, we must ensure that duplication is avoided

3.4.2 **Availability**

The system should be available to the applicant to check his status at any stage of the process, once it has been submitted. It must support more than one user at a time.

3.4.3 **Security**

- To avoid unauthorized access, the applicant, passport officer and police must be given unique login and password protected
- The police should be able to access the information only when notified by the passport officer through the system
- All the documents uploaded by the applicant should be accessible only to the system administrator
- A log of all user logins to the system must e maintained

3.4.4 **Maintainability**

- The PAS system should be frequently updated with any changes that may have occurred in the rules or application interface.
- For easy updation and maintenance, the system should be modular and the user interface simple.

3.4.5 **Portability**

The PAS system should be supported by any operating system and should occupy very less memory space.

3.5 **Logical Database Requirements**

Several tables are used in the database to store various information.

They are:

Register – used to store the details of users registered with the system. It contains the fields: Name, Date of Birth, Username, and Password.

Personal – used to store the details filled in by the applicant in the application form. It contains the fields: Name, Date of Birth, Sex, Address, City, State, Qualification, Profession, Mother's name, Father's Name, Marital status, and Spouse's Name.

Report - contains the verification reports submitted by the police for the reference of the passport officer. It contains the field: Application number, Recommendation.

Renewal Requests – contains the information regarding the renewal requests submitted by passport holders. It contains: Passport number, Passport holder's name and Expiry date.

Status - contains the application status. It contains the fields: Application number, Status and Passport number (if status is approved).

Pre lab Questions:

1. What Is A Software Requirements Specification?
2. What Is SrsIn Project?
3. What Is Requirement Specifications Of The System?
4. What Is Requirement Gathering?
5. How Many Types Of Software Requirements Are There? Specify Them.

Post Lab Questions:

1. What Are User Interface Requirements?
2. What AreThe Contents Of An Effective SRS Document?
3. What Are The Software Requirement Validations?
4. What are Functional and Non Functional Requirements?
5. What Is SRS In Software Engineering?

RESULT:

Thus the software requirement specification for Passport Automation System has been done successfully

Ex.No:1c **USECASE DIAGRAM**

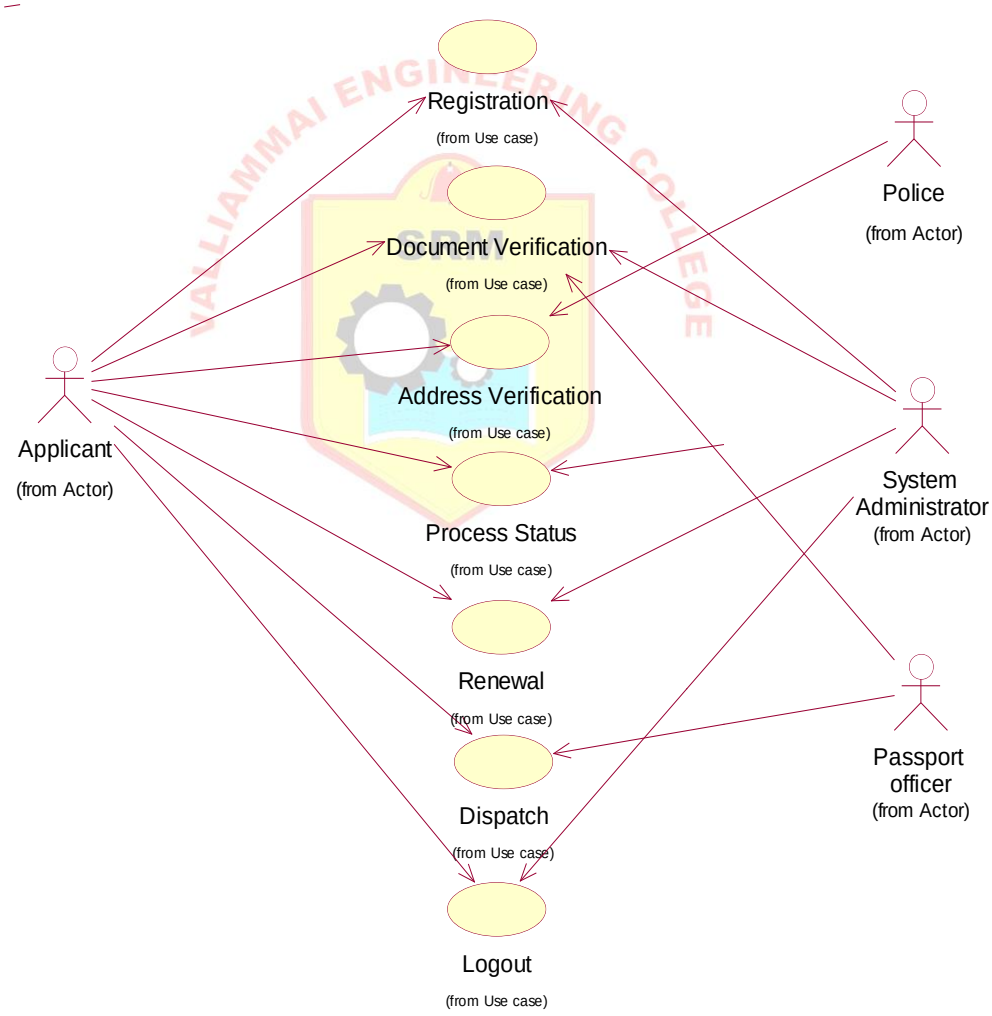
AIM:

To draw use case diagram for Passport Automation System.

Introduction:

In the Unified Modeling Language (UML), a use case diagram can summarize the details of your system's users (also known as actors) and their interactions with the system.

- Scenarios in which your system or application interacts with people, organizations, or external systems
- Goals that your system or application helps those entities (known as actors) achieve
- The scope of your system



Pre Lab Questions:

1. Define UML?
2. What is use case diagram?
3. What is use case?
4. List out the notations of use case diagram.
5. Write the differences of Use case diagram and use case.

Post Lab Questions:

1. What is actor in usecase diagrams?
2. Can you explain primary and secondary actors?
3. How does a simple usecase look like?
4. Can you explain ‘Extend’ and ‘Include’ in usecases?
5. Define modeling in UML and it advantages.

RESULT:

Thus the use case diagram for Passport Automation System has been drawn successfully.

Ex.No:1d **CLASS DIAGRAM**

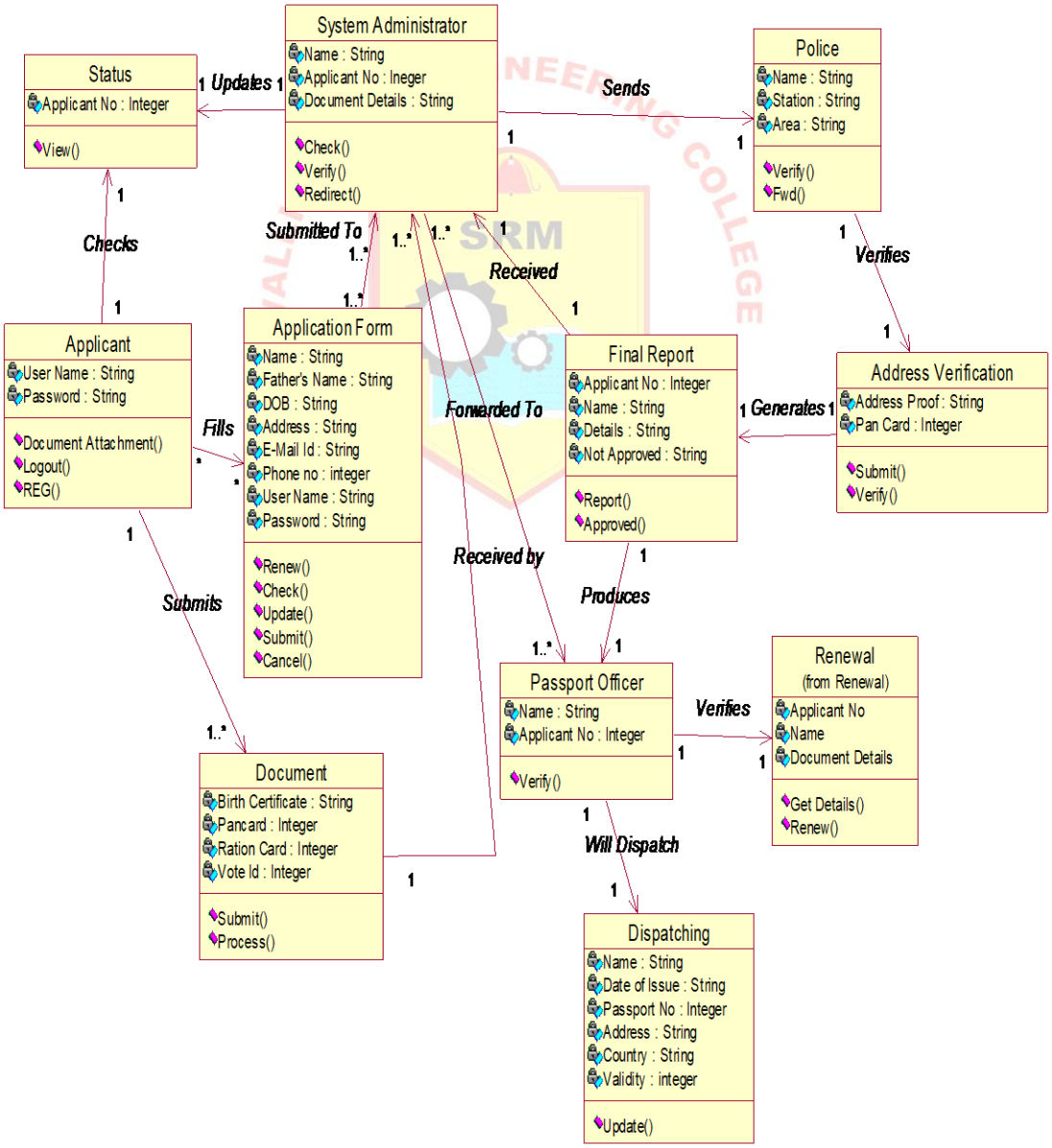
AIM:

To draw class diagram for Passport Automation System.

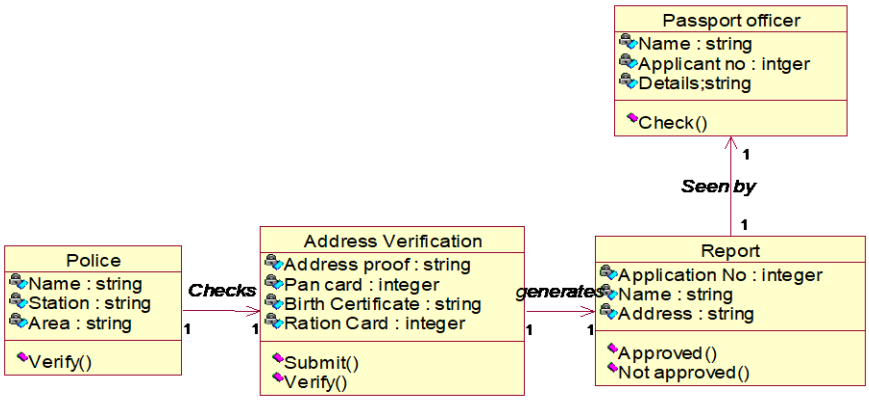
Introduction:

A class diagram models the static structure of a system. It shows relationships between classes, objects, attributes, and operations.

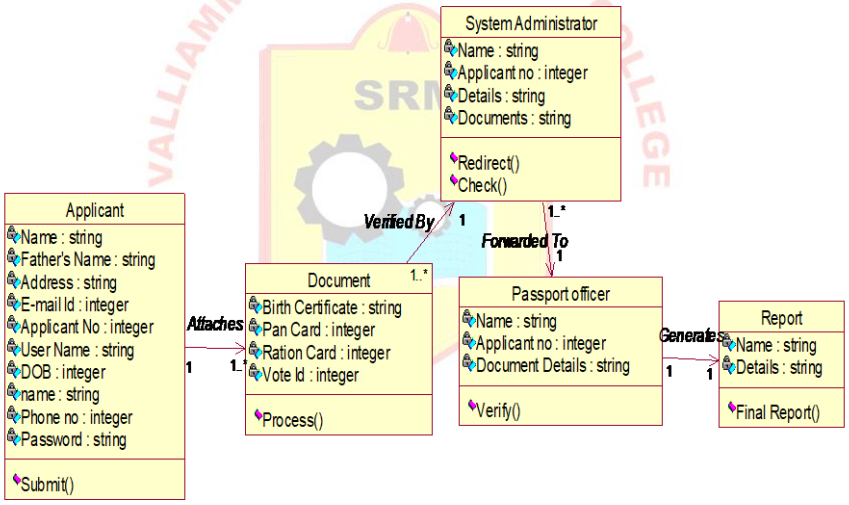
Overall Class Diagram



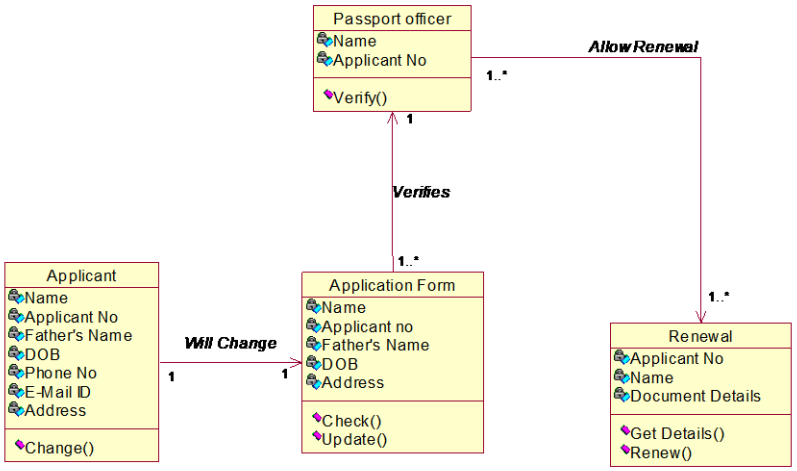
Address Verification



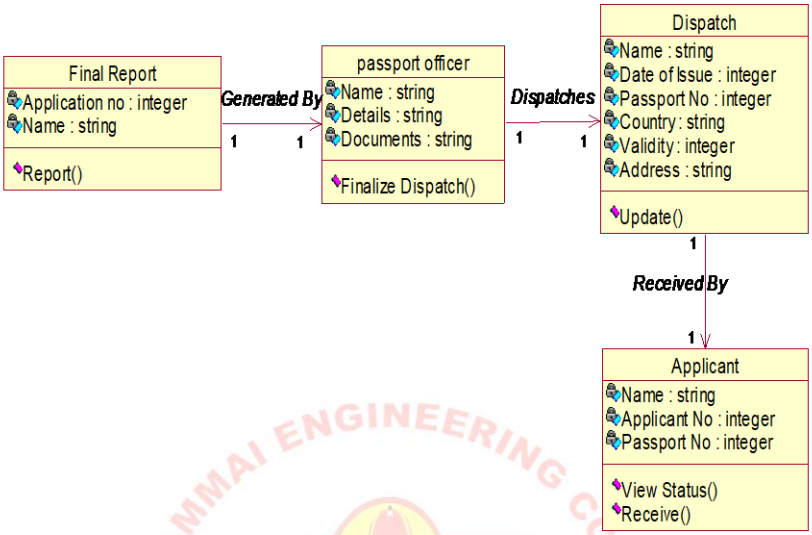
Document Verification



Renewal



Dispatch



Pre lab Questions:

1. What do class diagrams illustrate?
2. What are the notations and partitions of class diagram?
3. What three things does a UML class define?
4. What are the relationships that can be shown in the class diagram?
5. How a UML Use Case is Diagram different from a traditional flow chart?

Post Lab Questions:

1. How do we represent private, public and protected in class diagrams?
2. What does associations, aggregation and composition in a class diagram mean?
3. What are the four principal relationships classes participate in?
4. Which illustrates an “is a” relationship between instances of a class.
5. When is it necessary to use a static or dynamic view class diagram?

RESULT:

Thus the class diagram for Passport Automation System has been drawn successfully.

Ex.No:1e **ACTIVITY DIAGRAM**

AIM:

To draw activity diagram for Passport Automation System

Introduction:

Activity diagram is basically a flowchart to represent the flow from one activity to another activity. The activity can be described as an operation of the system. The control flow is drawn from one operation to another.

Before drawing an activity diagram, we should identify the following elements −

- Activities
- Association
- Conditions
- Constraints

Activity diagram can be used for −

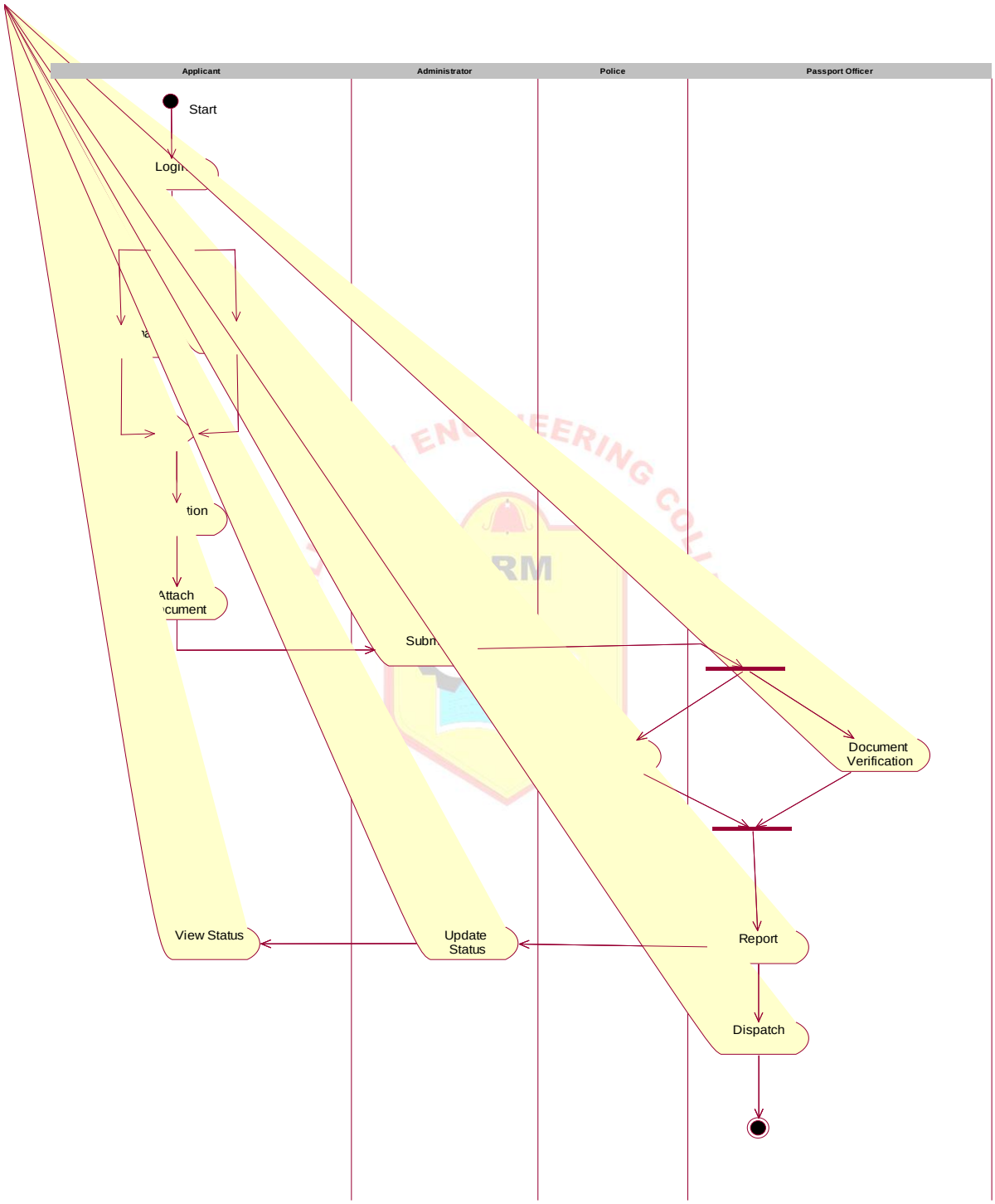
- Modeling work flow by using activities.
- Modeling business requirements.
- High level understanding of the system's functionalities.
- Investigating business requirements at a later stage.

Pre Lab Questions:

1. What the purpose of activity diagram?
2. Draw the activity flow of a system.
3. How the activity diagram is used in a system?
4. What are the benefits of activity diagram?
5. What is Conditional logic?

Post Lab Questions:

1. What are the components of activity diagram?
2. What is decision node?
3. State the differences of fork and join.
4. When the activity diagram cannot be used?
5. What are the pros and cons of activity diagram?



RESULT:

Thus the activity diagram for Passport Automation System has been drawn successfully.

Ex.No:1f **INTERACTION DIAGRAM**

AIM:

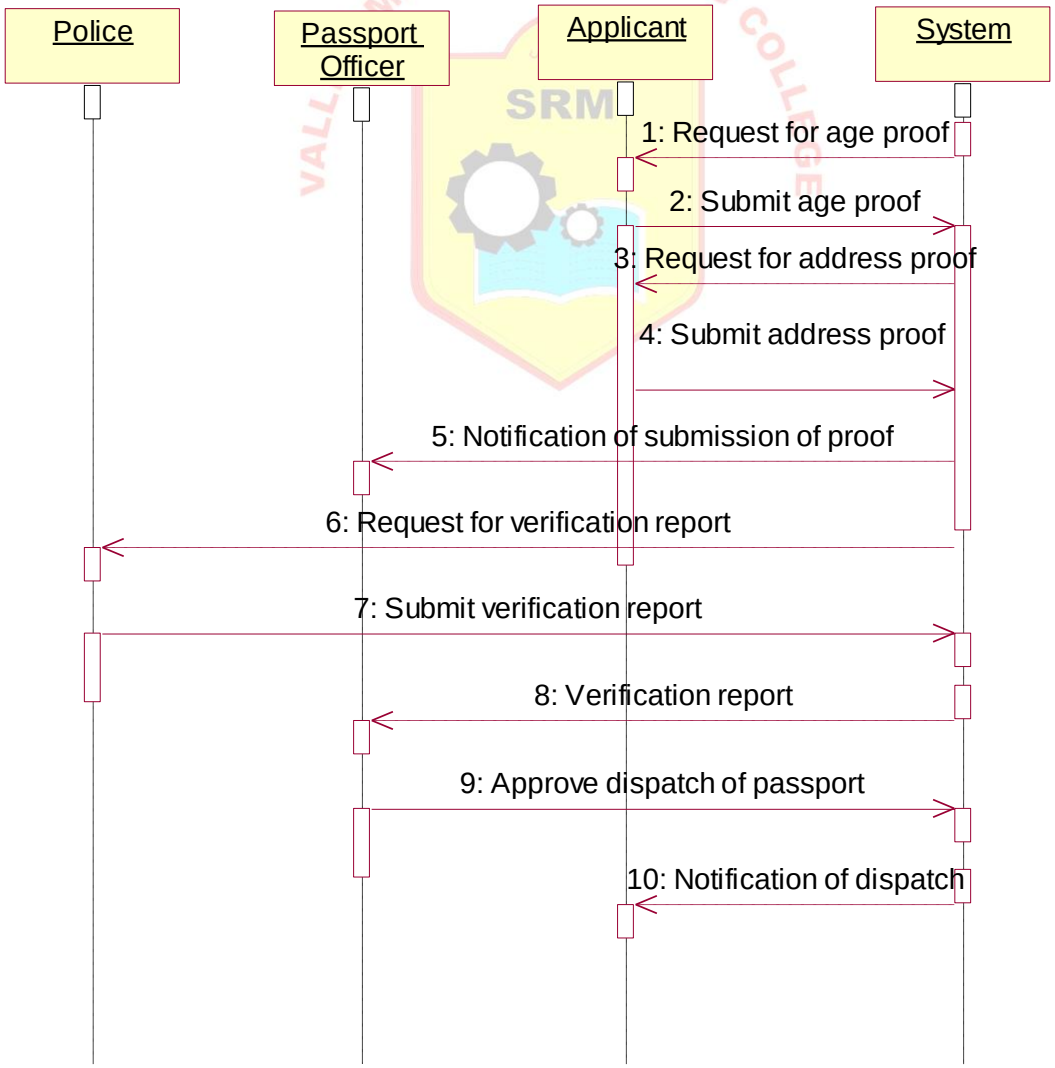
To draw interaction diagram for Passport Automation System

SEQUENCE DIAGRAM

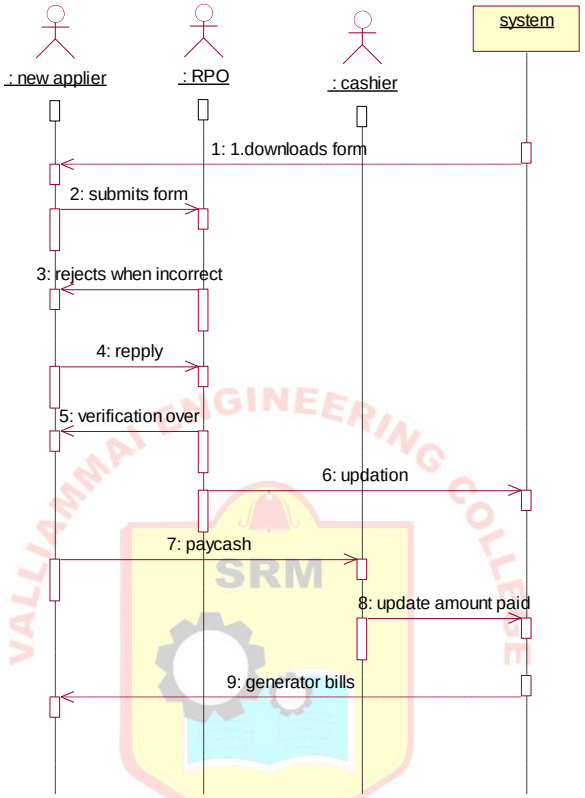
Introduction:

Sequence diagrams are sometimes called event diagrams or event scenarios. A sequence diagram shows, as parallel vertical lines (lifelines), different processes or objects that live simultaneously, and, as horizontal arrows, the messages exchanged between them, in the order in which they occur.

SEQUENCE DIAGRAM FOR VERIFICATION AND DISPATCH:



SEQUENCE DIAGRAM FOR FRESH APPLIER:



Pre lab questions:

1. What is Interaction diagram?
2. What are the different interaction diagram notations does UML have?
3. What is a sequence diagram?
4. What is a lifeline?
5. What does a message mean?

Post Lab Questions:

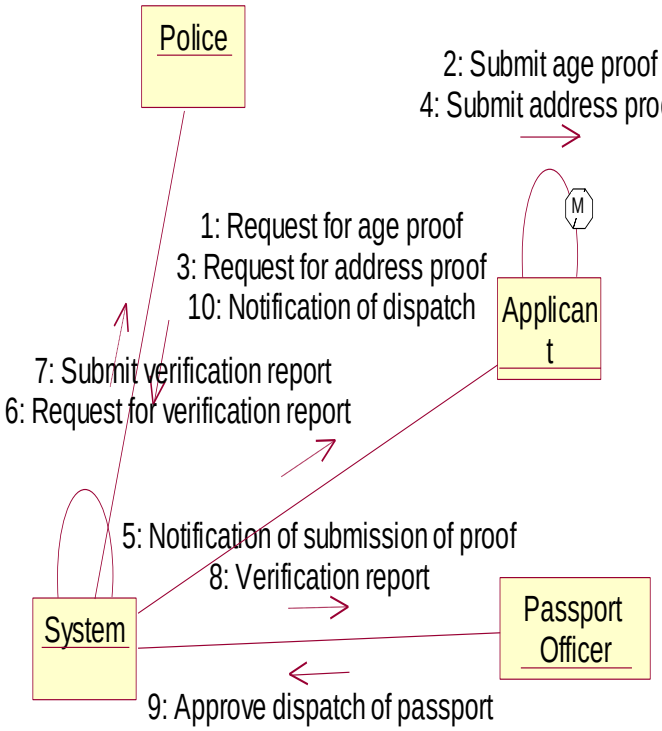
1. What is an interaction fragment?
2. When is the operation executing, suspended and active?
3. What is break fragment?
4. What are the three different types of message arrows?
5. What are the heuristics which sequencing diagram follows?

COLLABORATION DIAGRAM

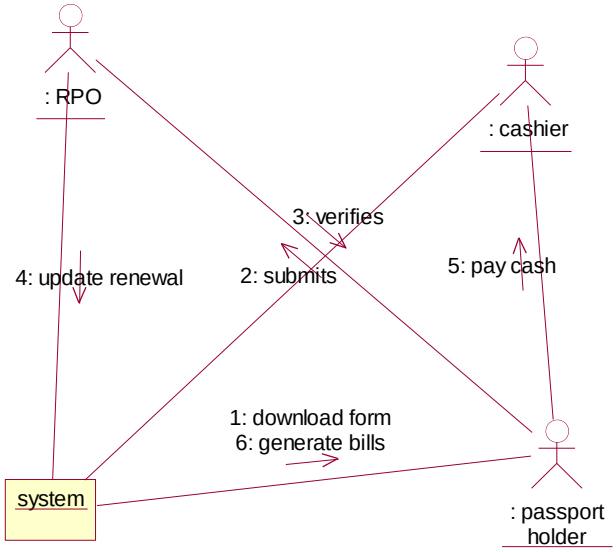
Introduction:

A collaboration diagram, also called a communication diagram or interaction diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML). A collaboration diagram often comes in the form of a visual chart that resembles a flow chart.

COLLABORATION DIAGRAM FOR VERIFICATION AND DISPATCH:



Collaboration diagram for renewal:



Pre Lab Questions:

1. What is collaboration diagram?
2. What are the symbols used in collaboration diagram?
3. What are the notations used in collaboration diagram?
4. How the messages interact between the objects.
5. How the conditional statements are denoted by?

Post Lab Questions:

1. What is sequence number?
2. Is it possible to group the sequence number?
3. How the messages are represented by?
4. What is looping?
5. What are the advantages of collaboration diagram?

RESULT:

Thus the interaction diagram for Passport Automation System has been drawn successfully.

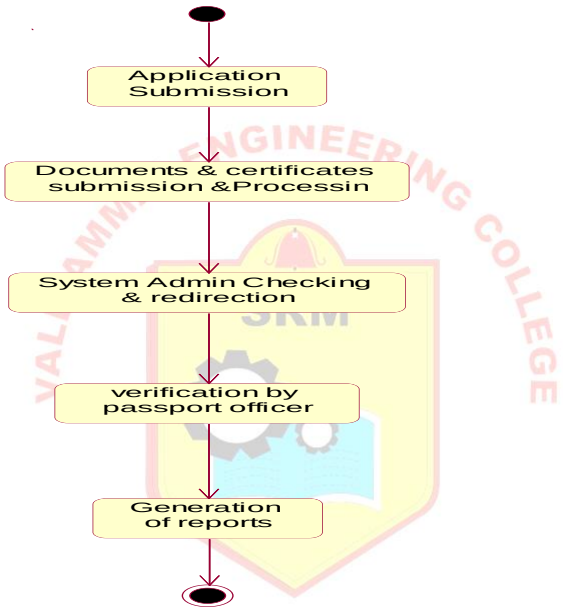
Ex.No:1g STATE CHART DIAGRAM

AIM:

To draw state chart diagram for Passport Automation System

Introduction:

State diagram describes the behavior of a single object in response to a series of events in a system. This UML diagram models the dynamic flow of control from state to state of a particular object within a system.



Pre Lab Questions:

1. How to draw a state chart Diagram?
2. Where to use state chart diagram?
3. What is a state?
4. What is an event?
5. What is composite state?

Post Lab Questions:

1. What is self-transition?
2. Give the notation for initial state and final state?
3. What is the difference between state chart diagram and sequence diagram?
4. What are the basic components of state chart diagram?
5. Can we use fork and join in state chart diagram? If yes, how to use?

RESULT:

Thus the state chart diagram for Passport Automation System has been drawn successfully.

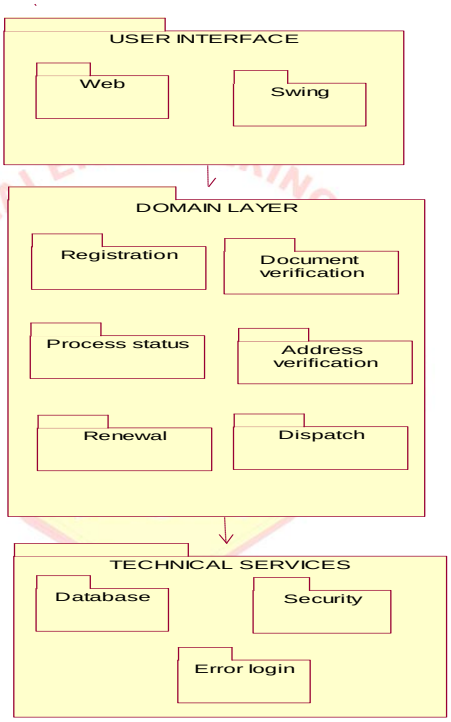
Ex.No:1h PACKAGE DIAGRAM

AIM:

To draw package diagram for Passport Automation System.

Introduction:

Package diagram is used to simplify complex classdiagrams;we can group classes into packages. Apackage is a collection of logically related UML elements. Packages appear as rectangles with small tabs at the top.



Pre lab Quesitions:

1. What are the three layers of package diagram?
2. How the public elements of a package are accessible?
3. How the packages can merge?
4. What is visibility?
5. Name the elements of package diagram.

Post lab Quesitions:

1. What is the difference between template and package template?
2. How the packages can merge?
3. How the packages can import?
4. What does '+' symbol and '-'symbol represents in package diagram.
5. What is the difference between public and private visibility?

RESULT:

Thus the package diagram for Passport Automation System has been drawn successfully.

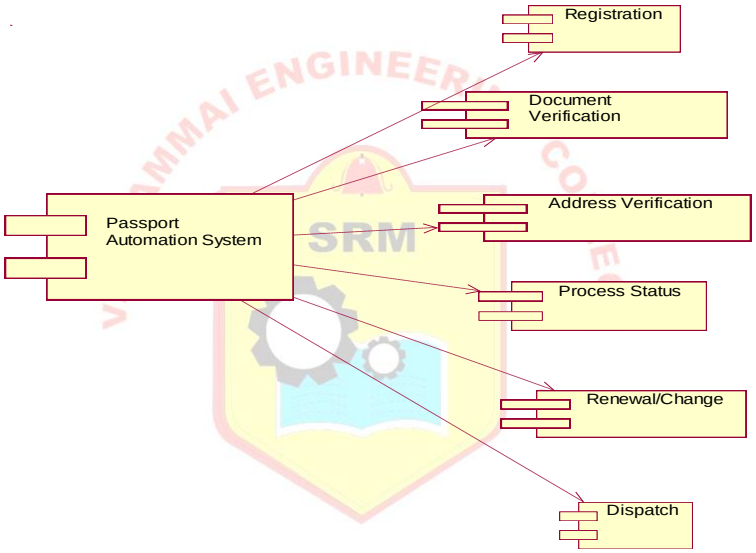
Ex.No:1i COMPONENT DIAGRAM

AIM:

To draw component diagram for Passport Automation System.

Introduction:

The purpose of a component diagram is to show the relationship between different components in a system. The term "component" refers to a module of classes that represent independent systems or subsystems with the ability to interface with the rest of the system.



Pre Lab Questions:

1. What is the purpose of component diagram?
2. How to draw a component diagram?
3. Where to use component diagrams?
4. What is meant by artifacts?
5. What are the benefits of component diagram?

Post Lab Questions:

1. Recollect the symbols and shapes used in component diagram.
2. What is an interface?
3. What is dependency?
4. How the relationship among the artifact can be represented?
5. What is the difference between libraries and folders?

RESULT:

Thus the component diagram for Passport Automation System has been drawn successfully.

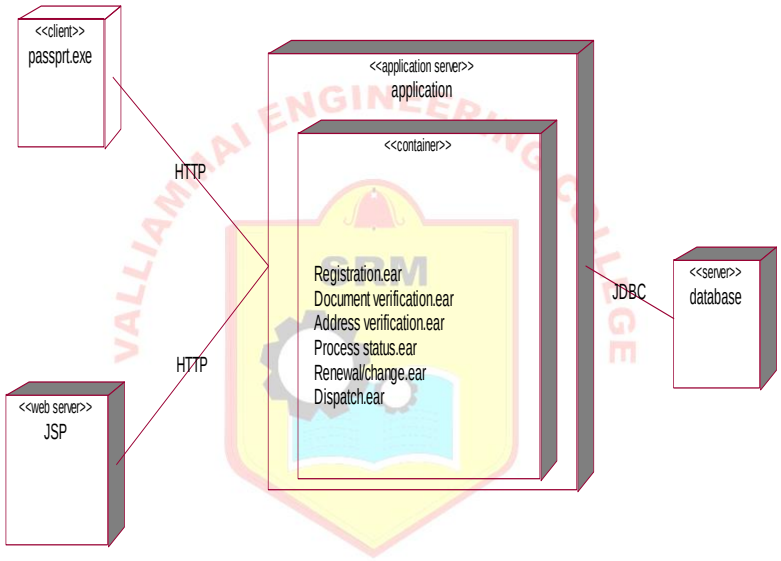
Ex.No:1j **DEPLOYMENT DIAGRAM**

AIM:

To draw deployment diagram for Passport Automation System.

Introduction:

Deployment diagram is a structure diagram which shows architecture of the system as deployment (distribution) of software artifacts to deployment targets. Artifacts represent concrete elements in the physical world that are the result of a development process.



Pre Lab Questions:

1. What is deployment diagram?
2. What are the limitations of your physical hardware?
3. Which distribution architecture are you using?
4. Do you have all the nodes you need? Do you know how they are all connected?
5. Do you know which components are going to be on which nodes?

Post Lab Questions:

1. What are the elements of deployment diagram?
2. What is the difference between software component and software component?
3. Name some of the deployment diagram applications.
4. How the database can be connected?
5. What are runtime processing nodes?

RESULT:

Thus the deployment diagram for Passport Automation System has been drawn successfully.

Ex.No :1k IMPLEMENTATION OF PASSPORT AUTOMATION SUSTEM

AIM:

To write a code for the passport automation system.

FORM1:

Private Sub Command1_Click()

```
If (Text1.Text = "vignesh" And Text2.Text = "1234") Then
MsgBox "valid"
Form1.Hide
Form2.Show
Else
MsgBox "invalid"
End If
```

End Sub

FORM2:

Private Sub Command1_Click()

```
Form2.Hide
Form3.Show
```

End Sub

Private Sub Command2_Click()

```
Form2.Hide
Form4.Show
```

End Sub

Private Sub Command3_Click()

```
Form2.Hide
Form5.Show
```

End Sub

Private Sub Command4_Click()

```
Form2.Hide
Form1.Show
```

End Sub

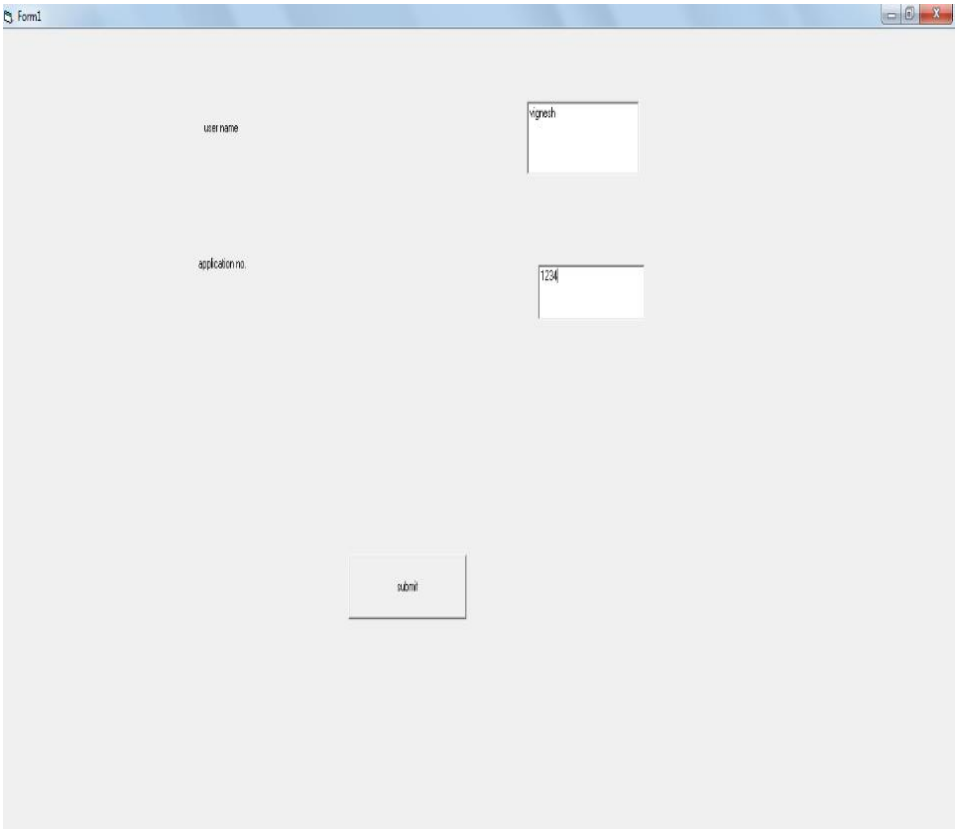
FORM3:

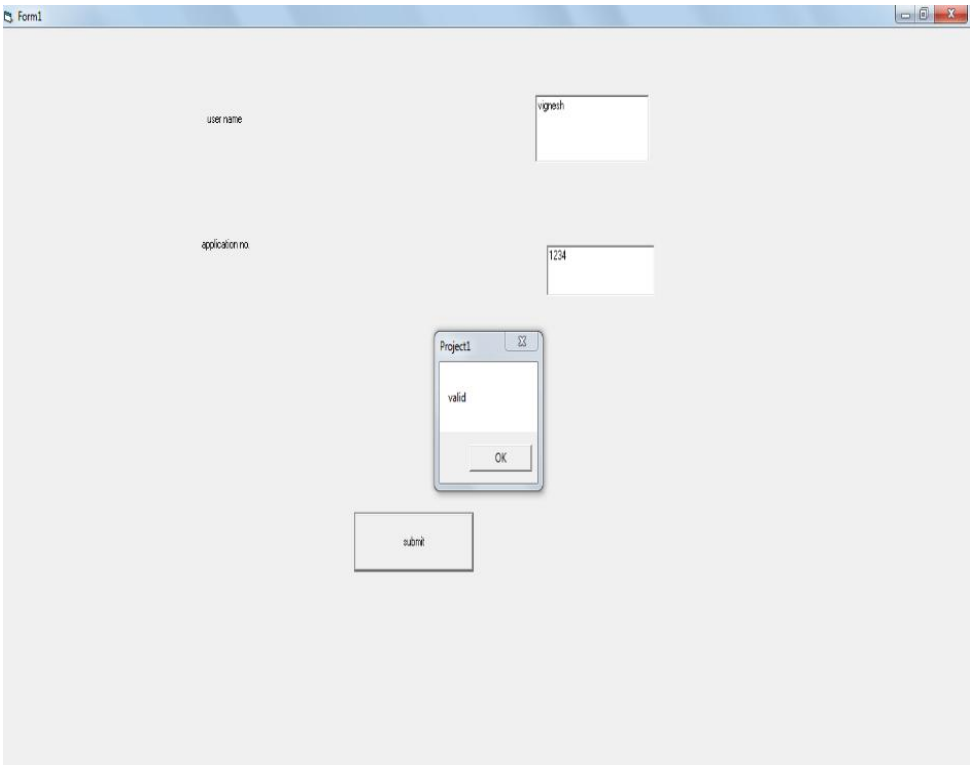
Private Sub Command1_Click()

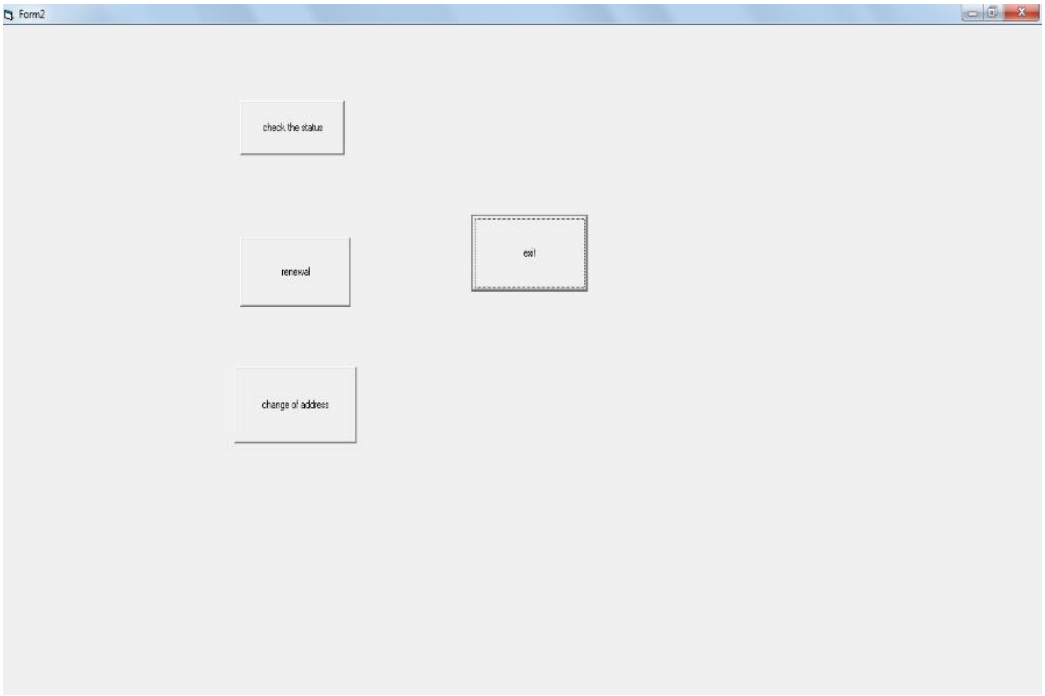
```
If (Text2.Text < 30) Then
MsgBox "stillprocessing"
Else
If (Text2.Text > 30 And Text2.Text < 50) Then
MsgBox "police verification goin on"
Else
If (Text2.Text < 80) Then
MsgBox "police verification over"
```

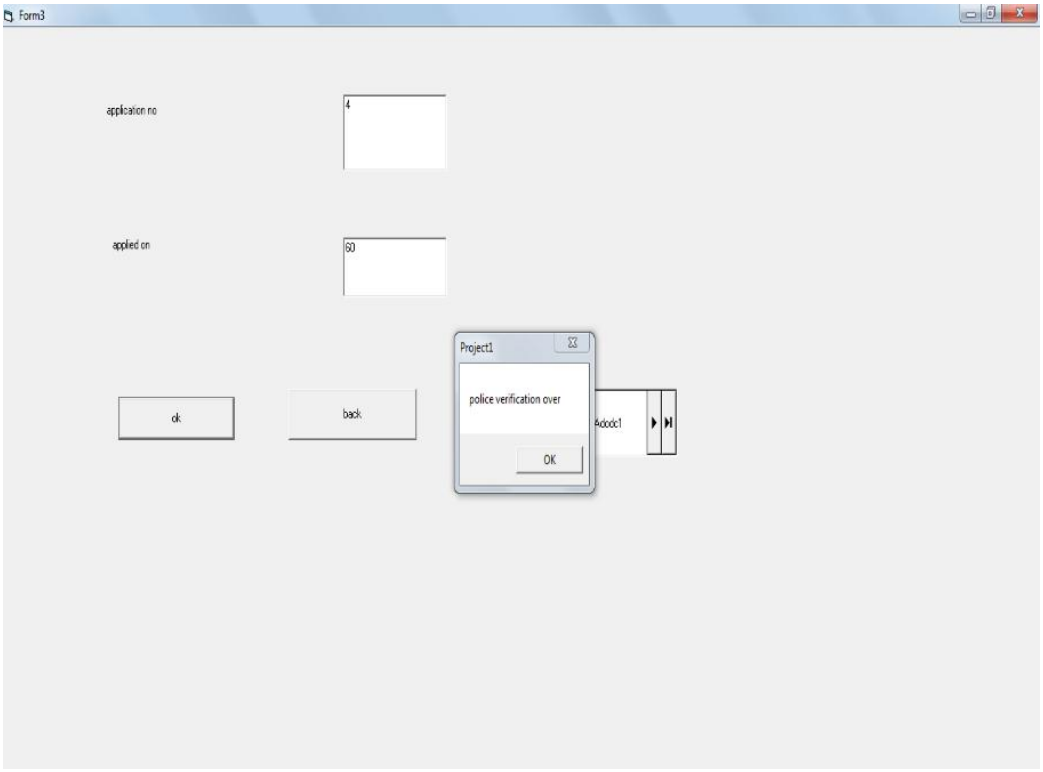
```
Else
MsgBox "invalid"
End If
End If
End If
End Sub
Private Sub Command2_Click()
Form3.Hide
Form2.Show
End Sub
FORM4:
Private Sub Command1_Click()
MsgBox "passport is renewed"
End Sub
Private Sub Command2_Click()
Form4.Hide
Form2.Show
End Sub
FORM5:
Private Sub Command1_Click()
MsgBox "updated successfully"
End Sub
Private Sub Command2_Click()
Form5.Hide
Form2.Show
End Sub
```

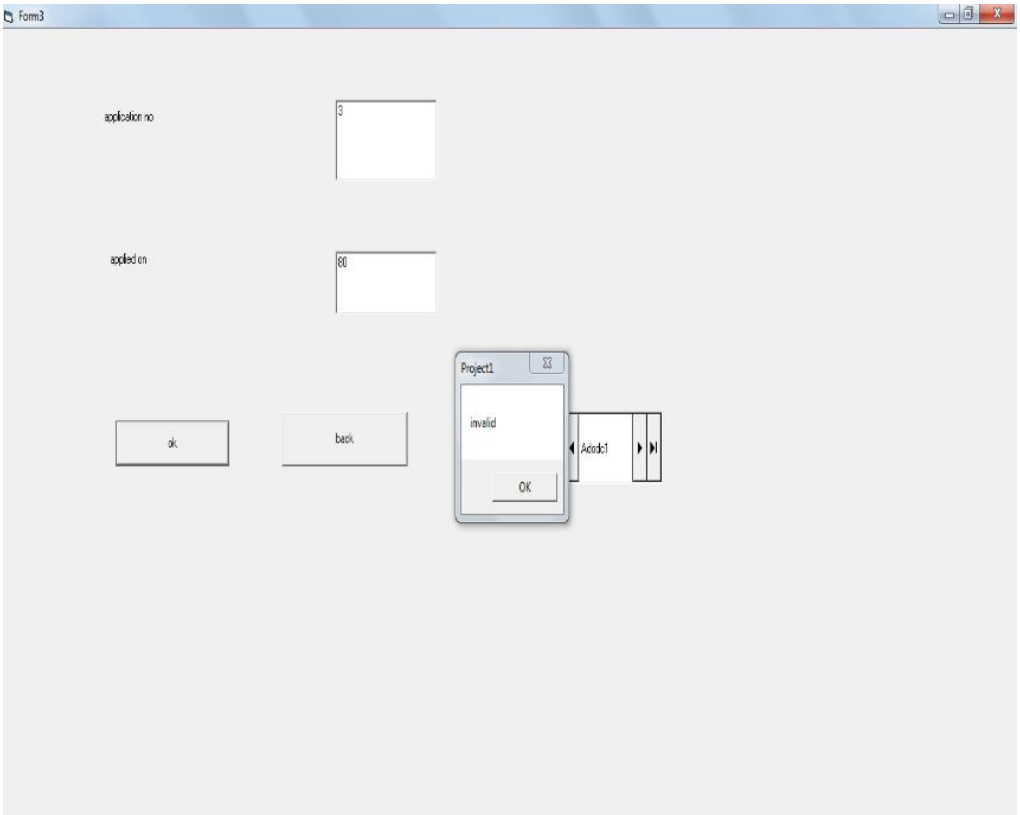
GUI DESIGN:

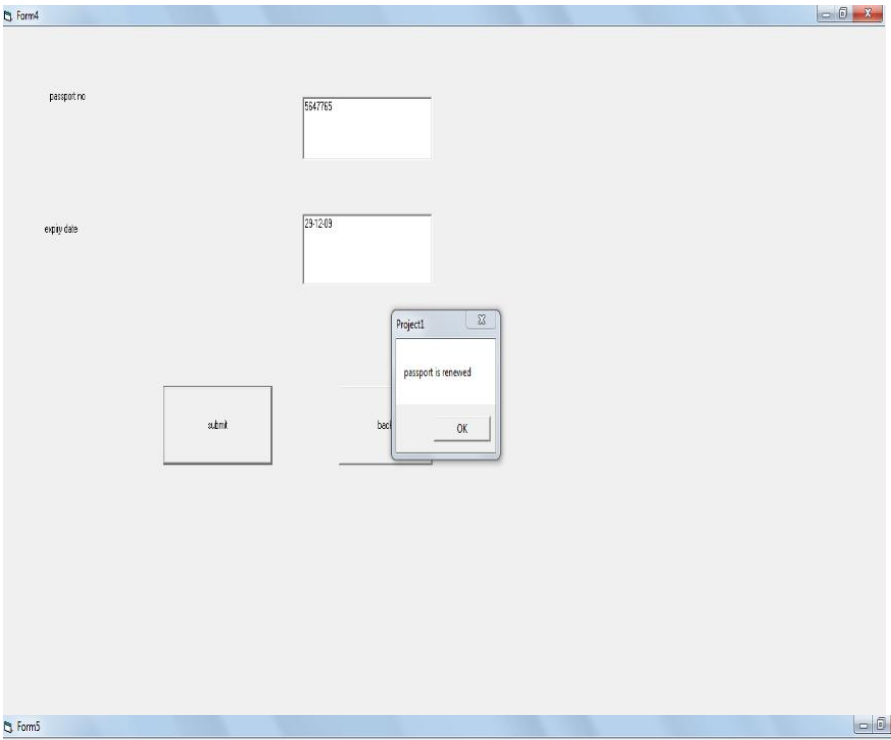


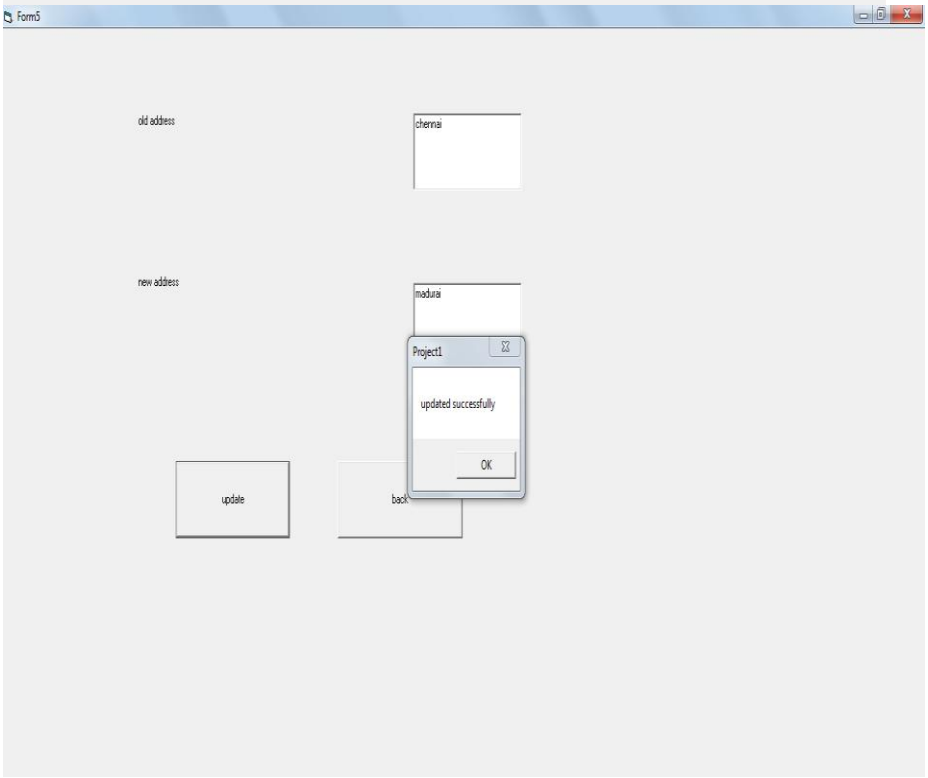

Form1
user name
vignesh
application no.
1234
Project1
valid
OK
submit


Form2
check the status
renewal
change of address
exit


Form3
application no
4
applied on
60
ok
back
Project1
police verification over
OK
Adodc1


Form3
application no
3
applied on
80
ok
back
Project1
invalid
OK
Adodc1





RESULT:

Thus the project to develop a Passport Automation System is done successfully.

Ex.No:2 **BOOK BANK**

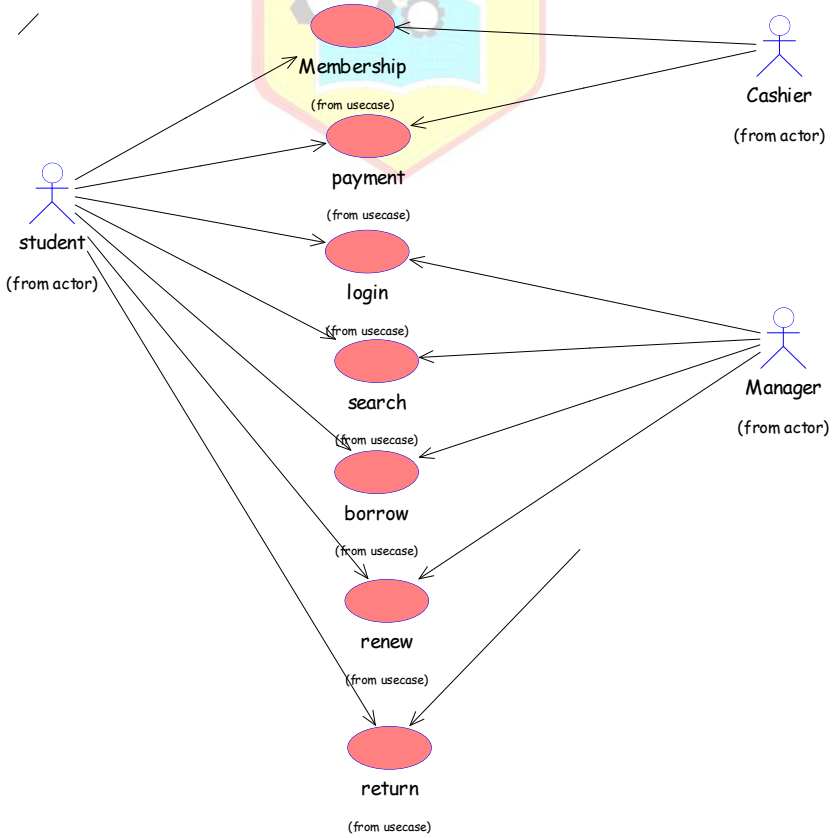
AIM:

The aim of the project is to develop and implement the software for Book bank

PROBLEM STATEMENT:

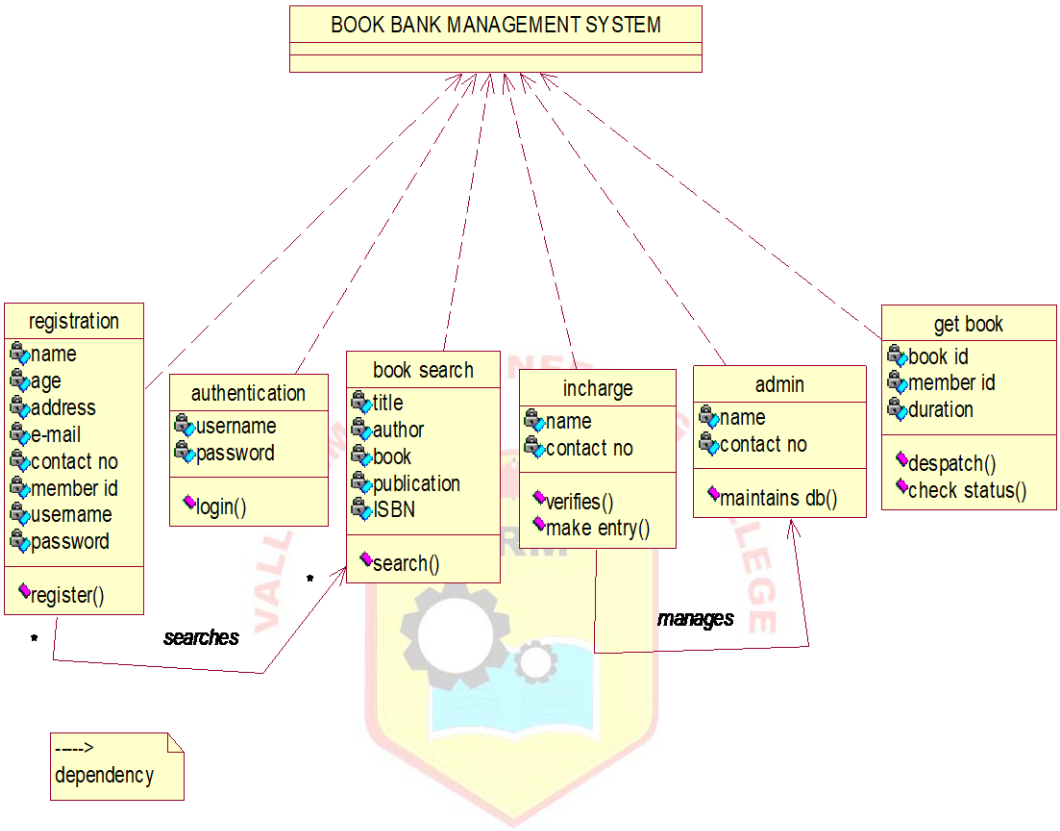
Book bank system is a place where books are managed and maintained efficiently.The books can be collected by the students at every semester and returned at the end of every semester. Students visit the book bank and enquire about the required schemes. The form is filled by the student to join the book bank and there is provision for enrollment for new members by paying deposit. Students are identified by their unique Id no and they use their card to borrow books from the book bank. Membership card is issued to the students once they become the members. Membership can be renewed periodically. On request the book banker checks the book bank on the availability of the requested book by checking the database. If the book is available, the book keeper issues the book to the students or else collects the book in the database. There are additional offers provided for the user for concession.

USECASE DIAGRAM

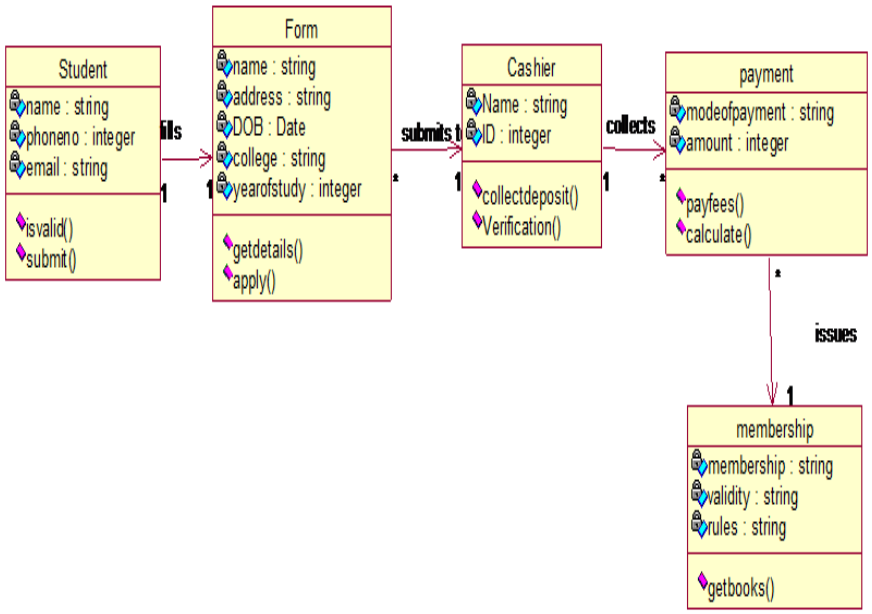


CLASS DIAGRAM

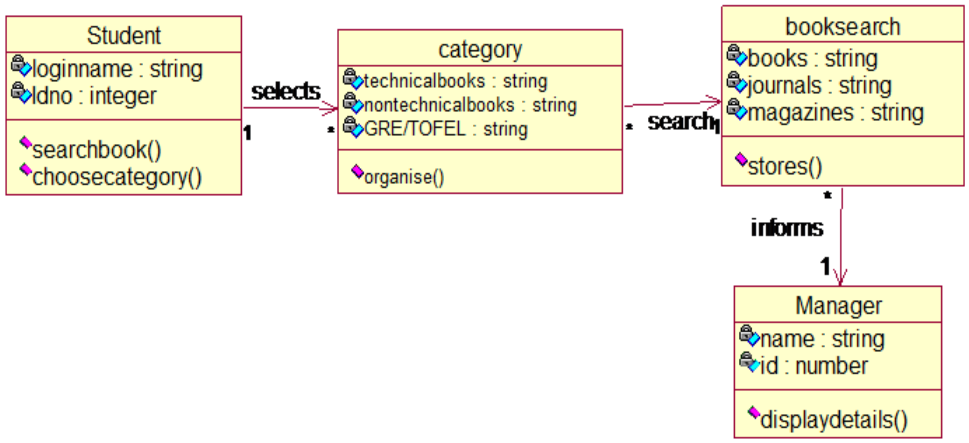
OVERALL CLASS DIAGRAM



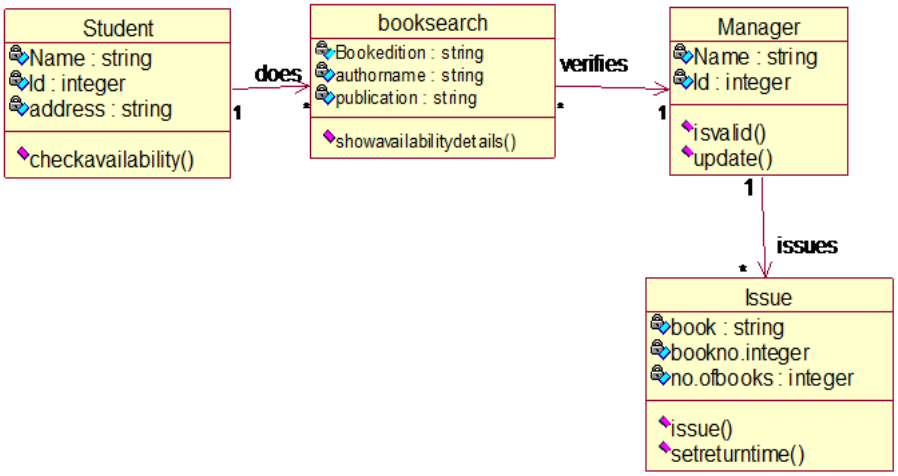
MEMBERSHIP AND PAYMENT:



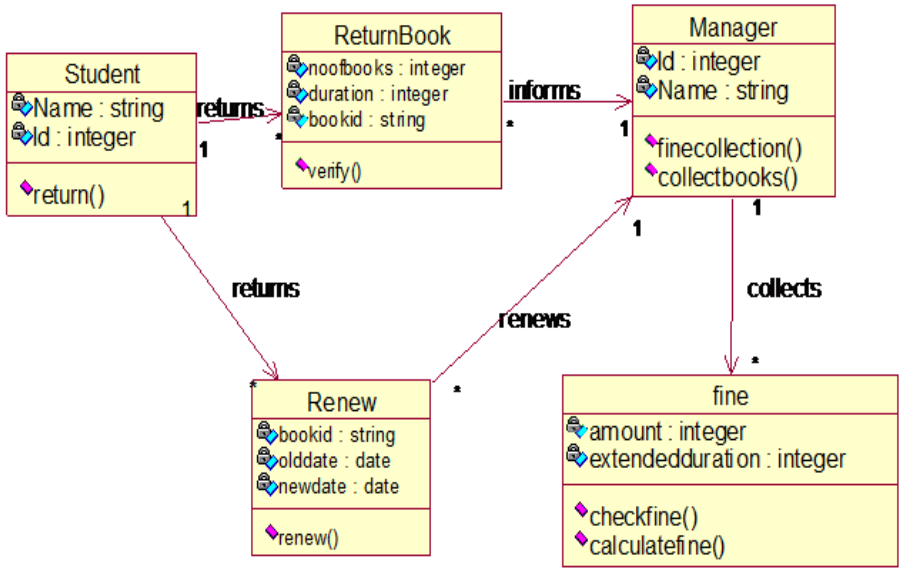
SEARCH BOOK:



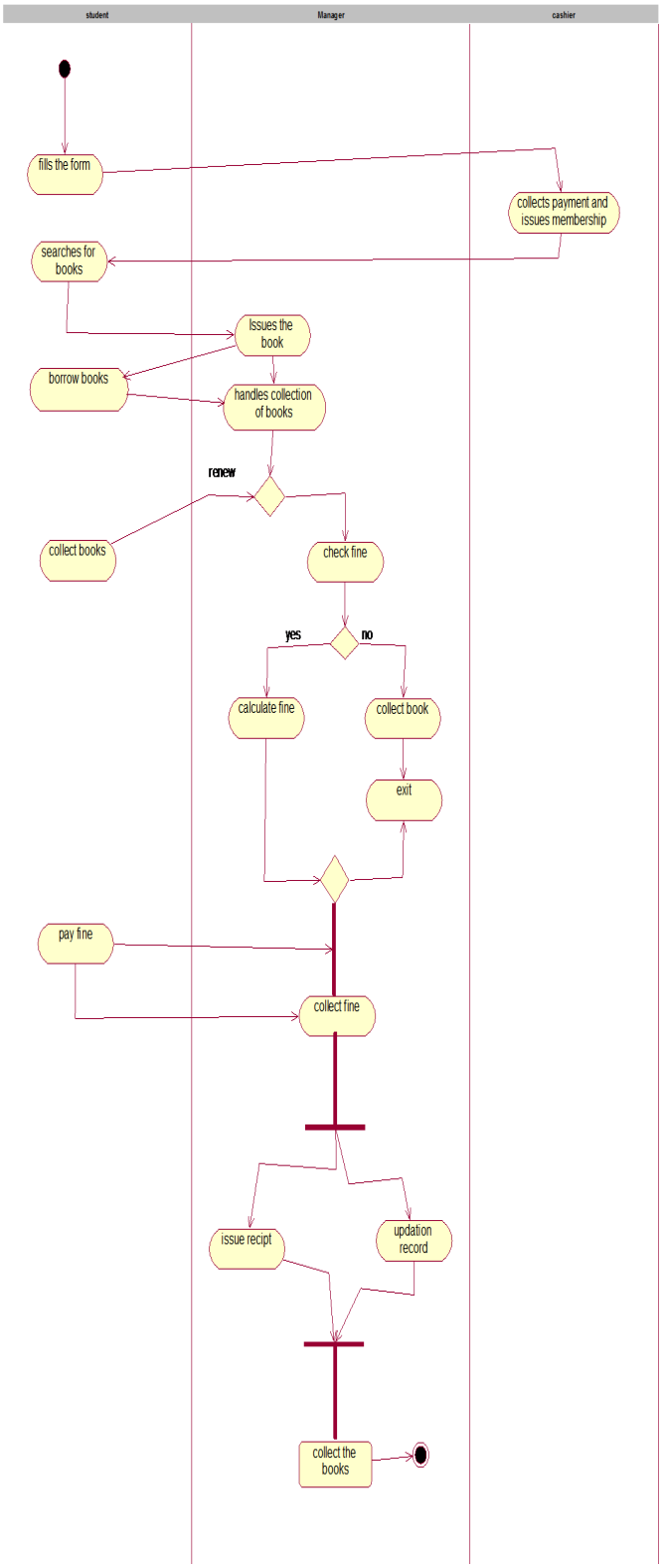
BORROW:



RENEWAL AND RETURN:



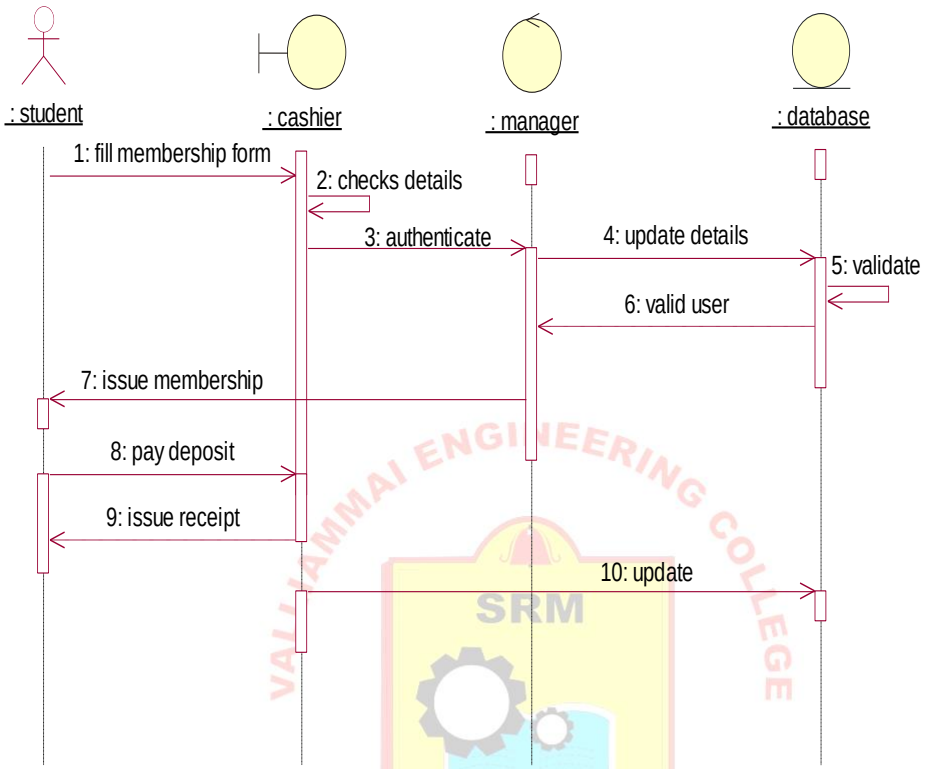
ACTIVITY DIAGRAM



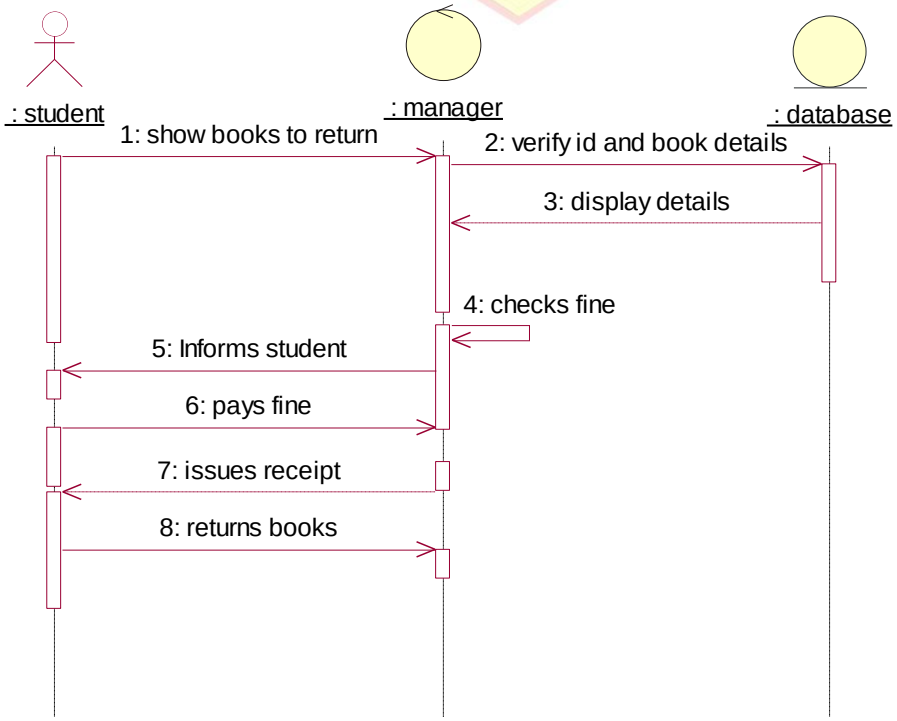
manager cashier

INTERACTION DIAGRAM

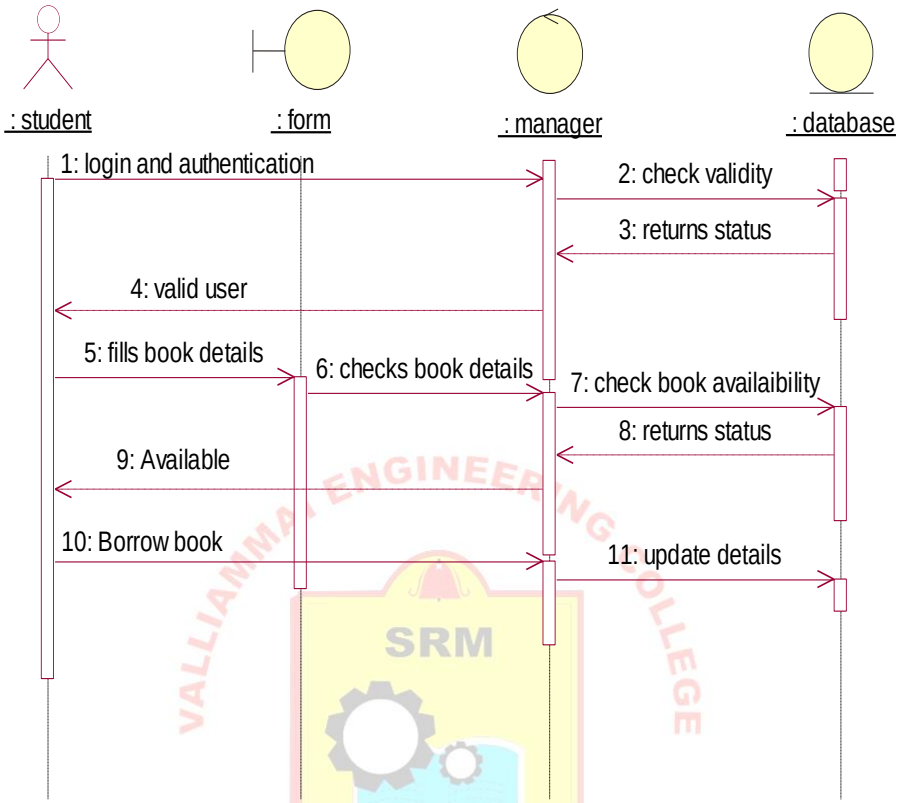
MEMBERSHIP



RETURNS

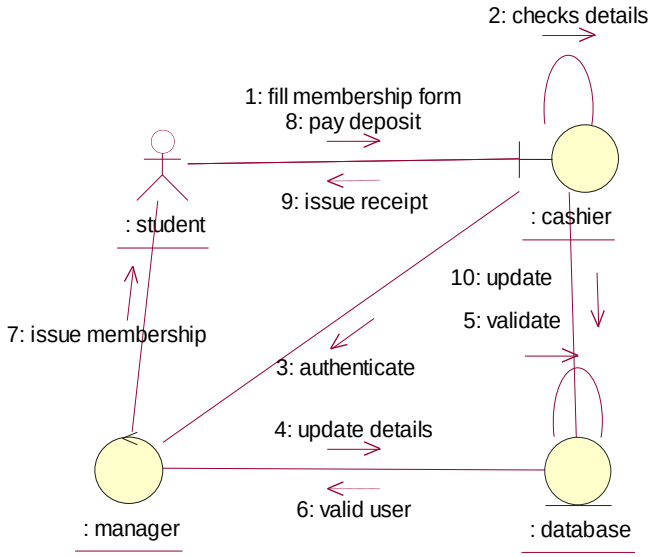


BORROW

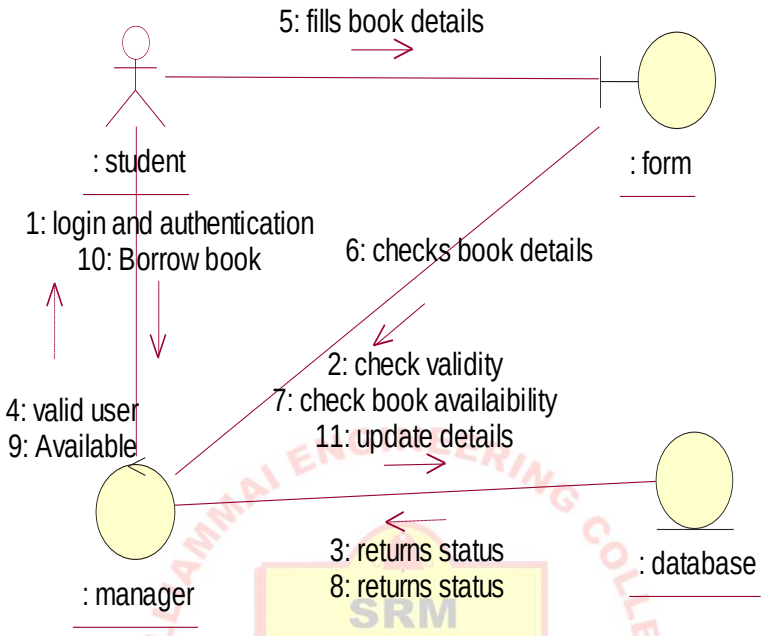


COLLABORATION DIAGRAM

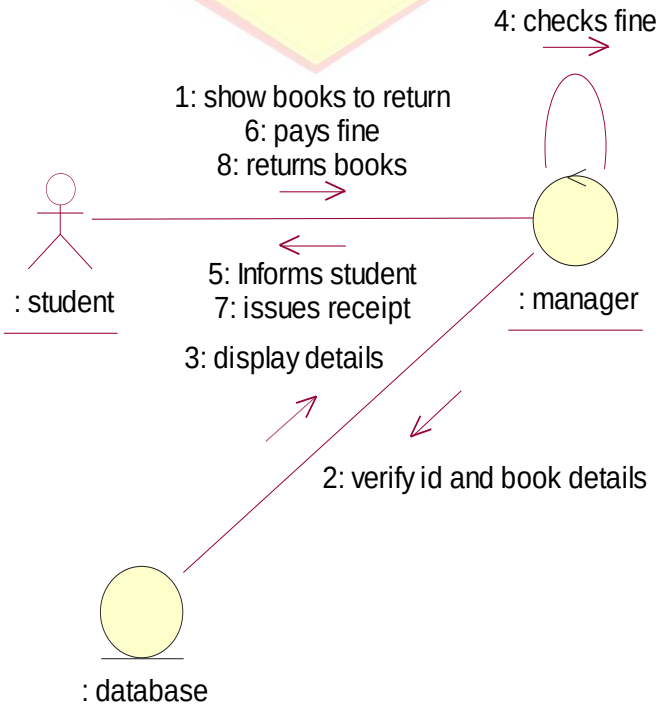
MEMBERSHIP



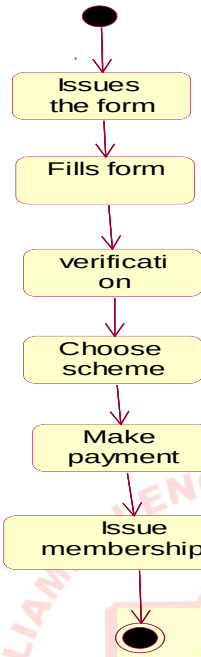
BORROW



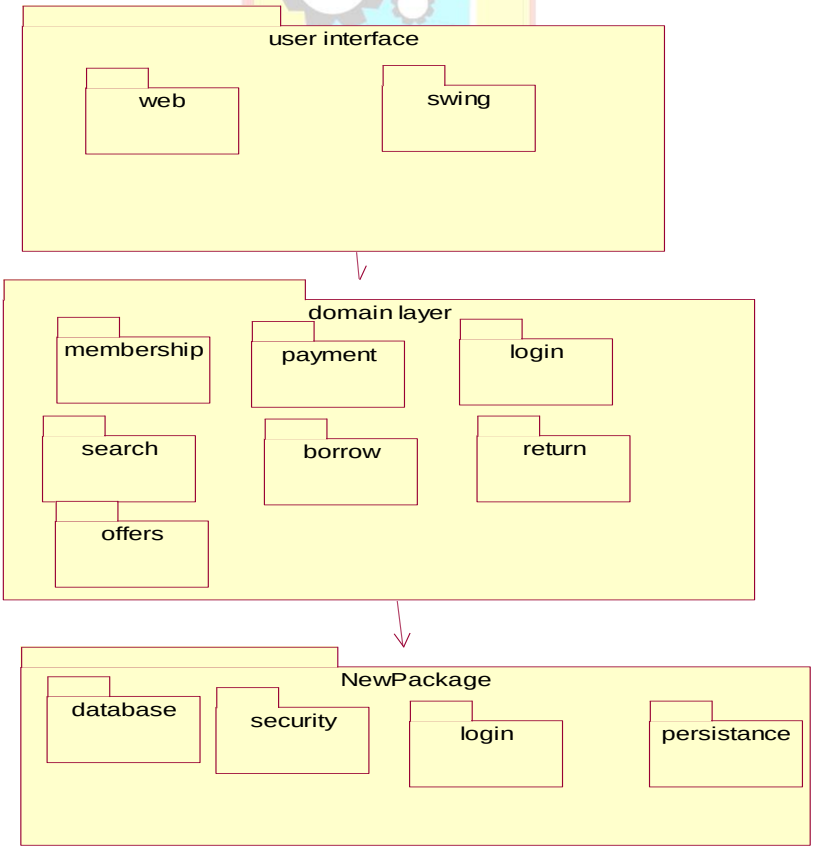
RETURNS



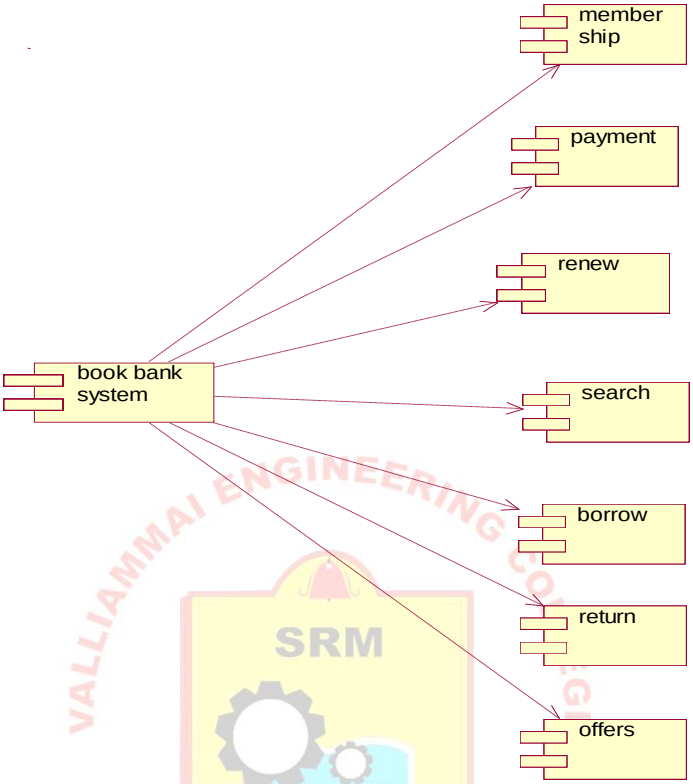
STATE CHART DIAGRAM



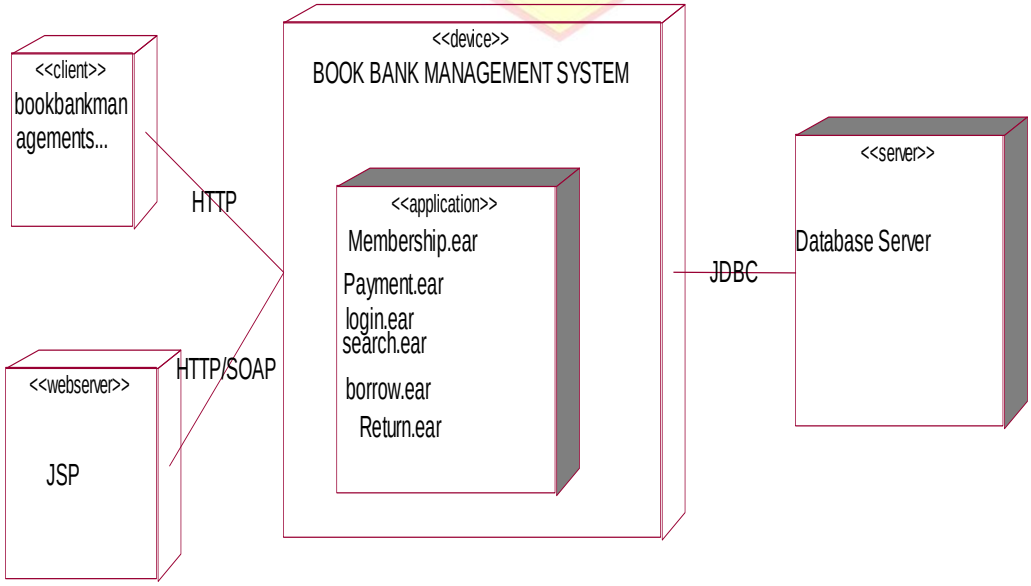
PACKAGE DIAGRAM



COMPONENT DIAGRAM



DEPLOYMENT DIAGRAM



RESULT:

Thus the project to develop a Book Bank Maintenance System is done successfully.

Ex.No: 3 CONFERENCE MANAGEMENT SYSTEMS

AIM:

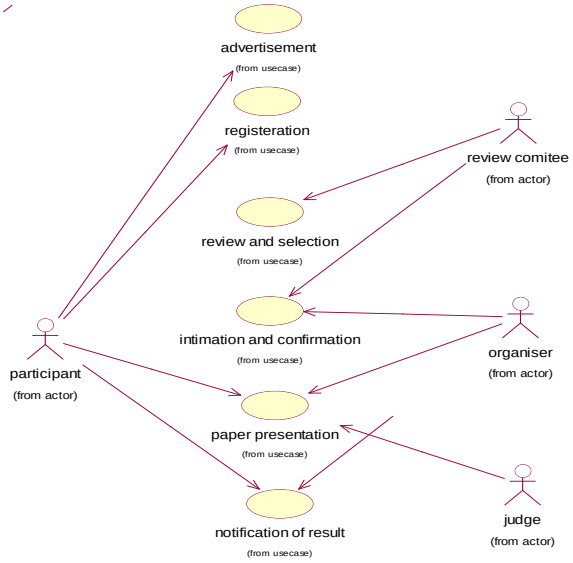
To develop an application to manage Conference Management System that will enable individuals to organize and manage their own conferences and events.

PROBLEM STATEMENT:

The Conference Management System is designed to manage paper submissions, reviewing and conducting conferences. It is a web service that will enable companies or individuals to organize and manage their own conferences and events. The main focus of the proposed system is paper submission and reviewing. This system proposes the participants, organizers and reviewers to do their work in their respective activities.

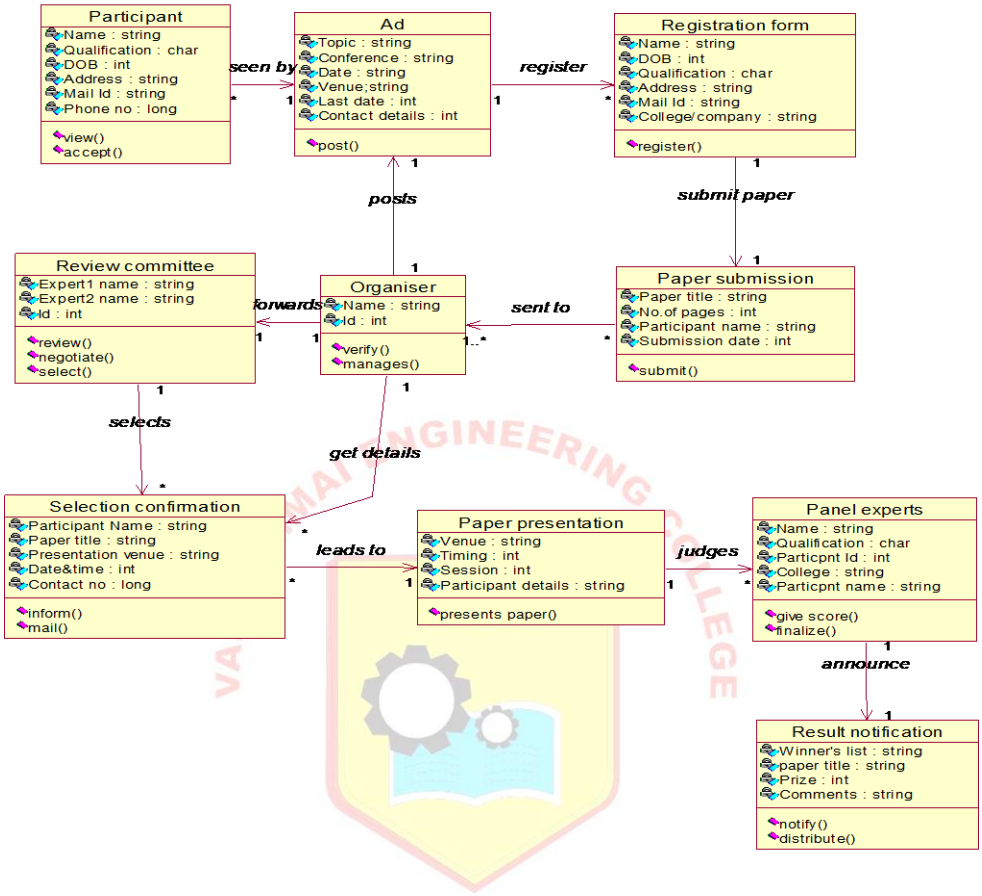
The main benefit of CMS is to reduce the time for receiving and reviewing papers. The goal is to conduct conferences on selected paper. This includes registration of authors, paper submission, reviewer assignments, group emailing, collecting ranks given by reviewers, collecting final accepted paper. The project can be useful be conduct institutional/technical conferences. The primary actor of the conference management system is the participants and the supporting actors are review committee and the organizers. The participants fill the registration form and submit their paper with the required details. The submitted paper is reviewed by the committee and the result is notified to all through mail. The selected papers will be presented in the conference, the judge will review it and the results will be published.

USECASE DIAGRAM

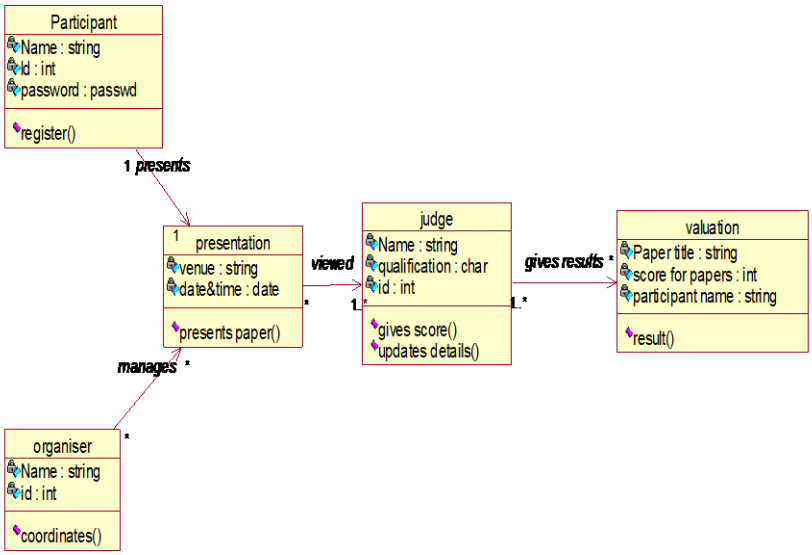


CLASS DIAGRAM

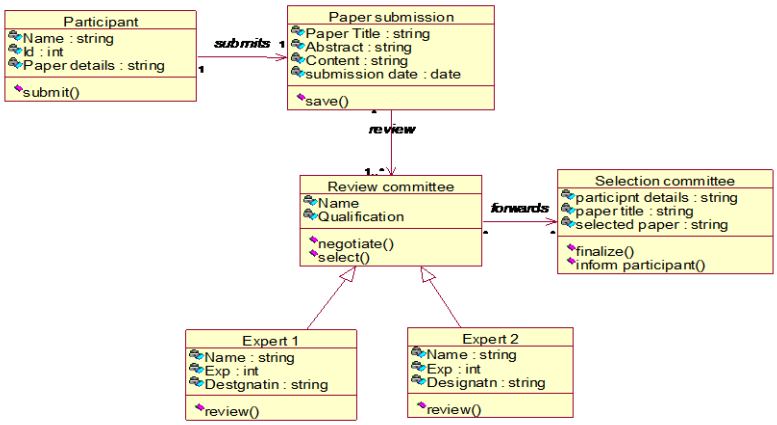
OVERALL CLASS DIAGRAM



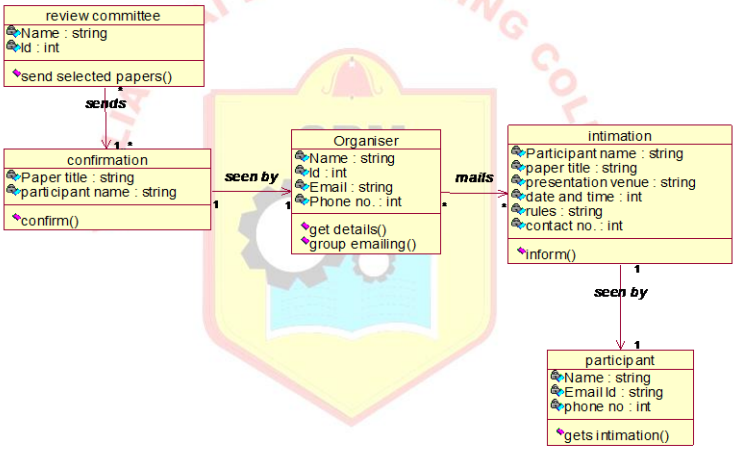
PAPER PRESENTATION:



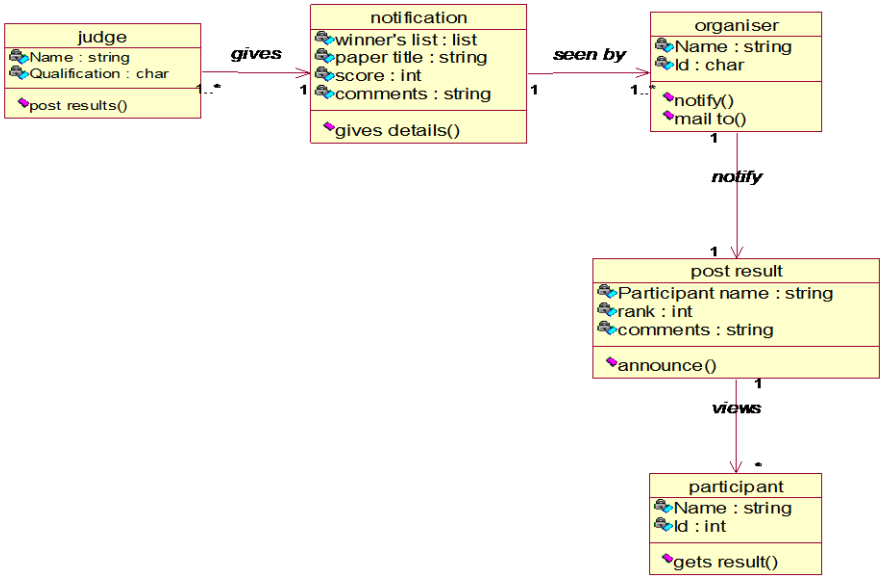
REVIEW AND SELECTION



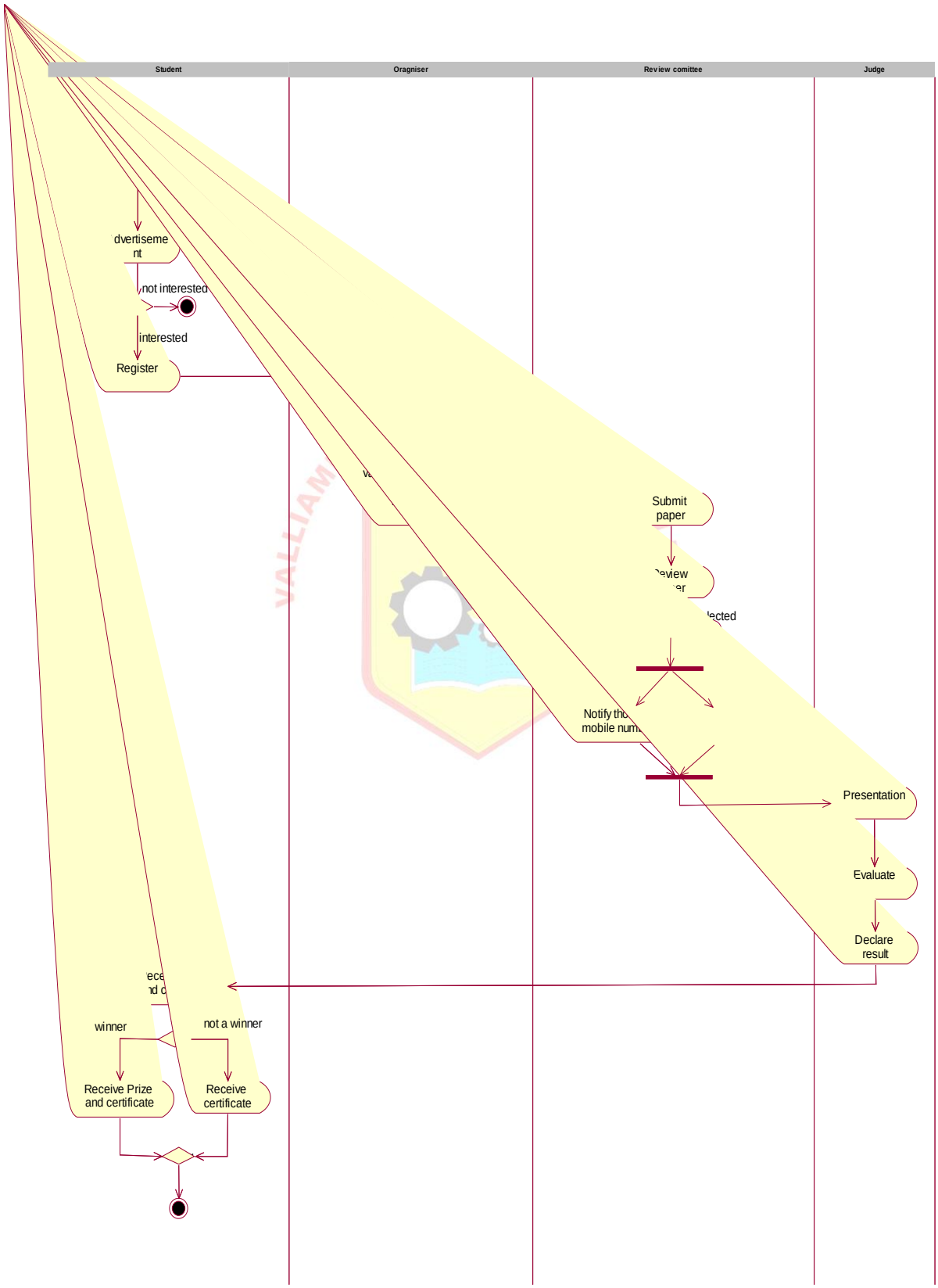
CONFIRMATION AND INTIMATION



RESULT NOTIFICATION



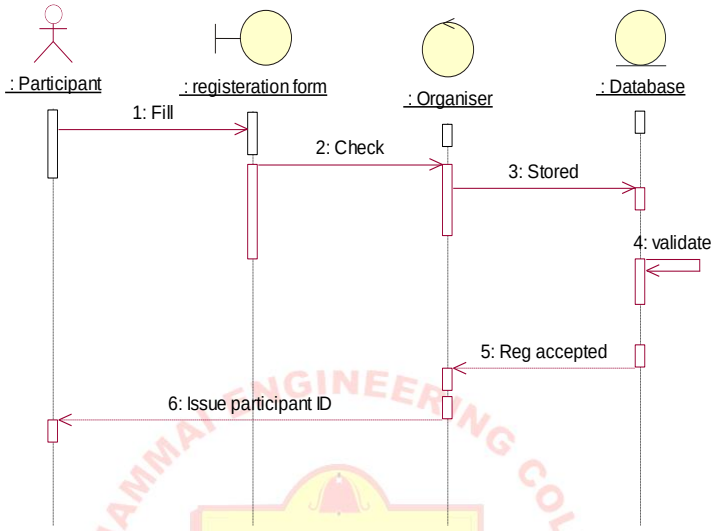
ACTIVITY DIAGRAM



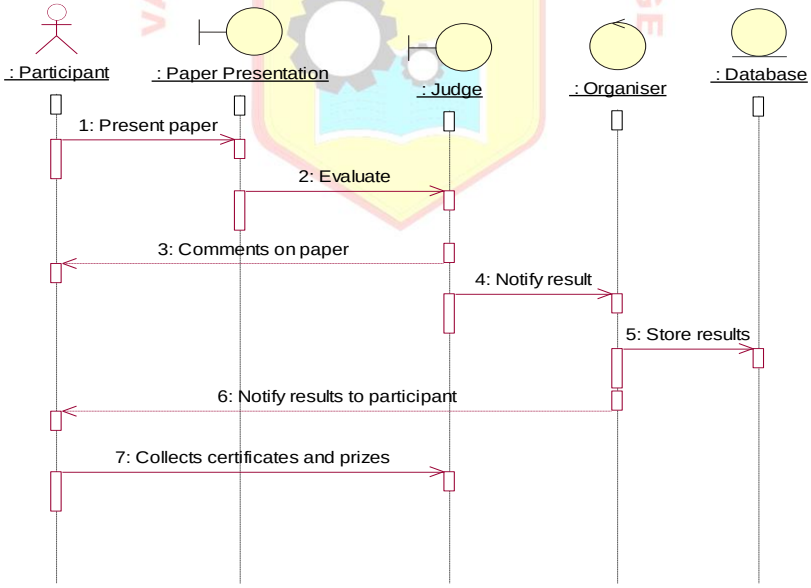
INTERACTION DIAGRAM

SEQUENCE DIAGRAM

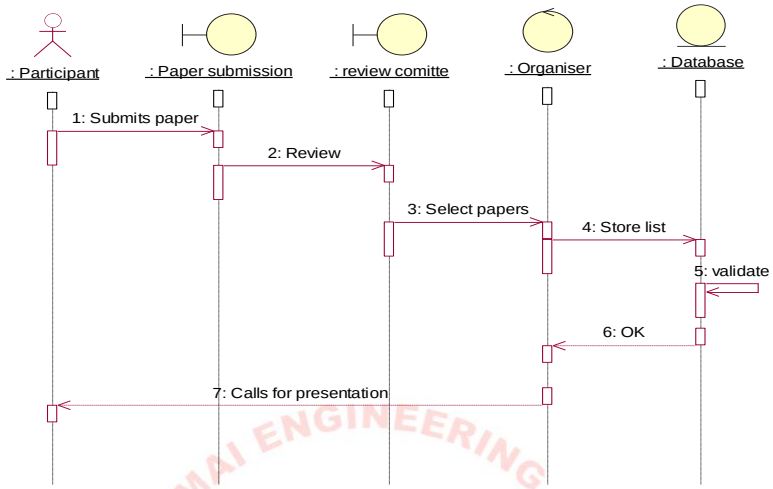
1. REGISTERATION



2. PAPER PRESENTATION

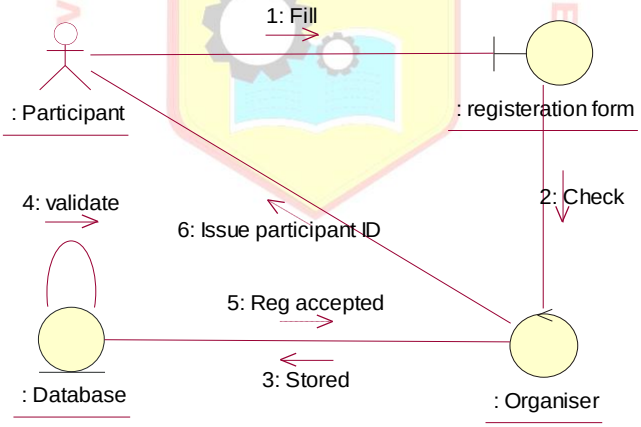


3. SUBMISSION AND REVIEW

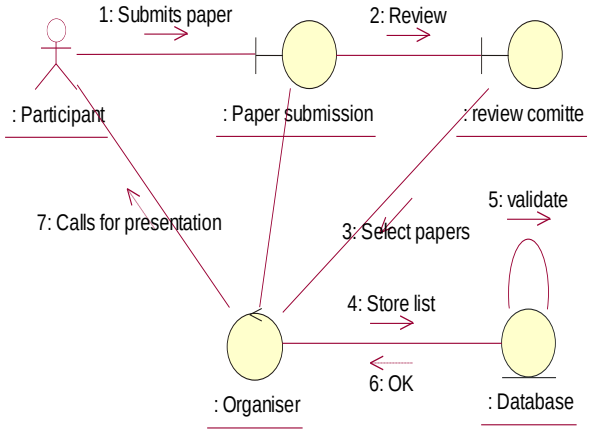


COLLABORATION DIAGRAM

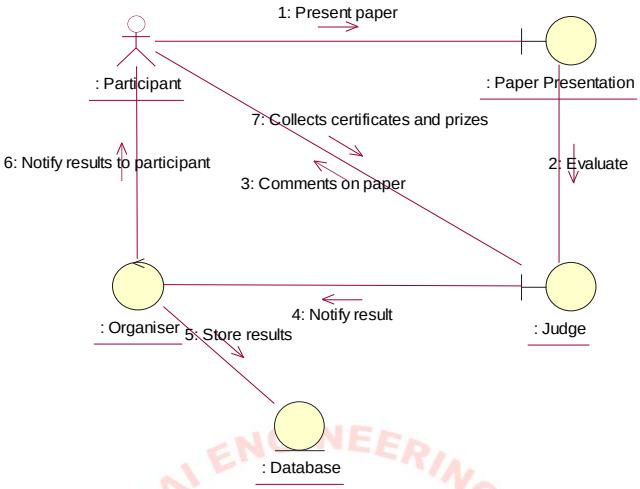
1. REGISTRATION



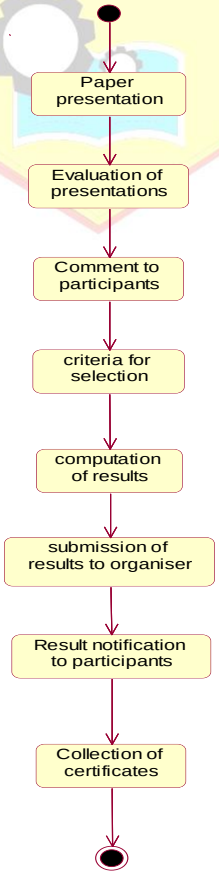
2. SUBMISSION AND REVIEW



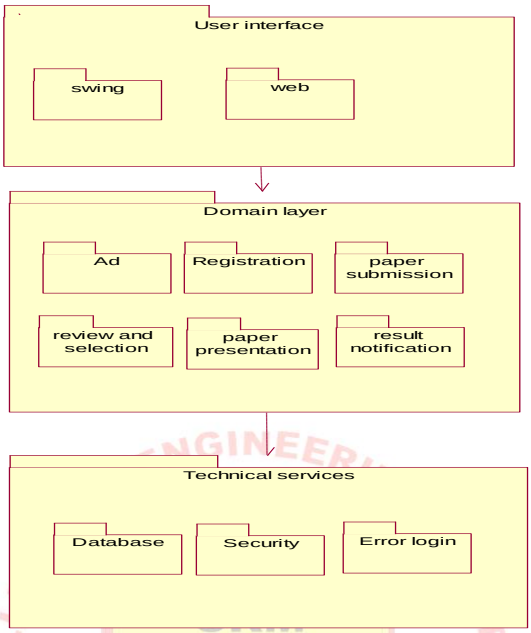
3. PAPER PRESENTATION



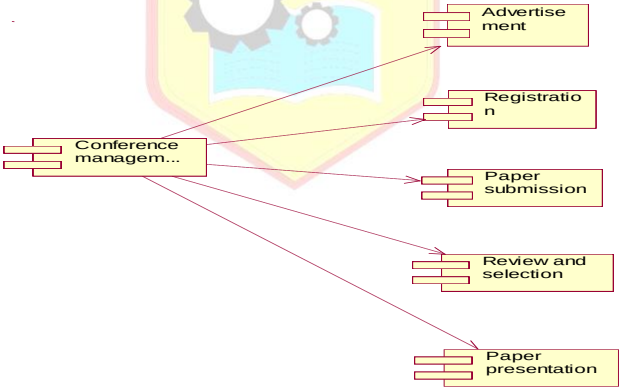
STATE CHART DIAGRAM



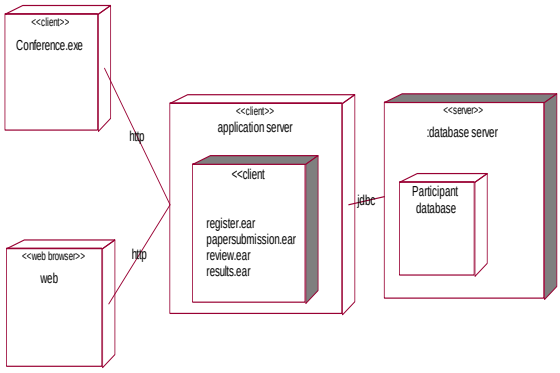
PACKAGE DIAGRAM



COMPONENT DIAGRAM



DEPLOYMENT DIAGRAM



RESULT:

Thus the project to develop a Conference Management System is done successfully.

Ex. No: 4 **EXAM REGISTRATION SYSTEMS**

AIM:

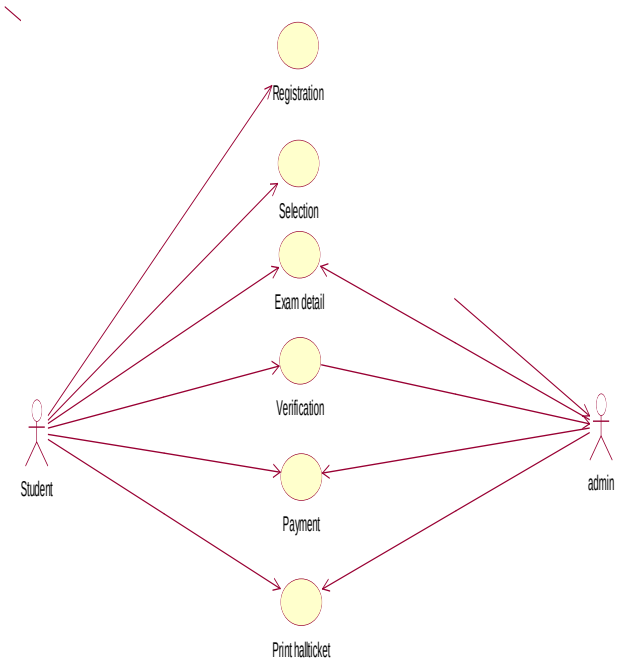
To develop a mini project for Exam Registration system.

PROBLEM STATEMENT:

Exam Registration system is the process of enrolling for exams. Enrolling students into the general associate course examination is very difficult and important process. The main outcome is to computerize everything related to registrations like GATE, CAT exams.

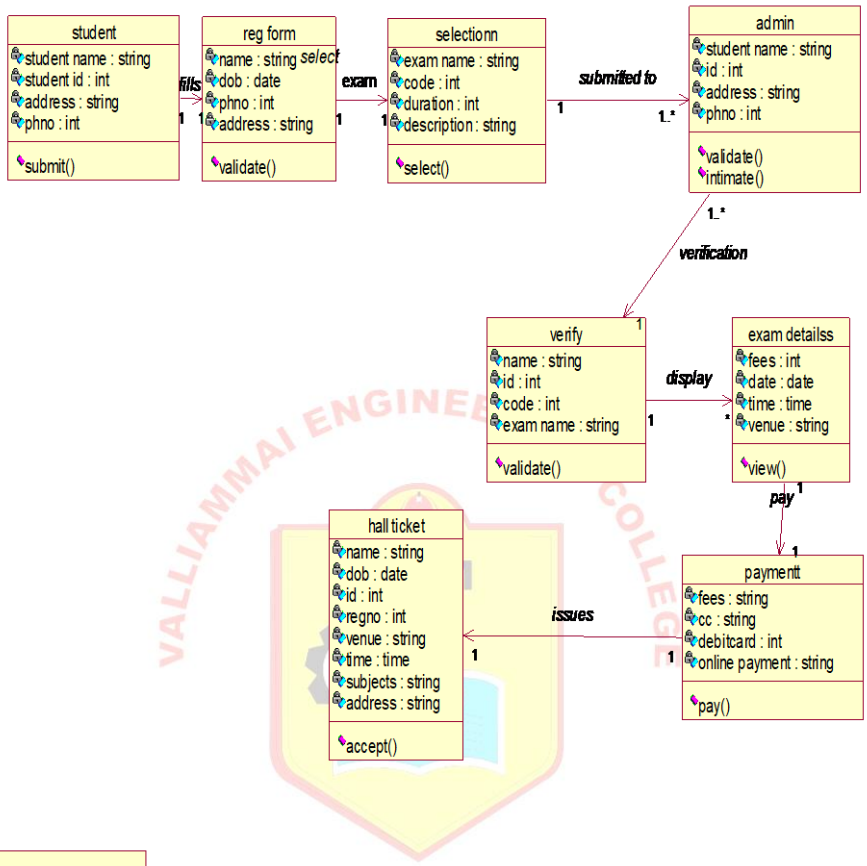
The student should download the registration form, read the rules and they have to fill up the form. The payment for registration can be done wither through cheque or credit/debit. Students have to submit the form to administrator. They view the form for confirmation and they print the hall ticket. Unique ID is given to the student. The issuing of hall ticket to the student involves certain procedure like verifying details, check for duplication and check the payment which is done by the administration. The student can view the information like date, time on web page. The registration number and other related information will be sent to the student through E-mail by administrator.

USECASE DIAGRAM

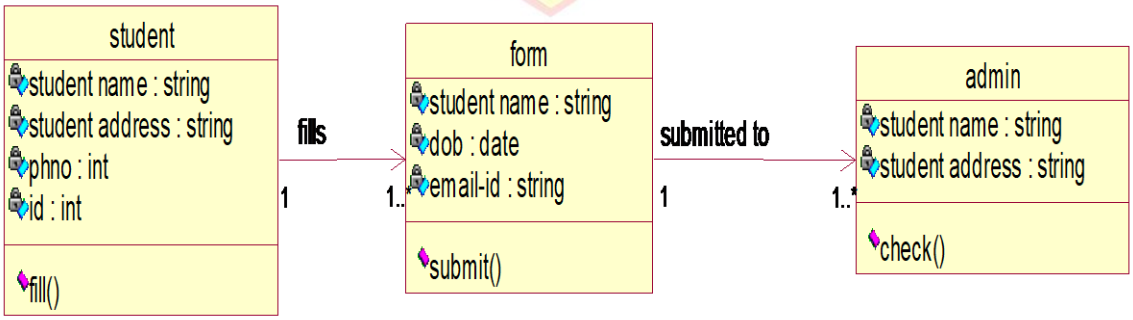


CLASS DIAGRAM

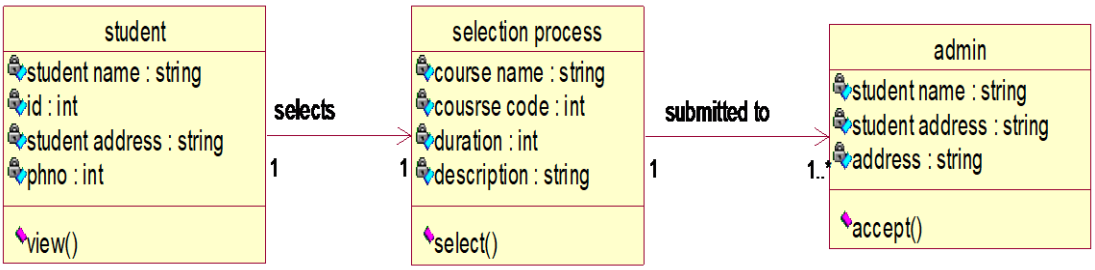
OVERALL CLASS DIAGRAM



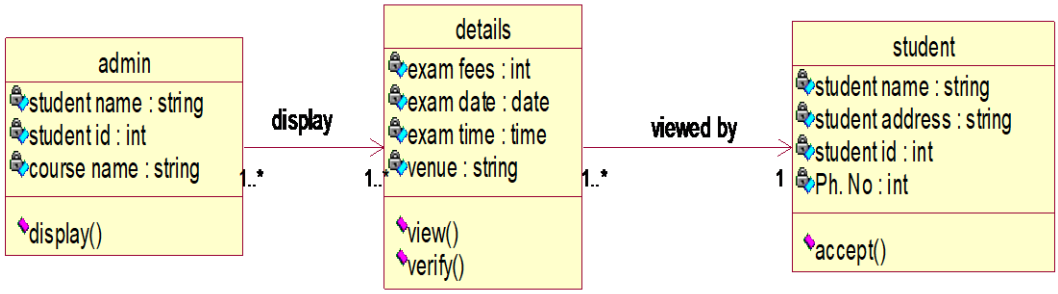
Registration:



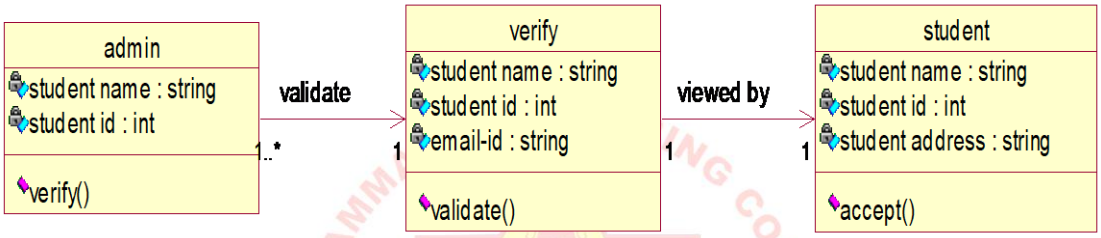
Selection:



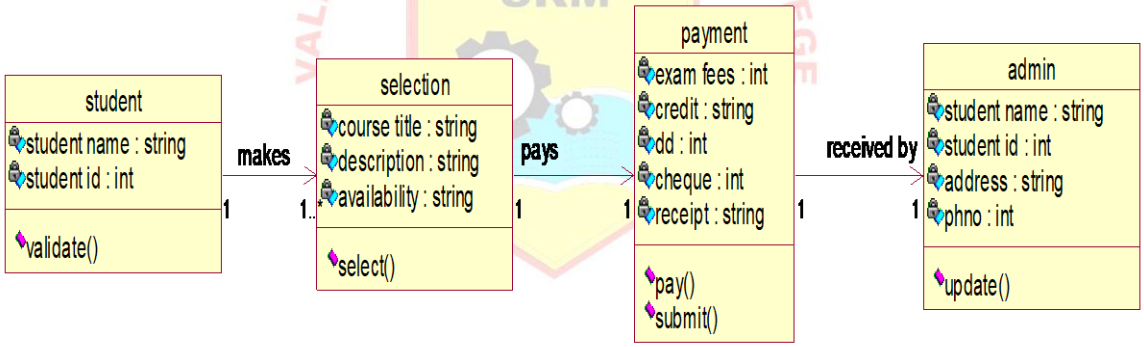
Exam details:



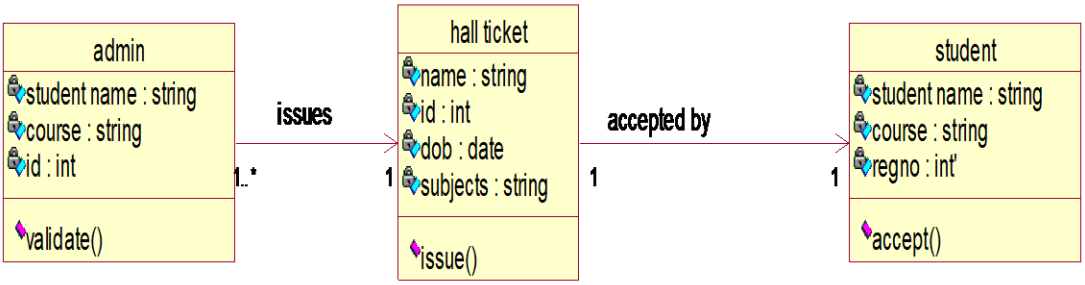
Verification:



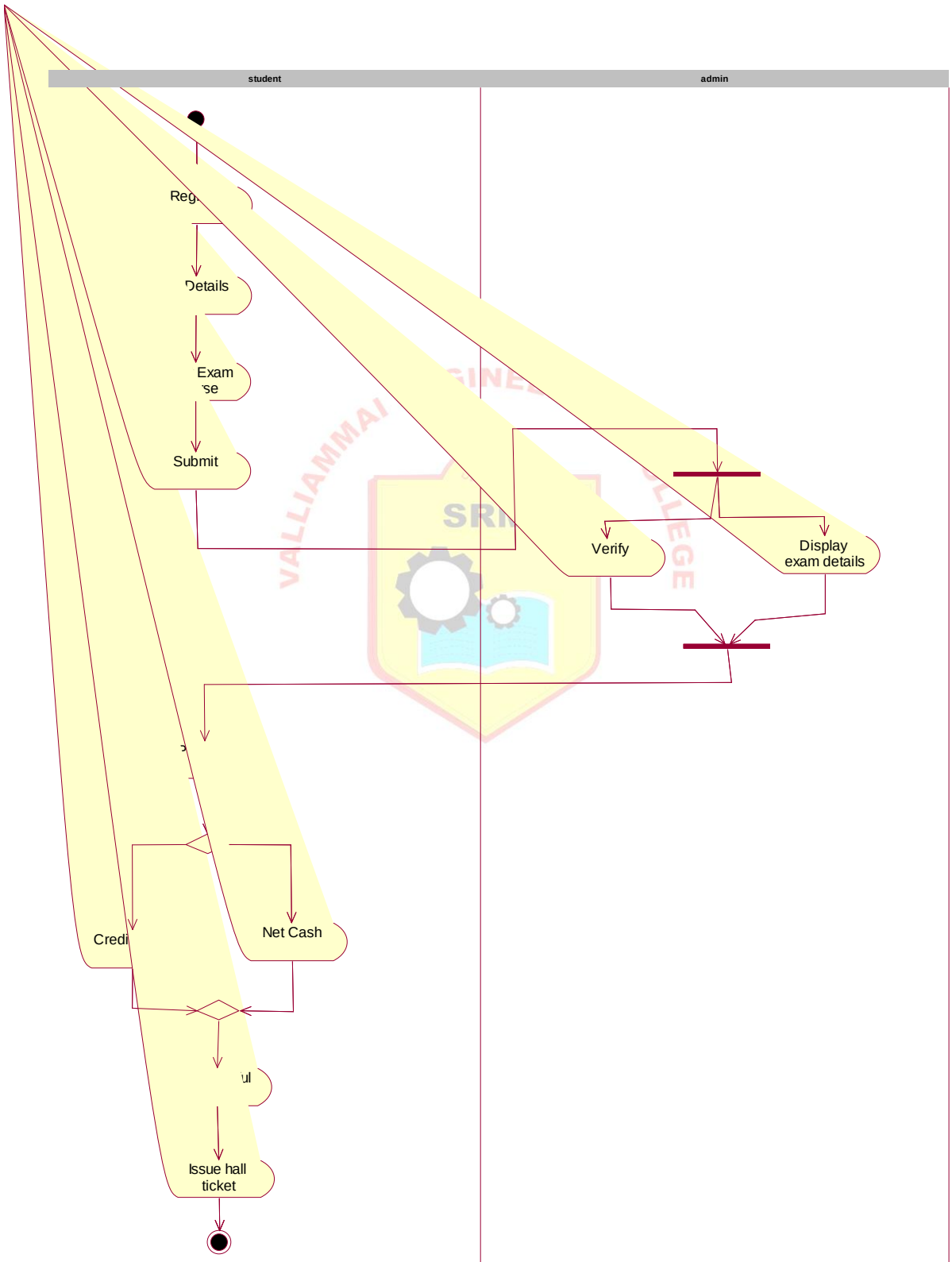
Payment:



Issue hall ticket:

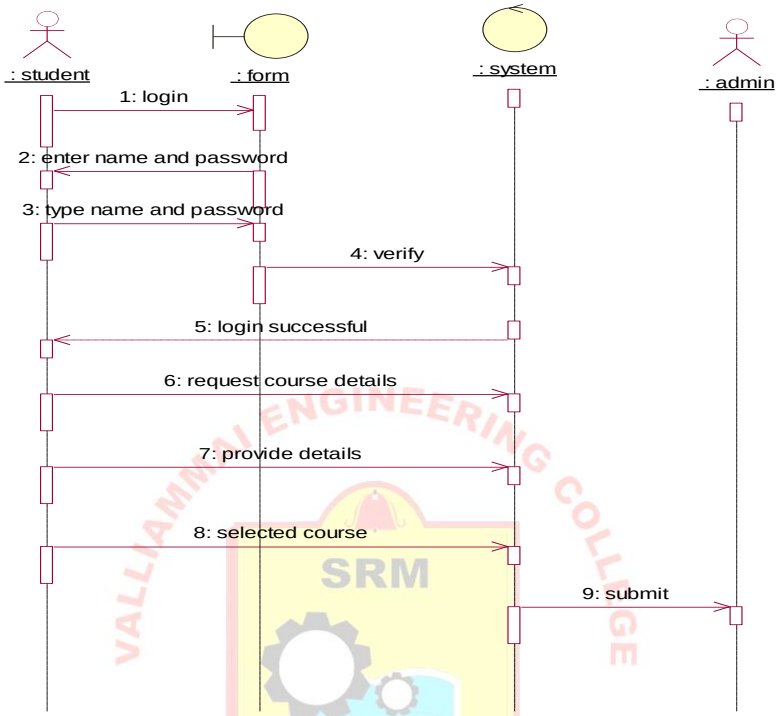


ACTIVITY DIAGRAM

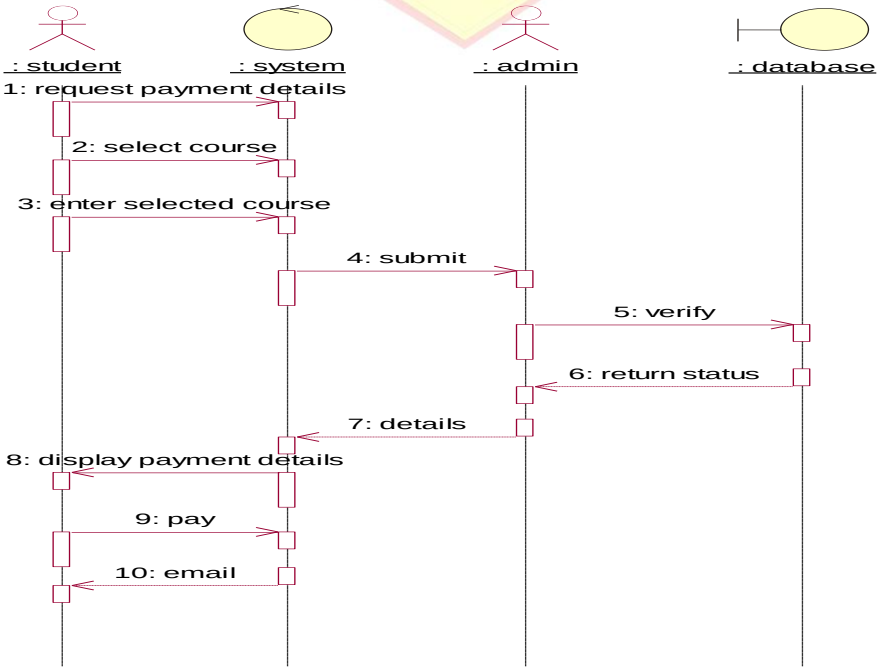


SEQUENCE DIAGRAM

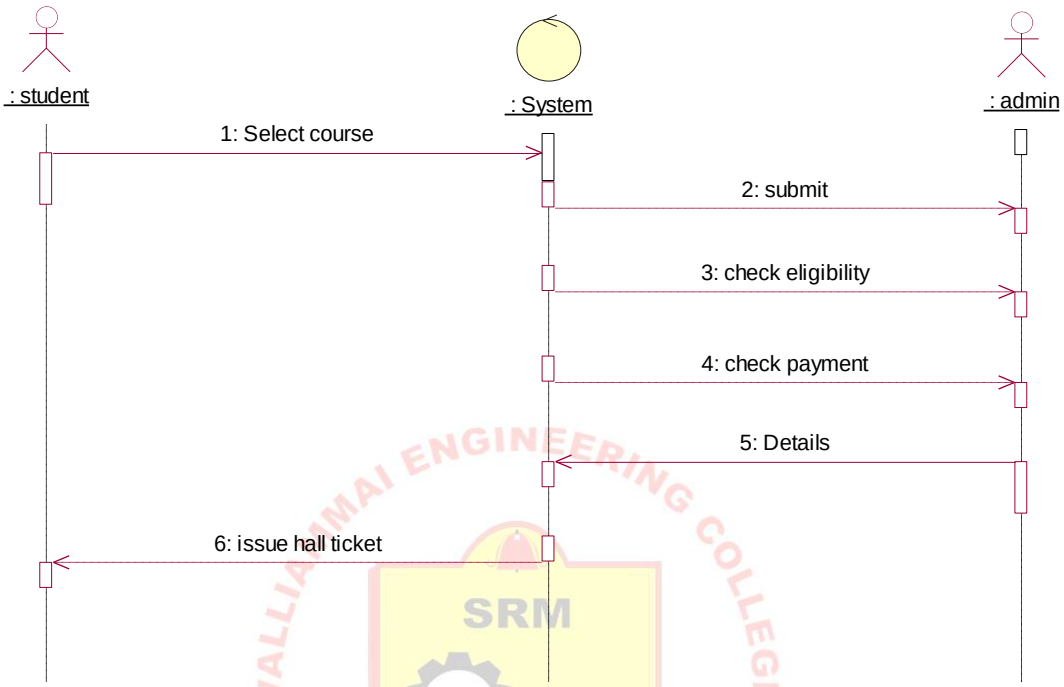
SELECTION:



PAYMENT:

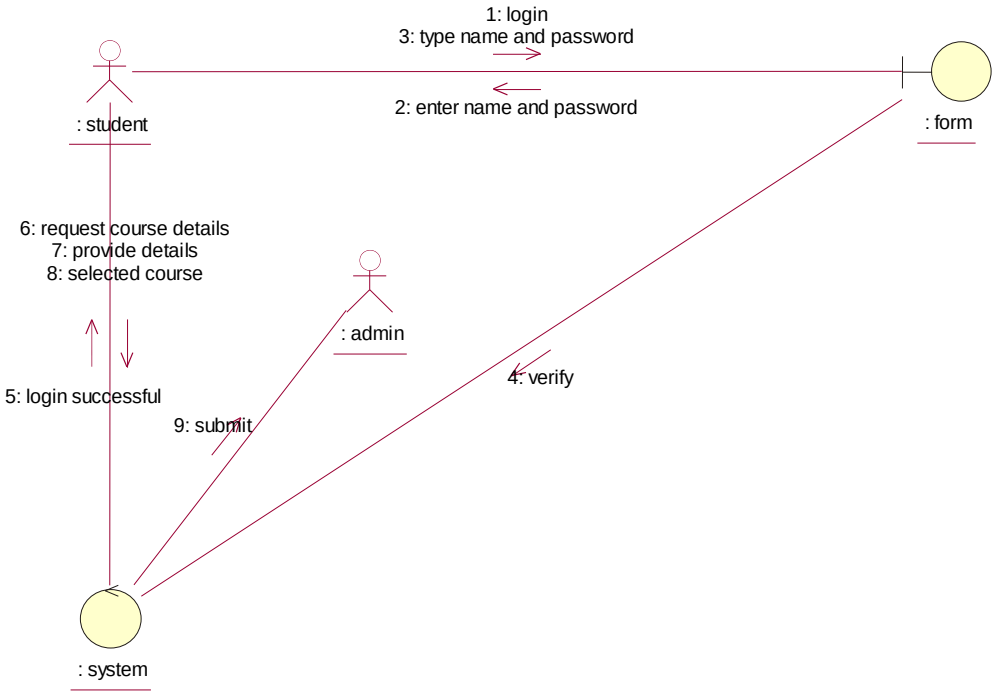


ISSSUE HALL TICKET:

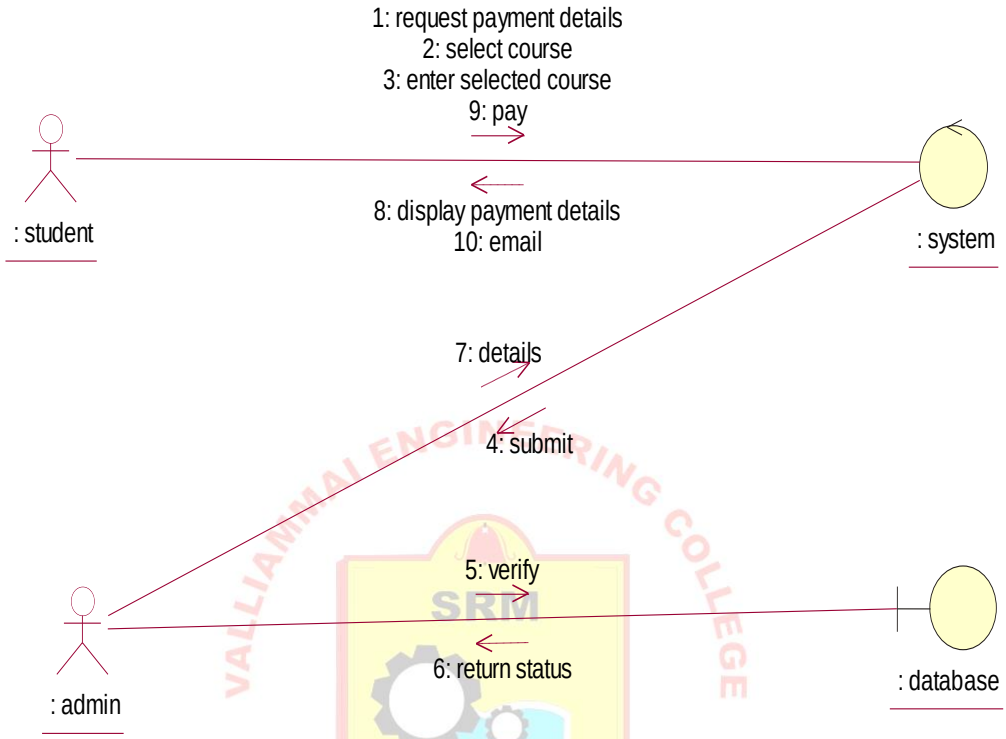


COLLABORATION DIAGRAM

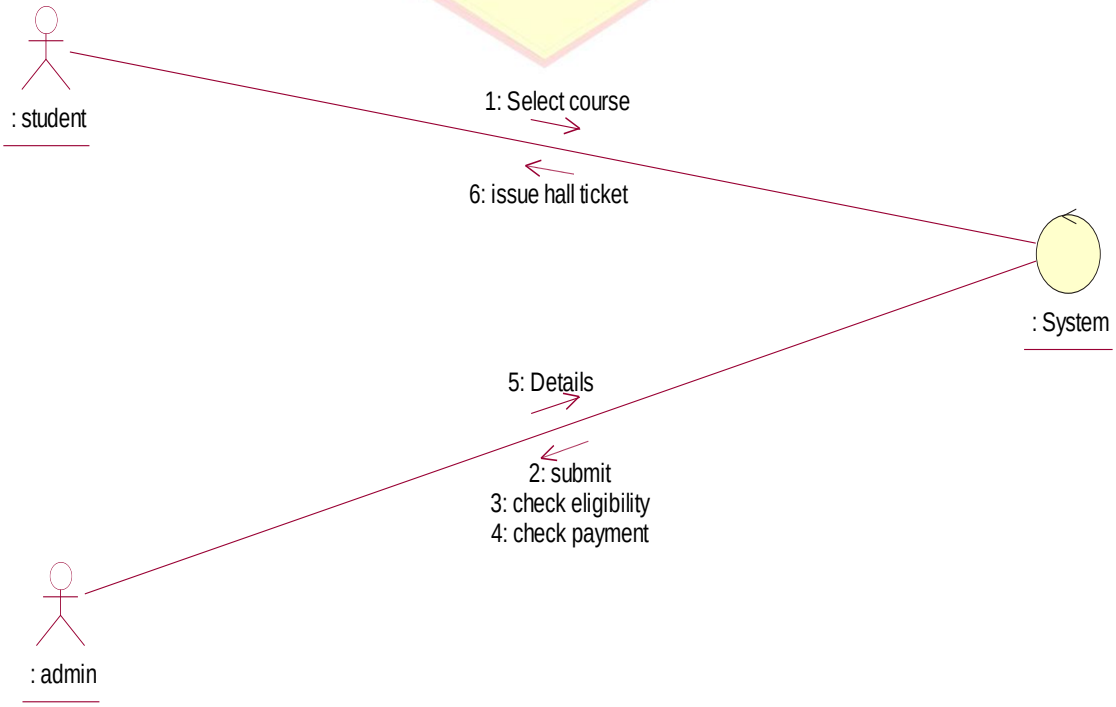
SELECTION:



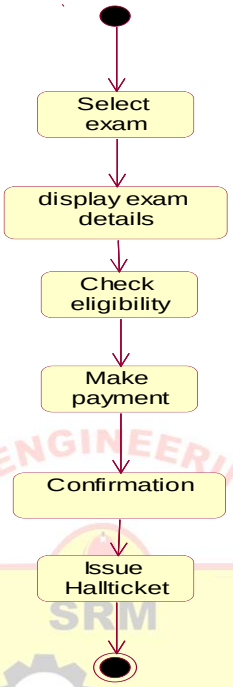
PAYMENT:



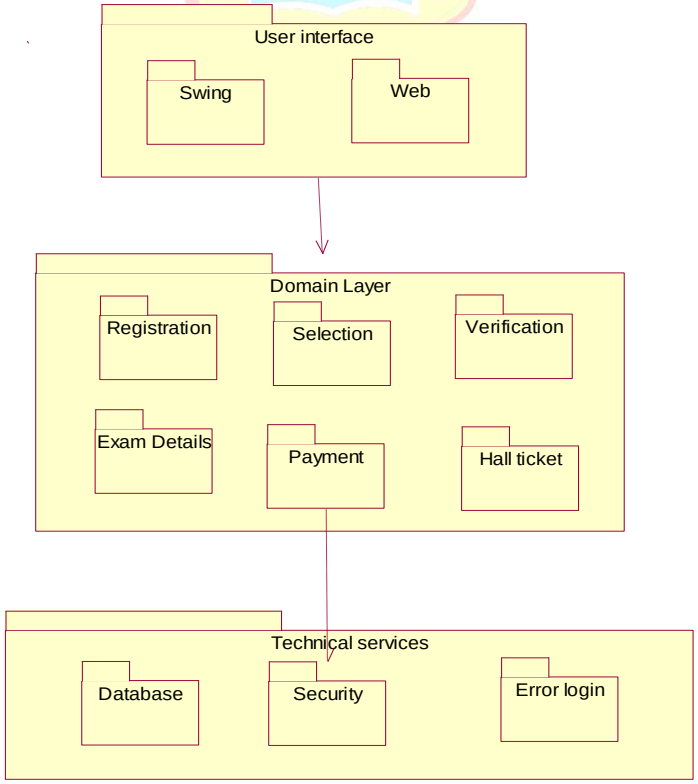
ISSUE HALL TICKET:



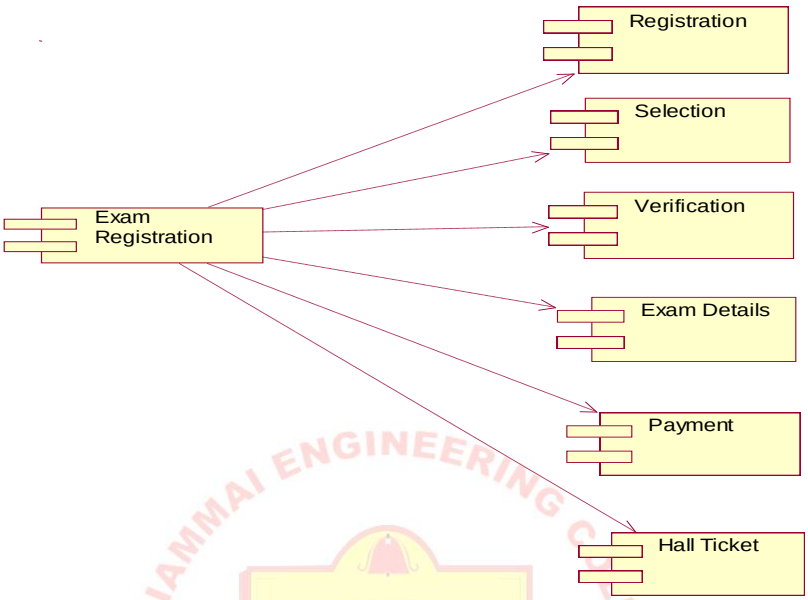
STATE CHART DIAGRAM



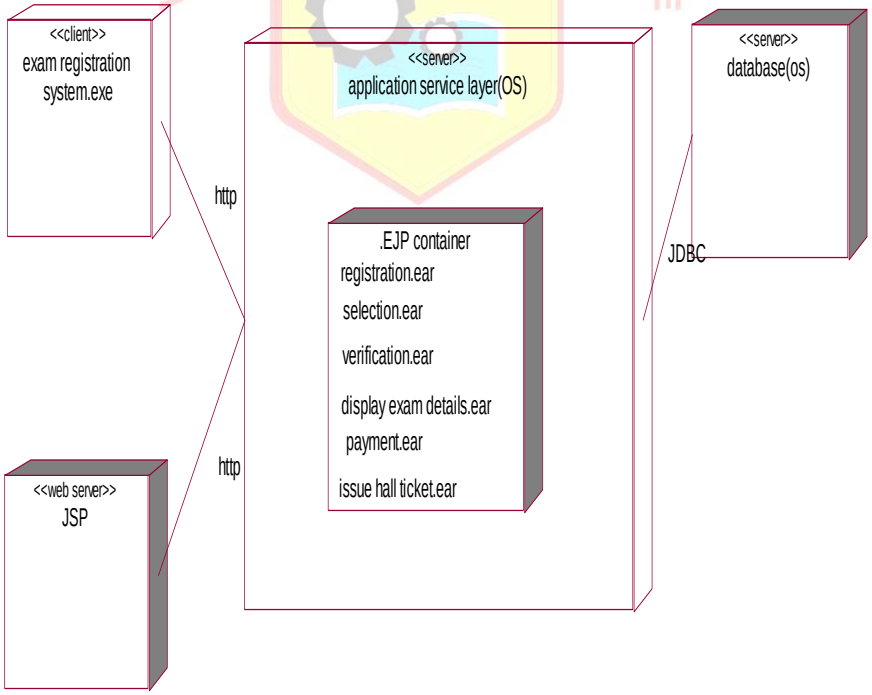
PACKAGE DIAGRAM



COMPONENT DIAGRAM



DEPLOYMENT DIAGRAM



RESULT:

Thus the project to develop an Exam Registration System is done successfully.

Ex. No: 5 **STOCK MAINTENANCE SYSTEM**

AIM:

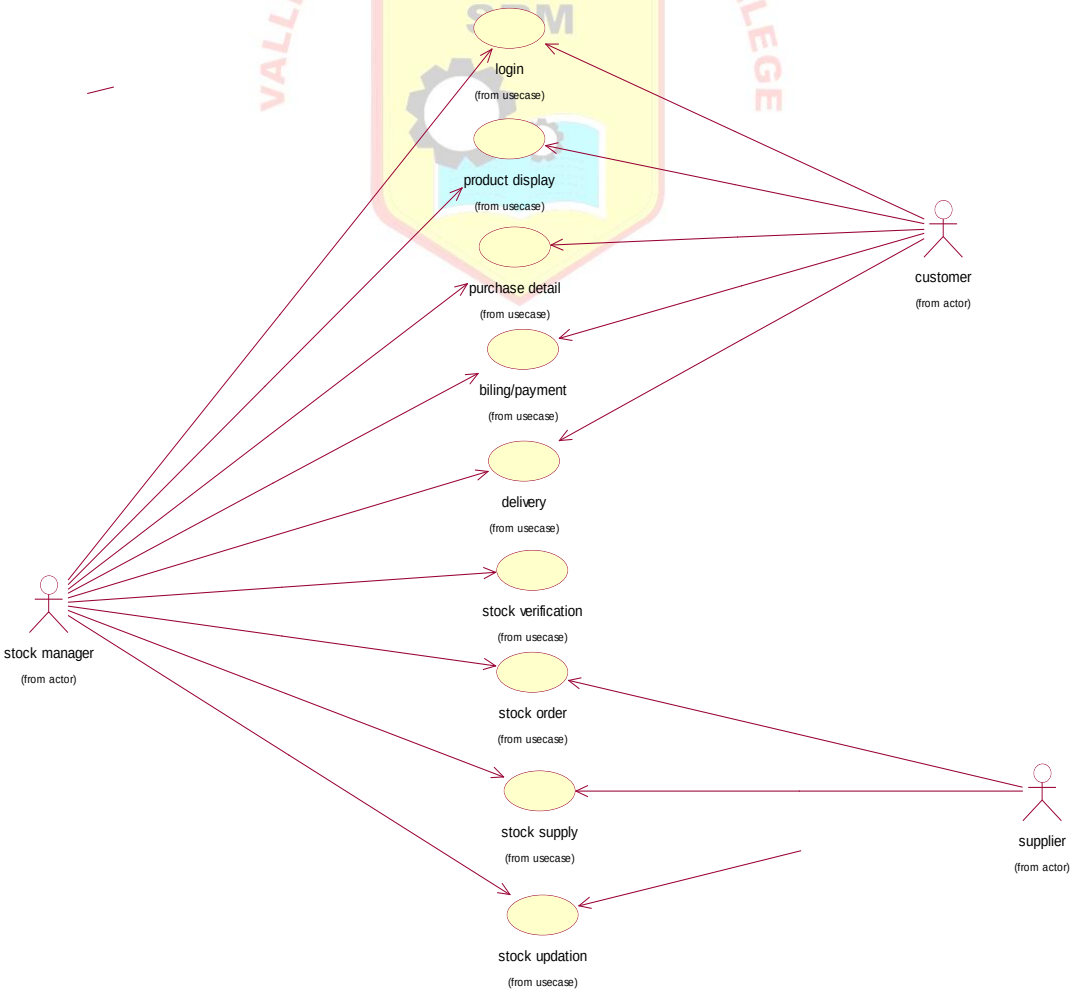
The aim of the project is to develop and implement the software for stock maintenance system .

PROBLEM STATEMENT:

Stock maintenance gives an idea about how products are maintained in the particular concern. This is a database to store the details about stock inward and stock outward.

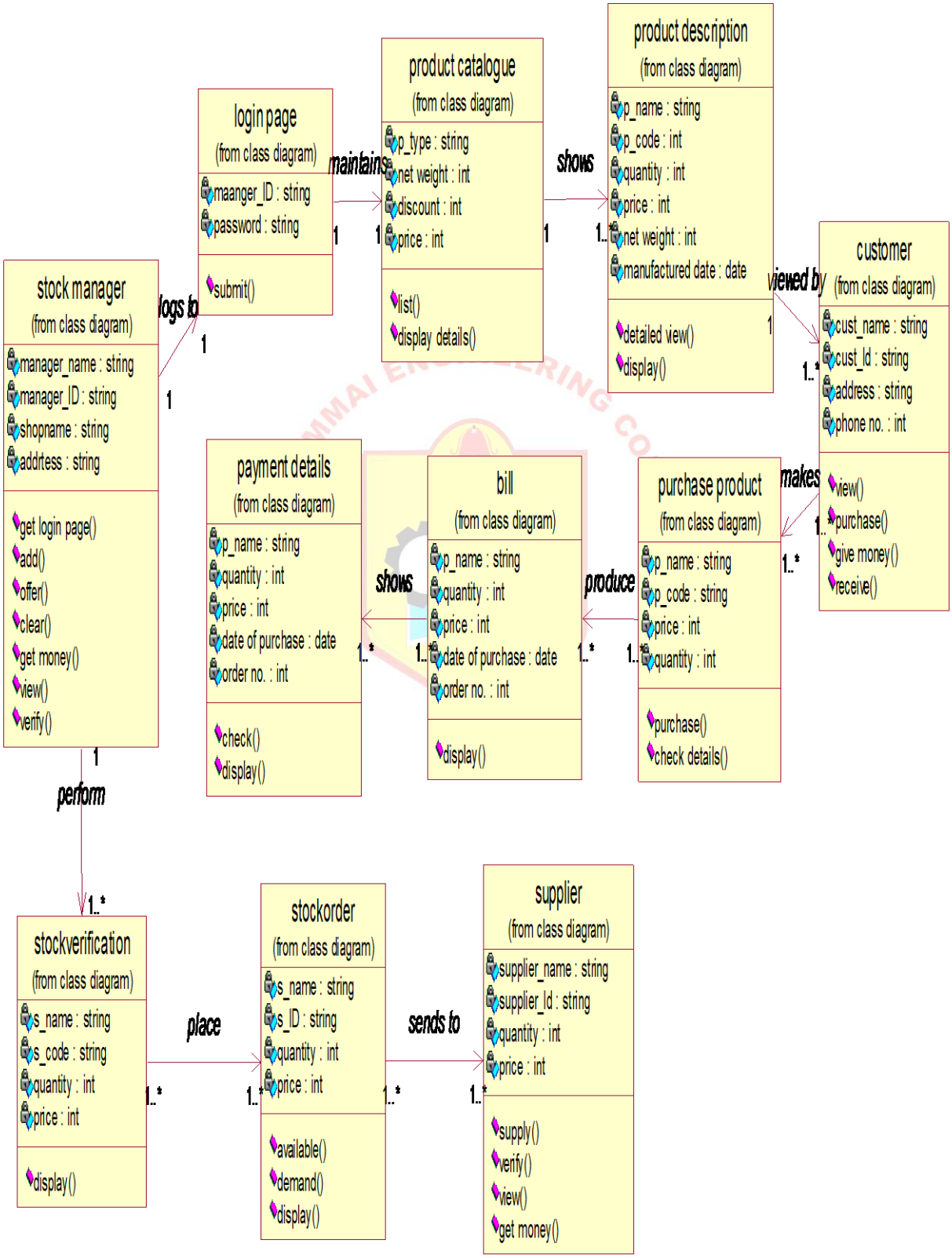
The manufacture is the producer of the item and it contains the necessary information of the item such as price per item, date of manufacture, best before use, number of item available and their company address.The shopkeeper is the one who is primary source for selling items in the market. The customers get item from the shopkeeper and the database records all the transactions.

USECASE DIAGRAM

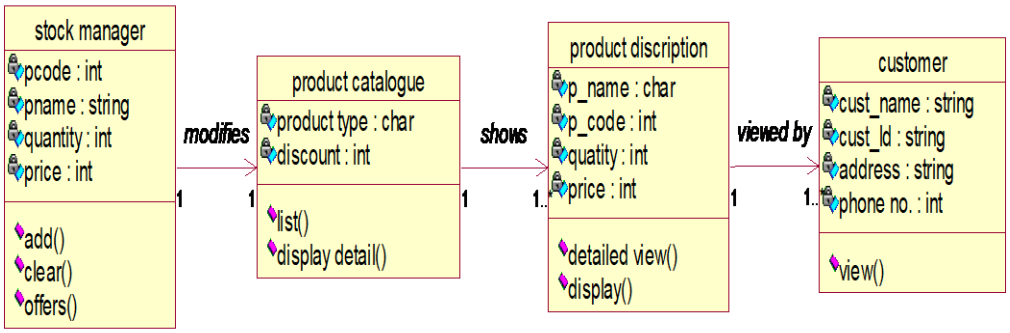


CLASS DIAGRAM

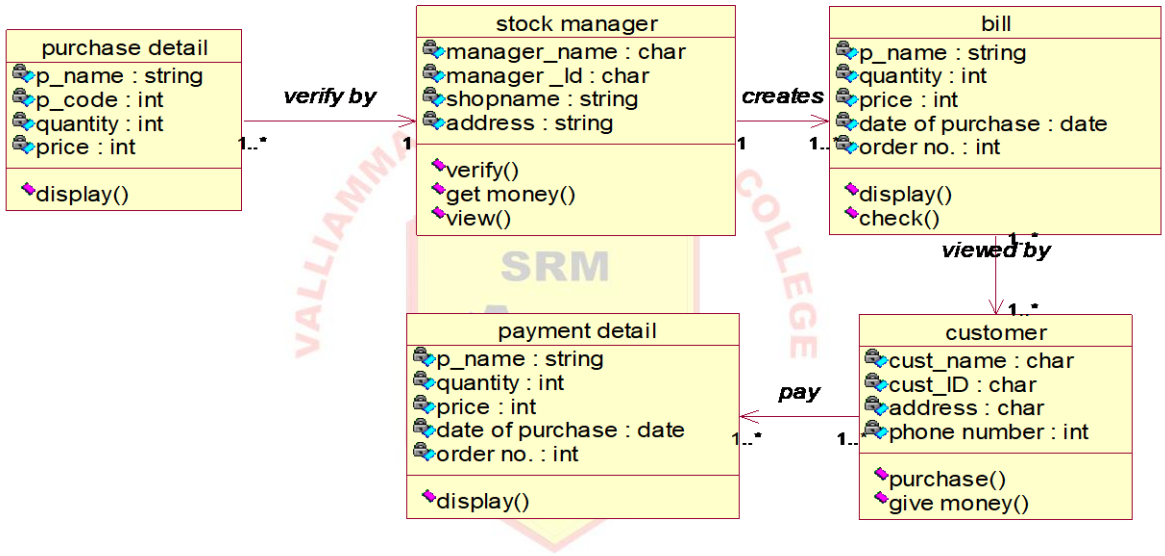
OVERALL CLASS DIAGRAM



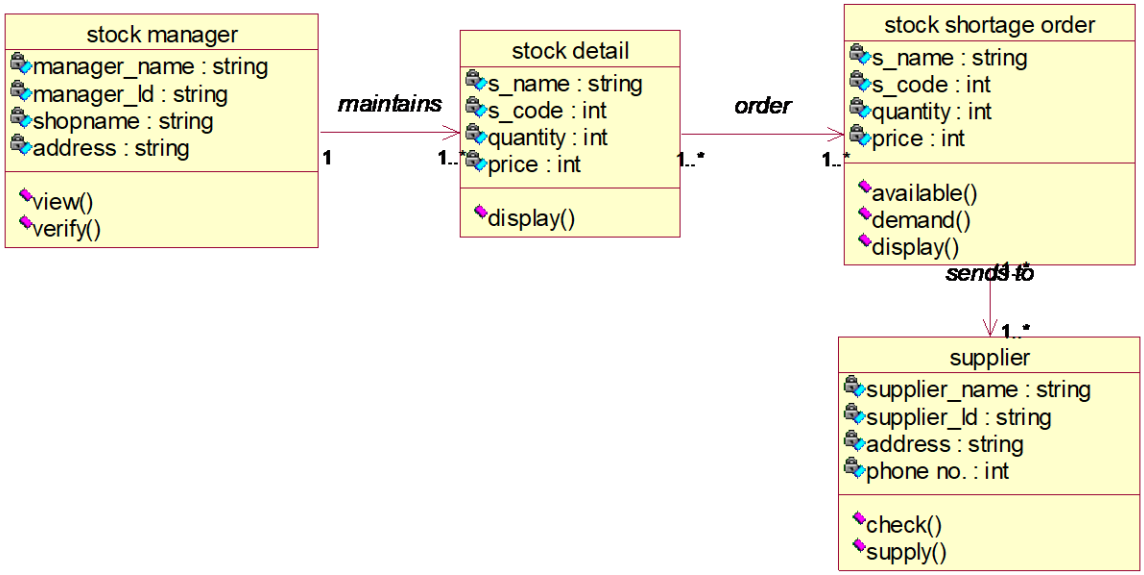
PRODUCT DISPLAY



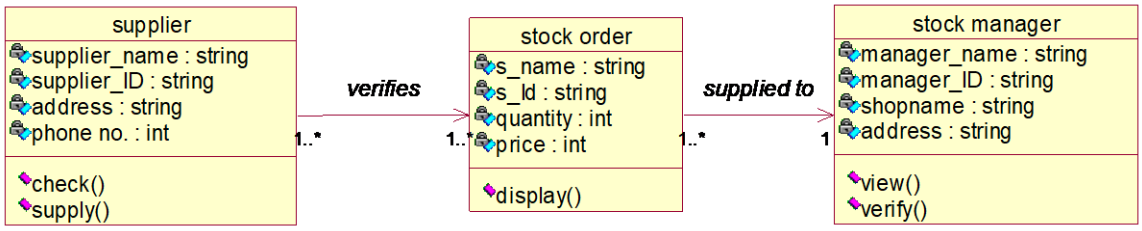
BILLING /PAYMENT



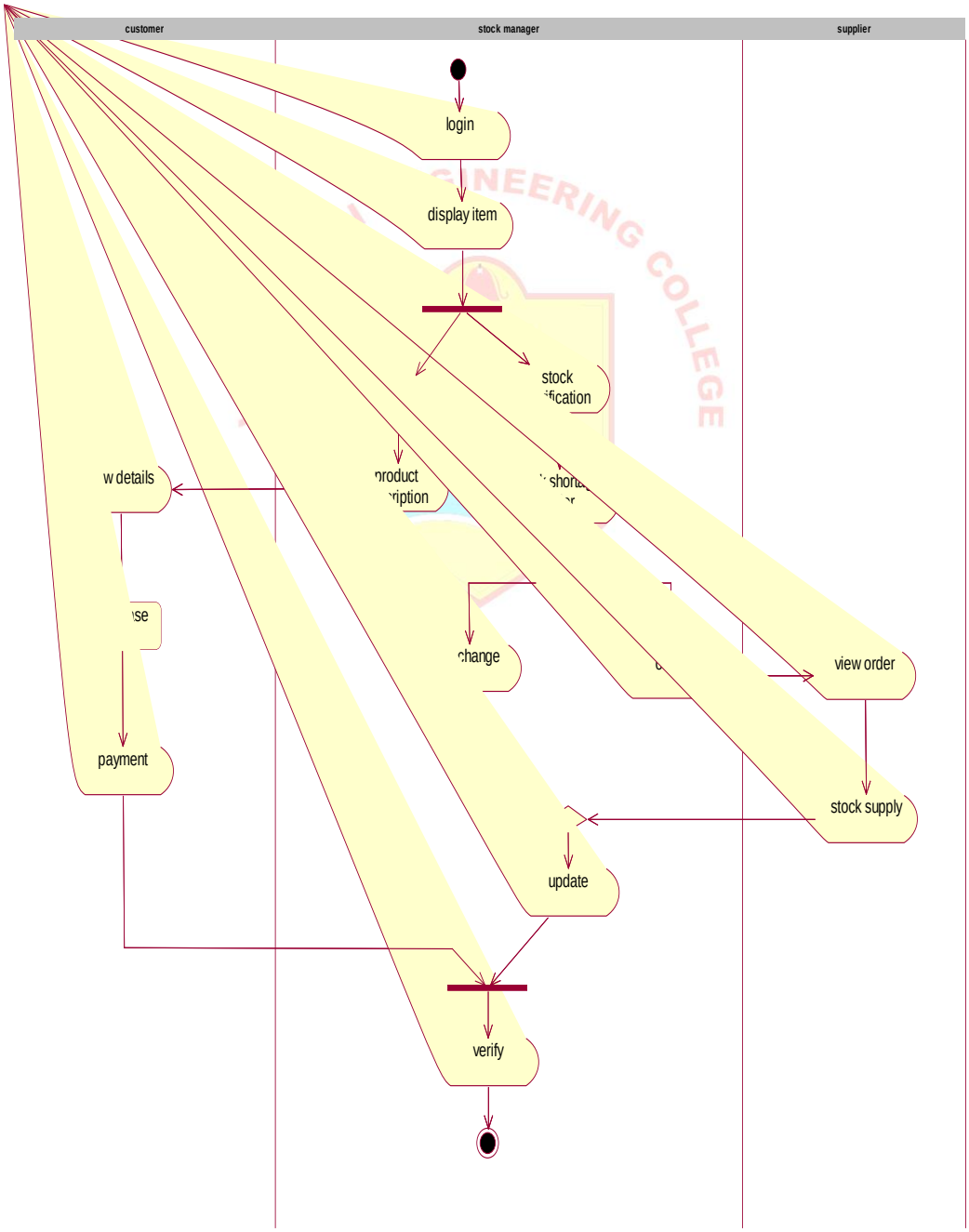
STOCK ORDER



STOCK SUPPLY

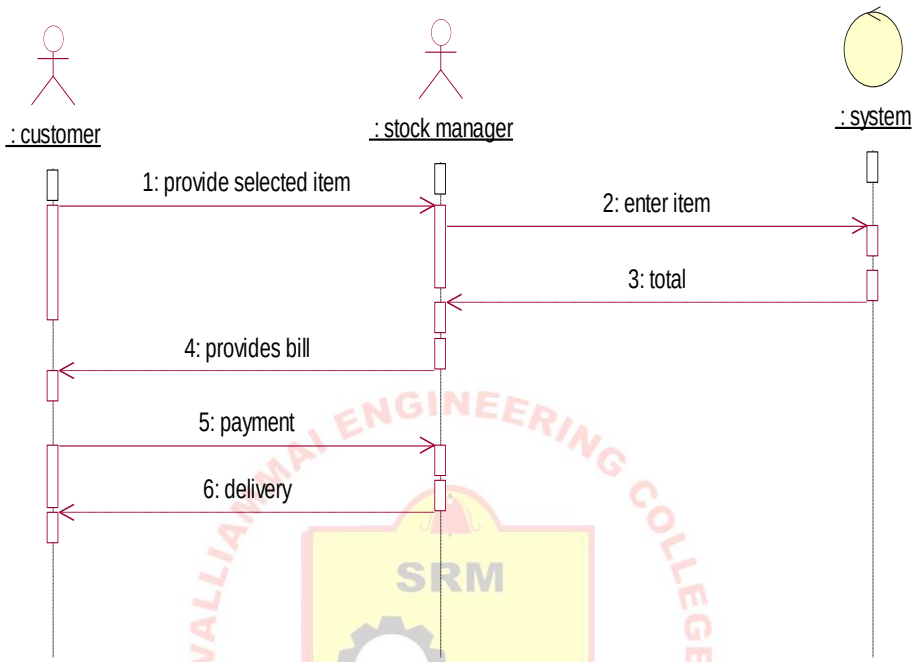


ACTIVITY DIAGRAM

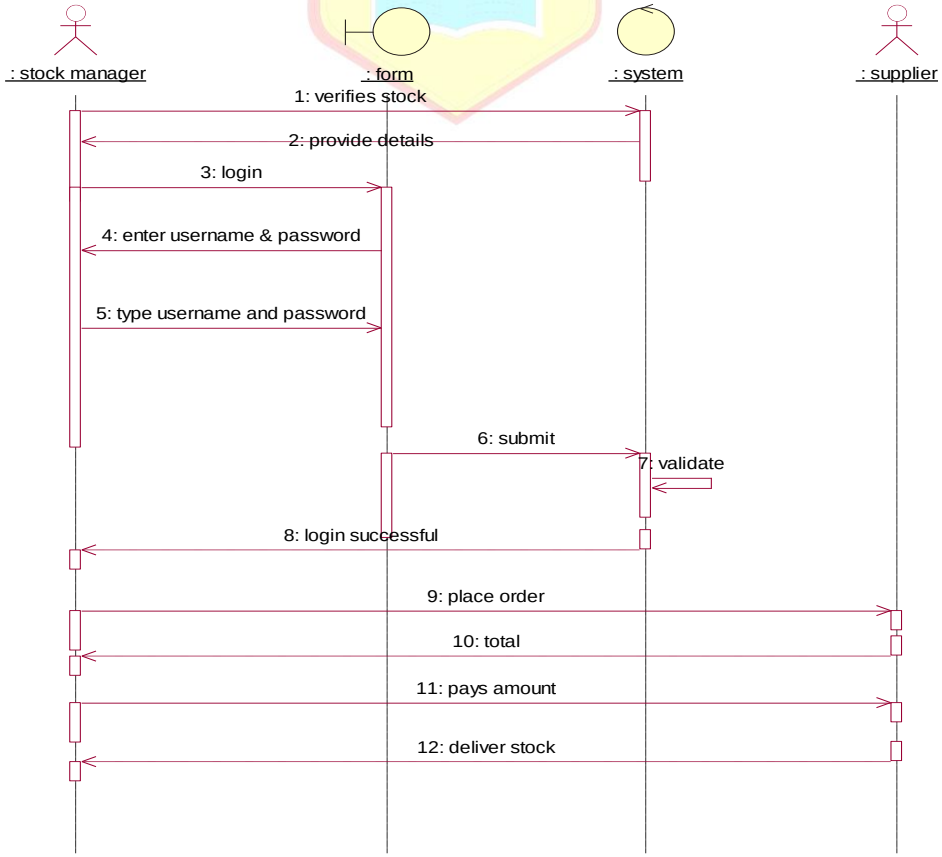


SEQUENCE DIAGRAM

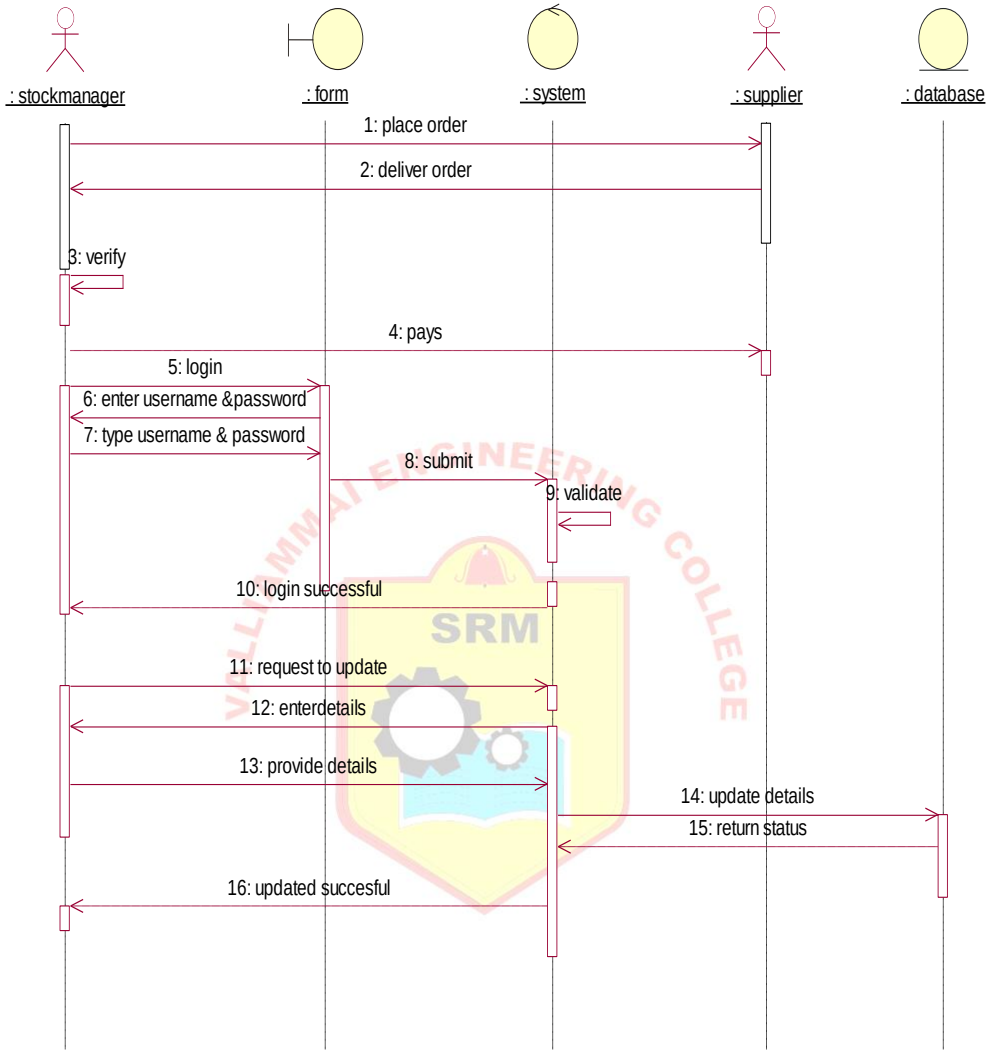
BILLING/PAYMENT



STOCK ORDER

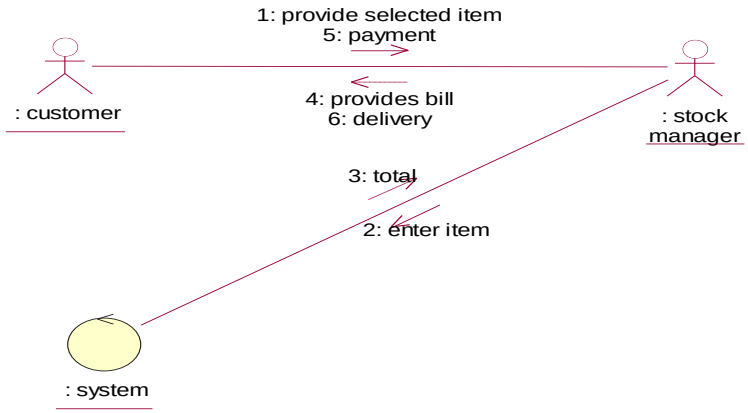


STOCK UPDATE

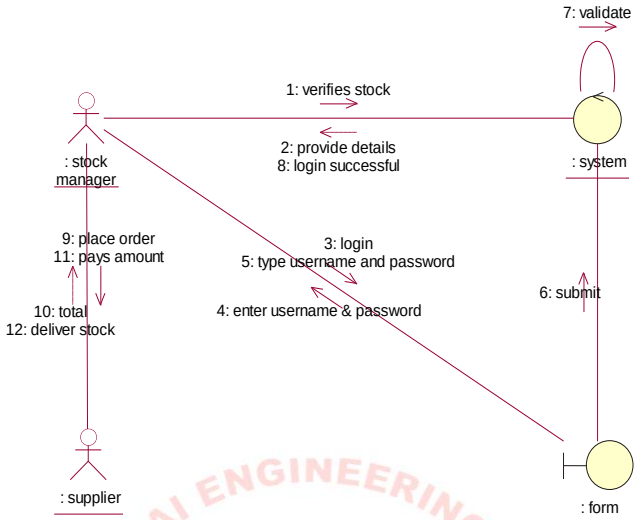


COLLABRATION DIAGRAM

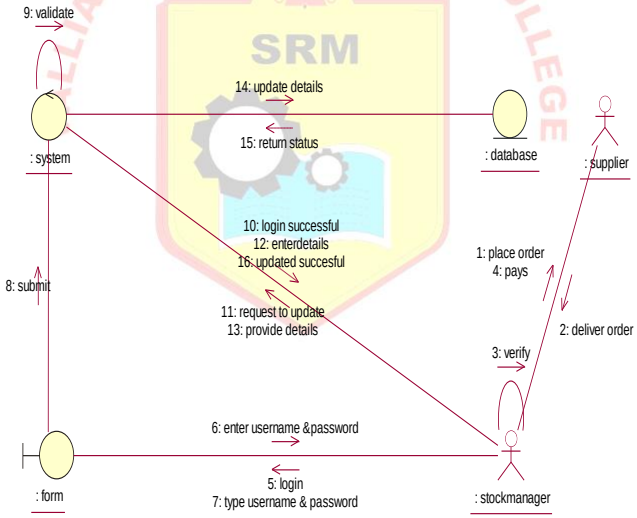
BILLING/PAYMENT



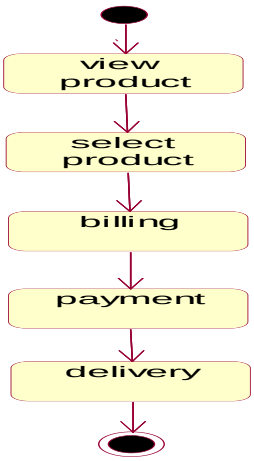
STOCK ORDER



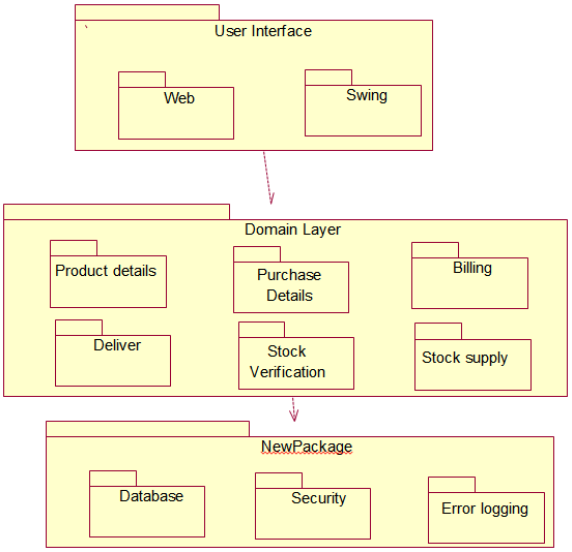
STOCK UPDATE



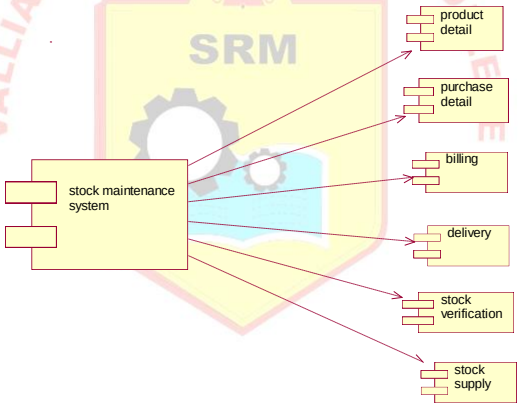
STATECHART DIAGRAM



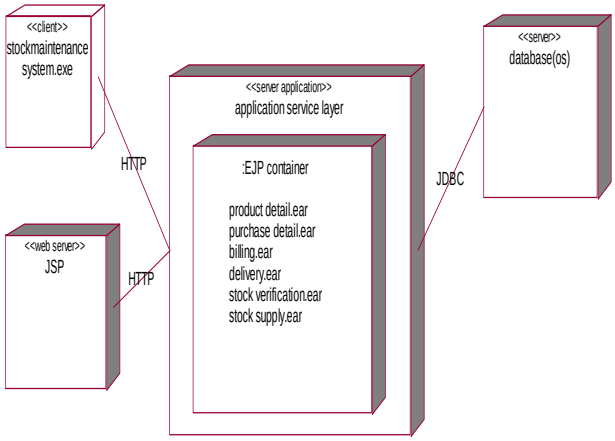
PACKAGE DIAGRAM



COMPONENT DIAGRAM



DEPLOYMENT DIAGRAM



RESULT:

Thus the project to develop a Stock Maintenance System is done successfully.

Ex. No: 6 ONLINE COURSE RESERVATION SYSTEMS

AIM:

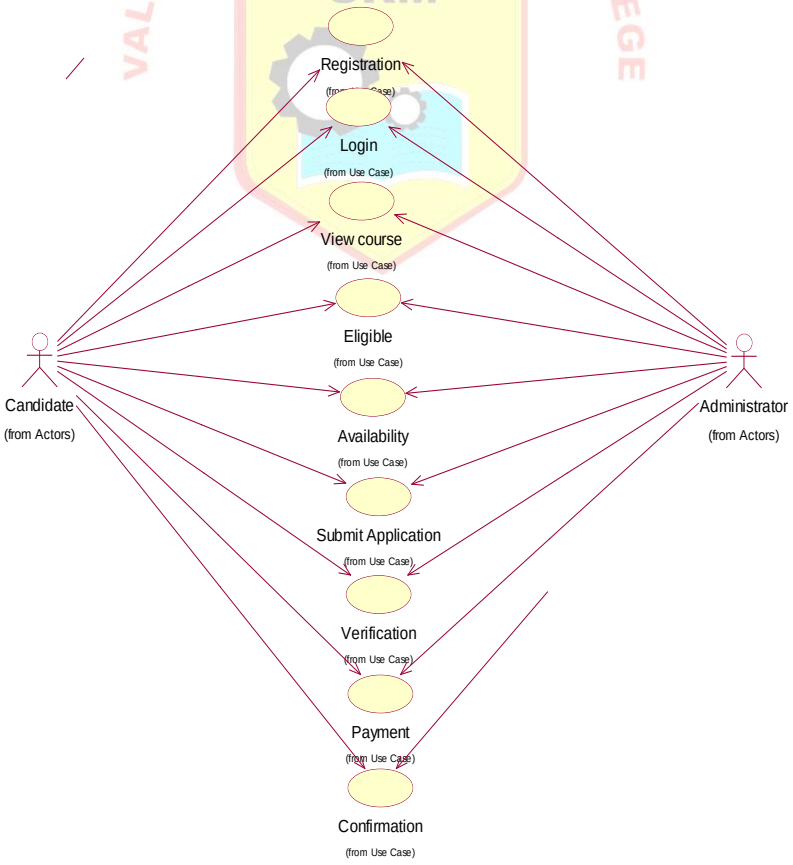
To implement software for online course reservation system.

PROBLEM STATEMENT:

The system should provide details of the college and should allow easy registration by applicants for their admissions into the college by filling in the applications with their personal details and the marks obtained by them along with their choice of courses in order of three.

Candidates with a cutoff of 75 and age between 18 and 25 will be sent intimation and will be short listed as eligible candidates and their ranks will be published. The selected candidates will be allotted seats according to their ranks, their choice of course and the number of seats vacant.

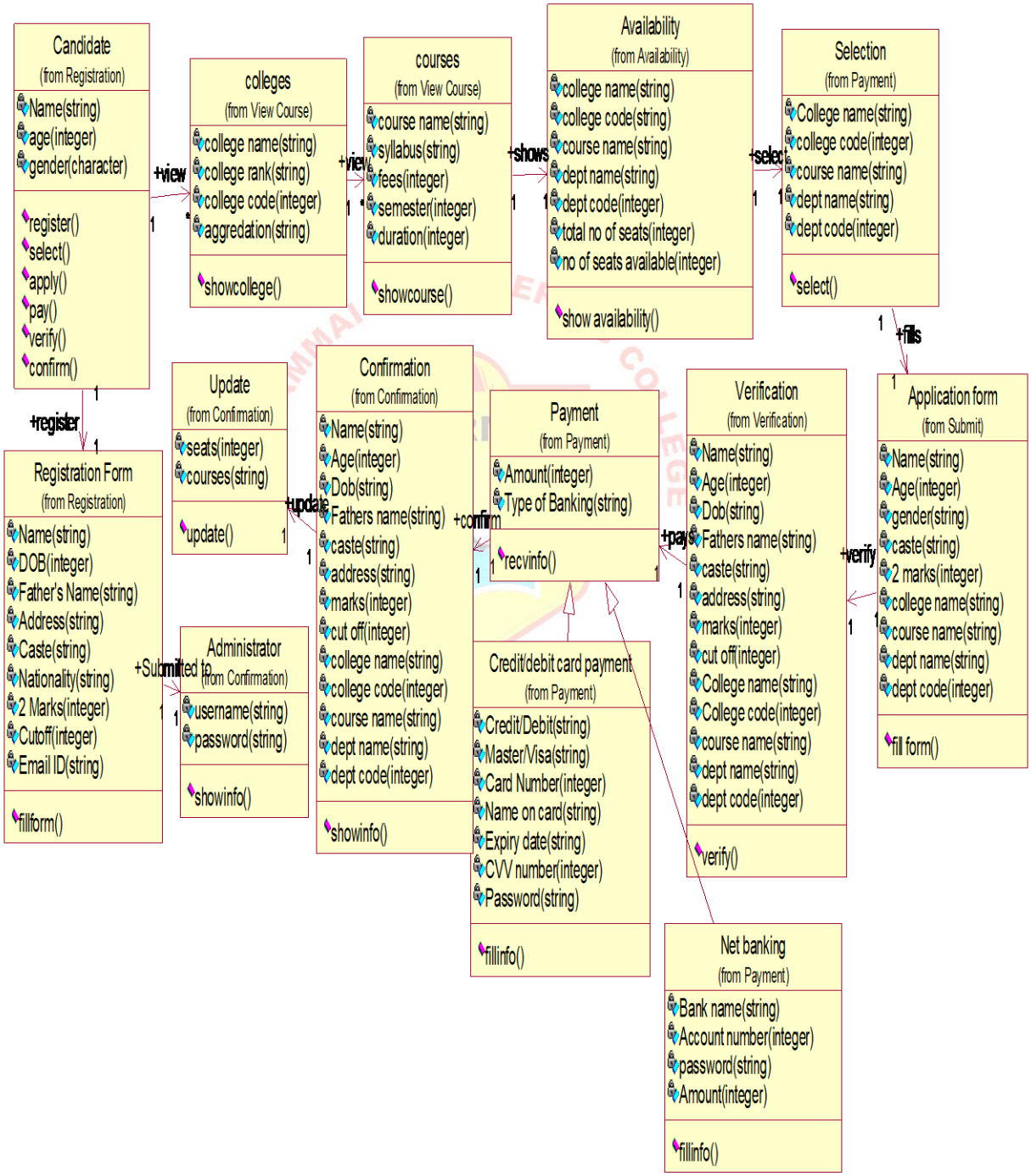
USECASE DIAGRAM

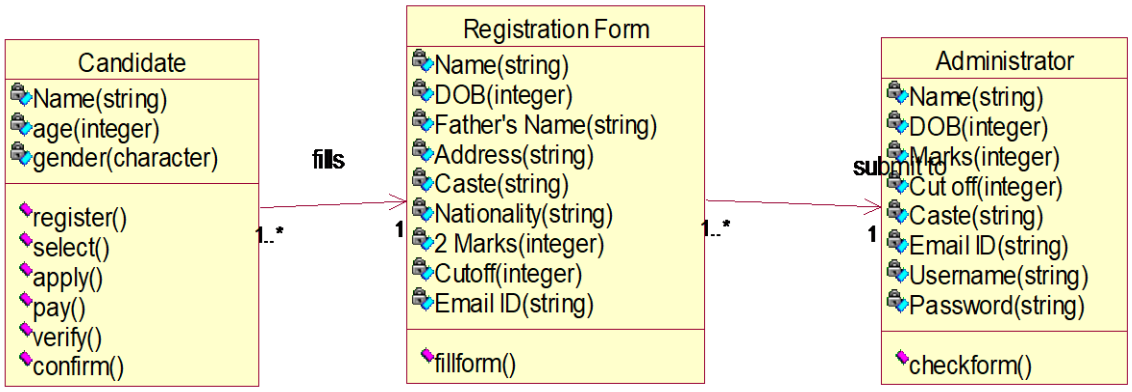


CLASS DIAGRAM

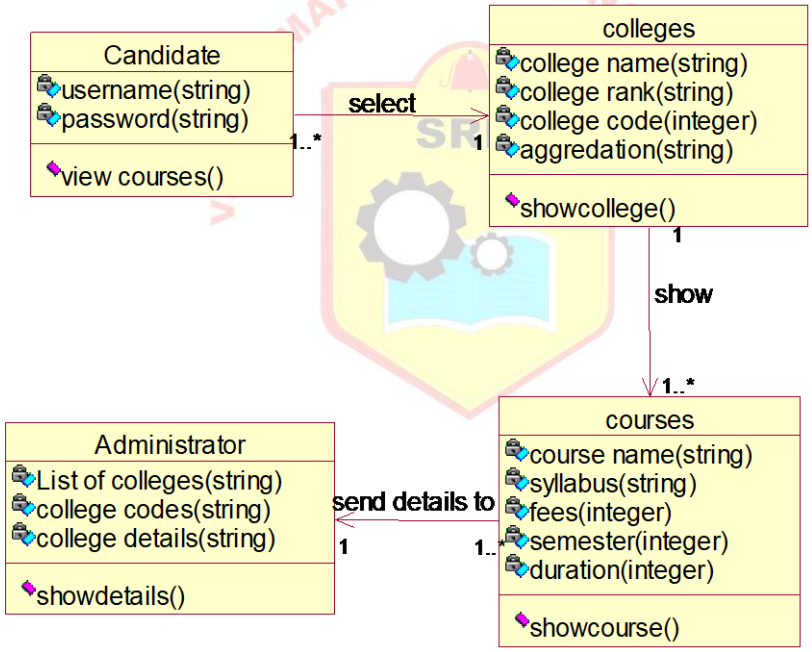
OVERALL CLASS DIAGRAM

Registration:

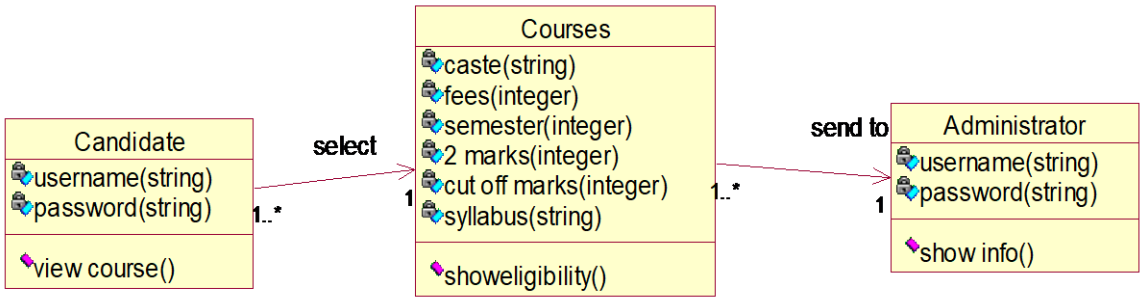




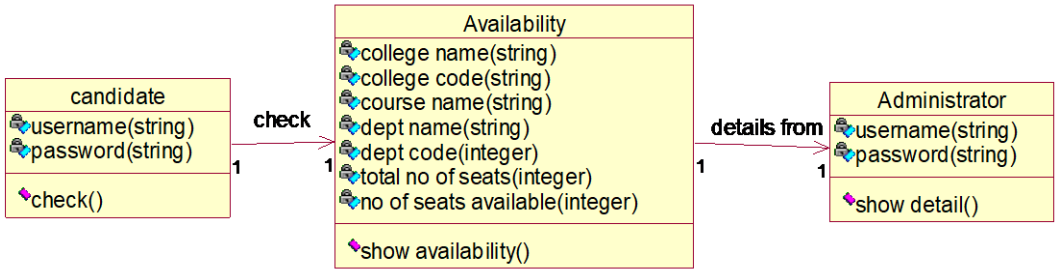
View course:



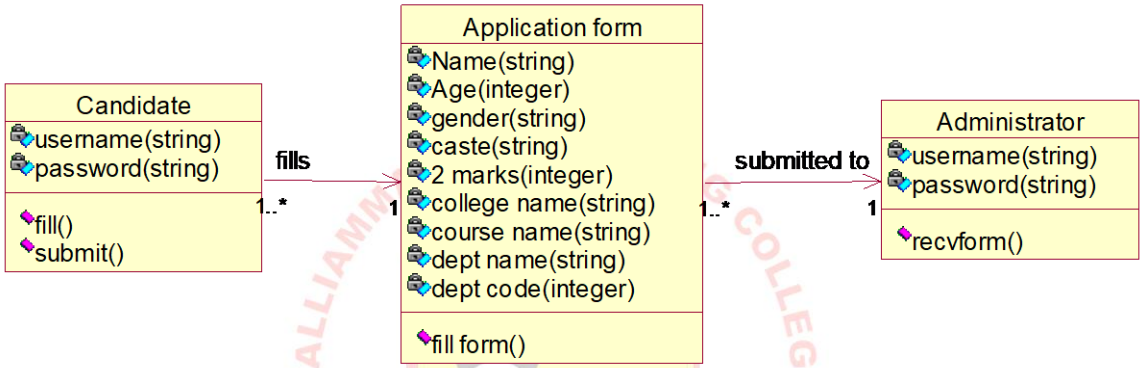
Eligibility:



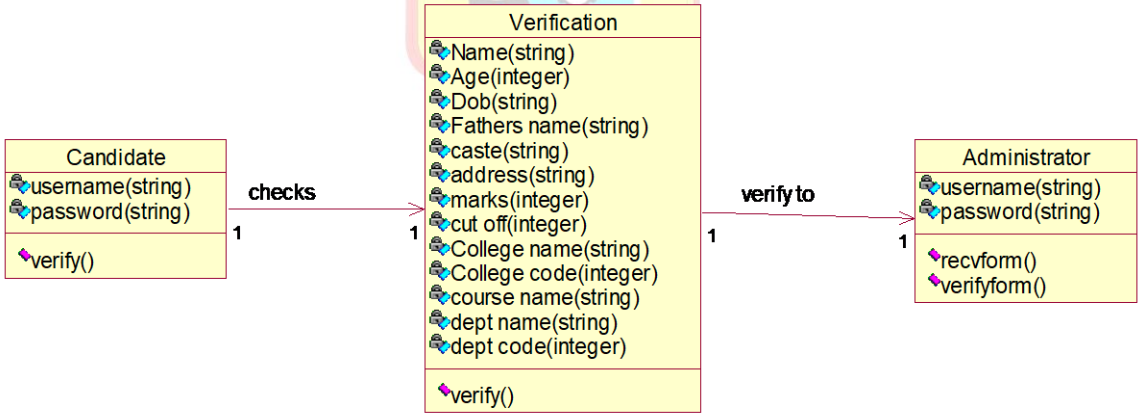
Availability:



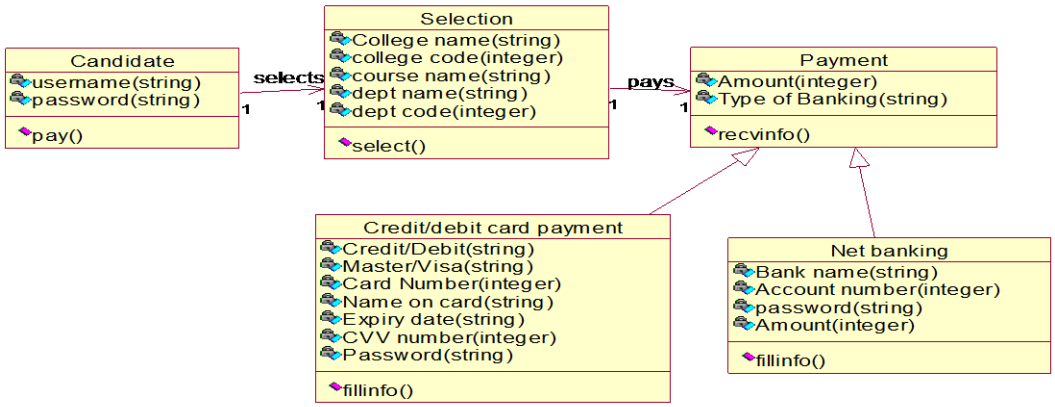
Submit:



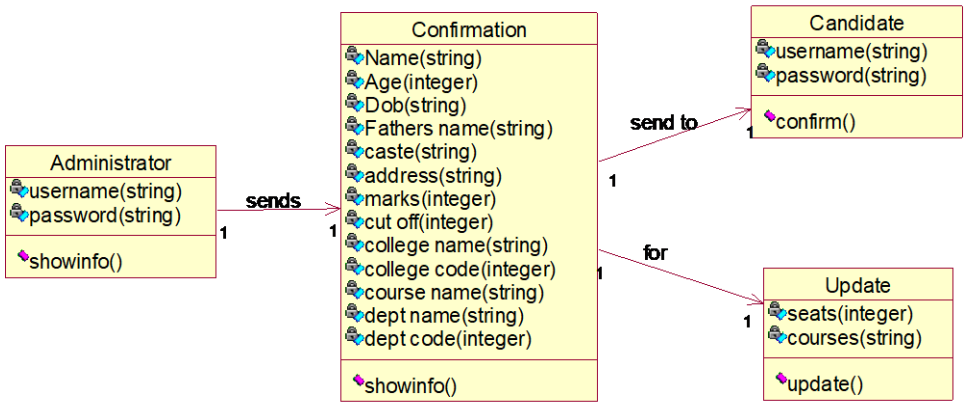
Verification:



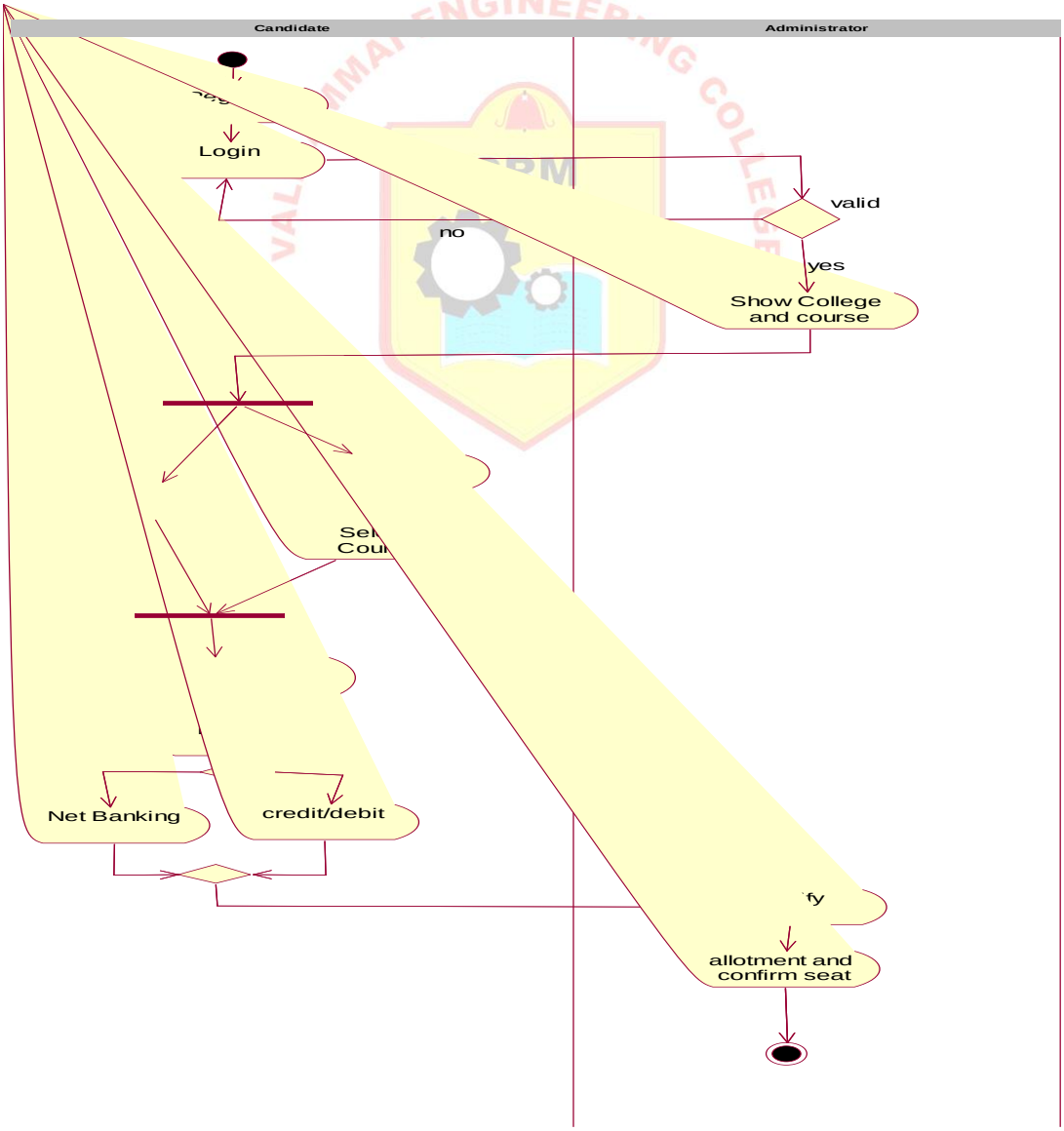
Payment:



Confirmation:



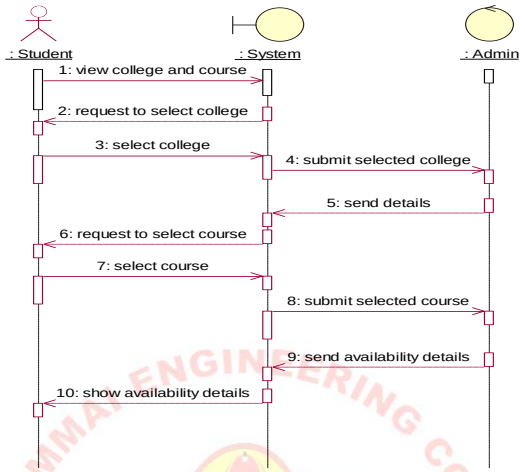
ACTIVITY DIAGRAM



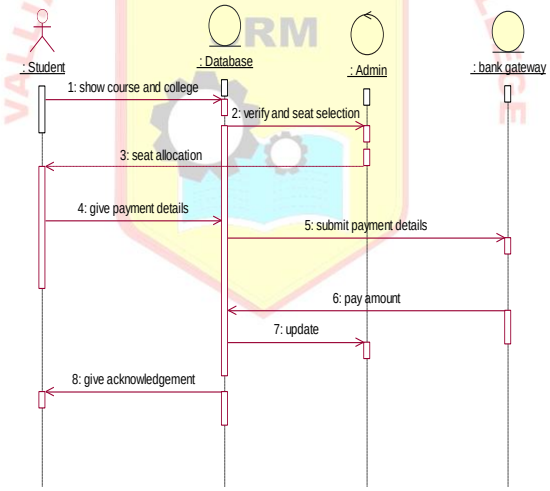
INTERACTION DIAGRAM

SEQUENCE DIAGRAM

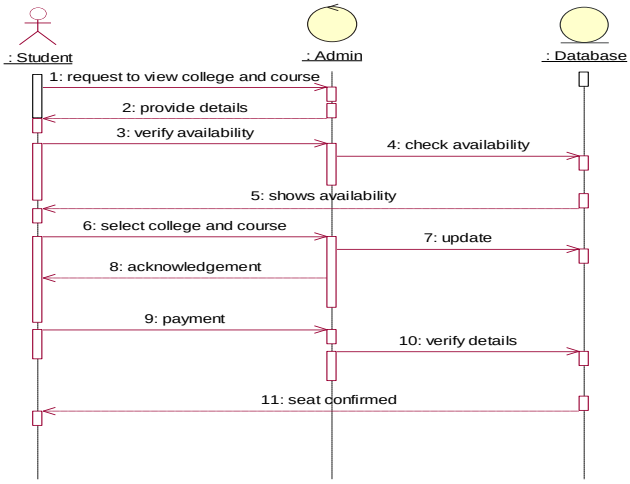
Availability



Payment

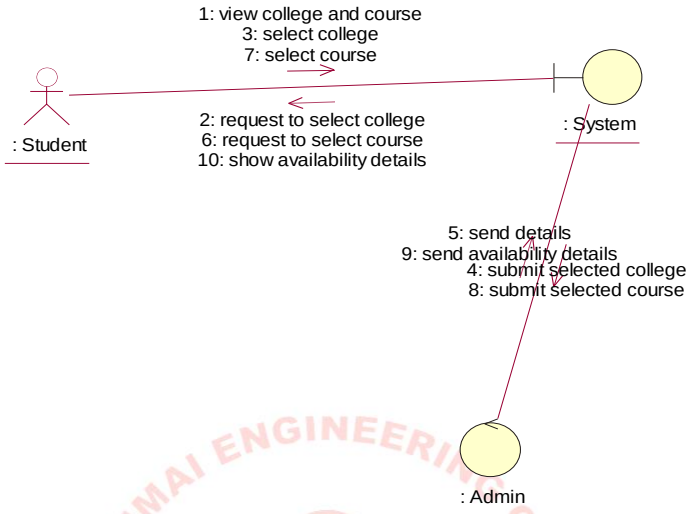


Seat confirmation

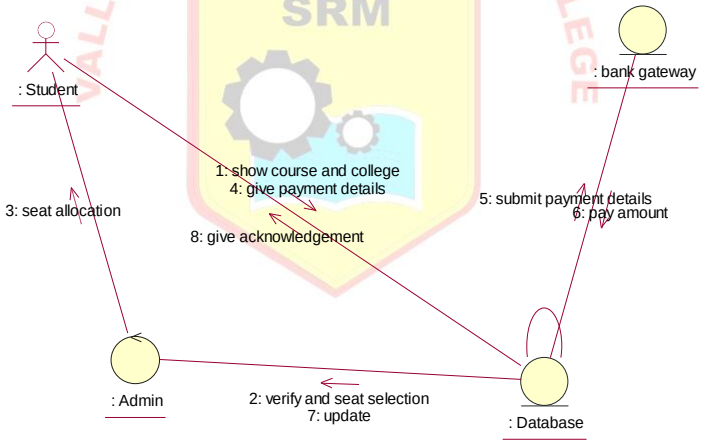


COLLABORATION DIAGRAM

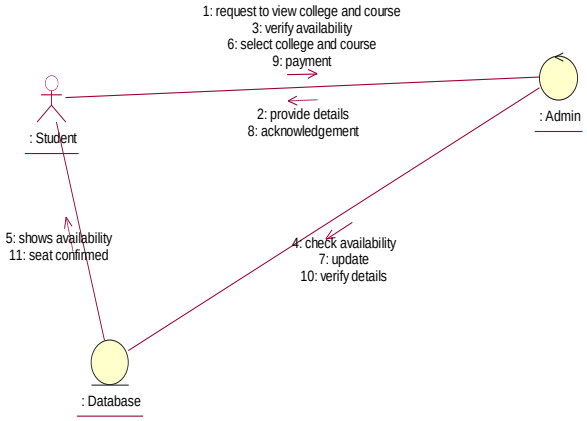
Availability



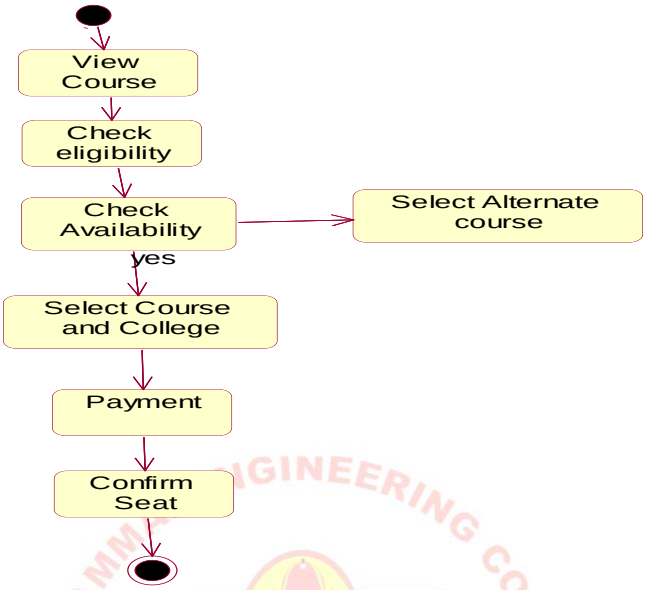
Payment



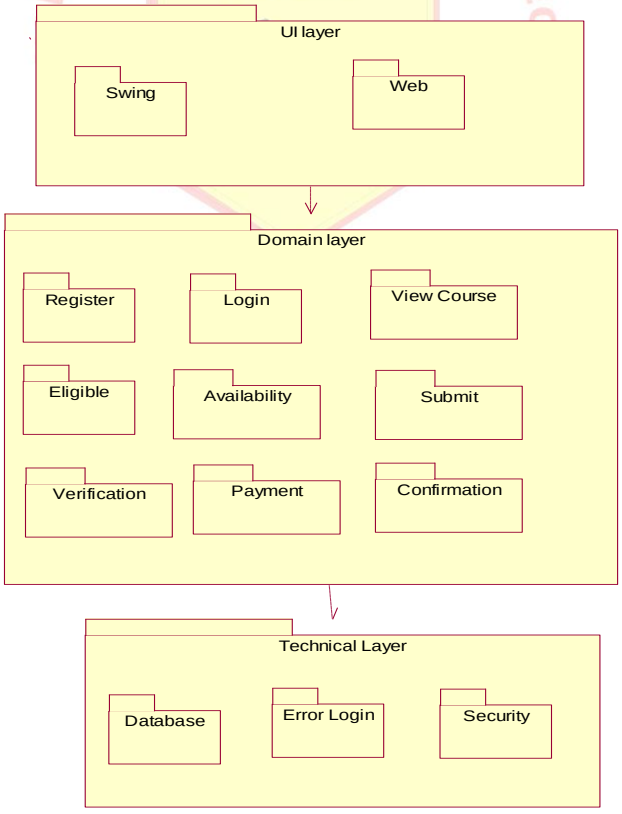
Seat confirmation



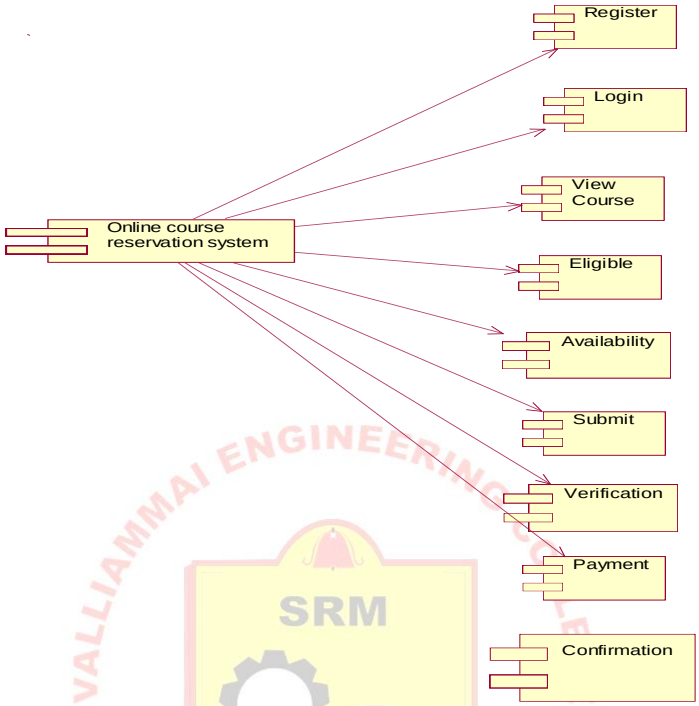
STATECHART DIAGRAM



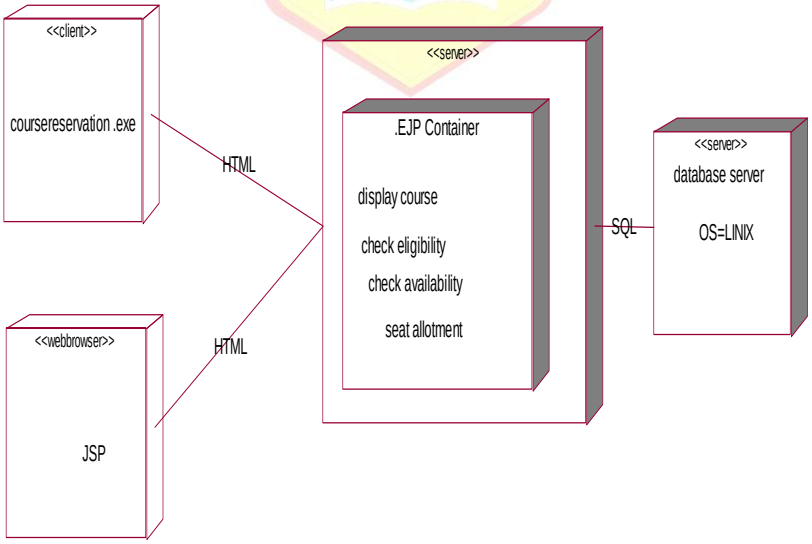
PACKAGE DIAGRAM



COMPONENT DIAGRAM



DEPLOYMENT DIAGRAM



RESULT:

Thus the project to develop an Online Course Reservation System is done successfully.

Ex.No:7 **RAILWAY RESERVATION SYSTEMS**

AIM:

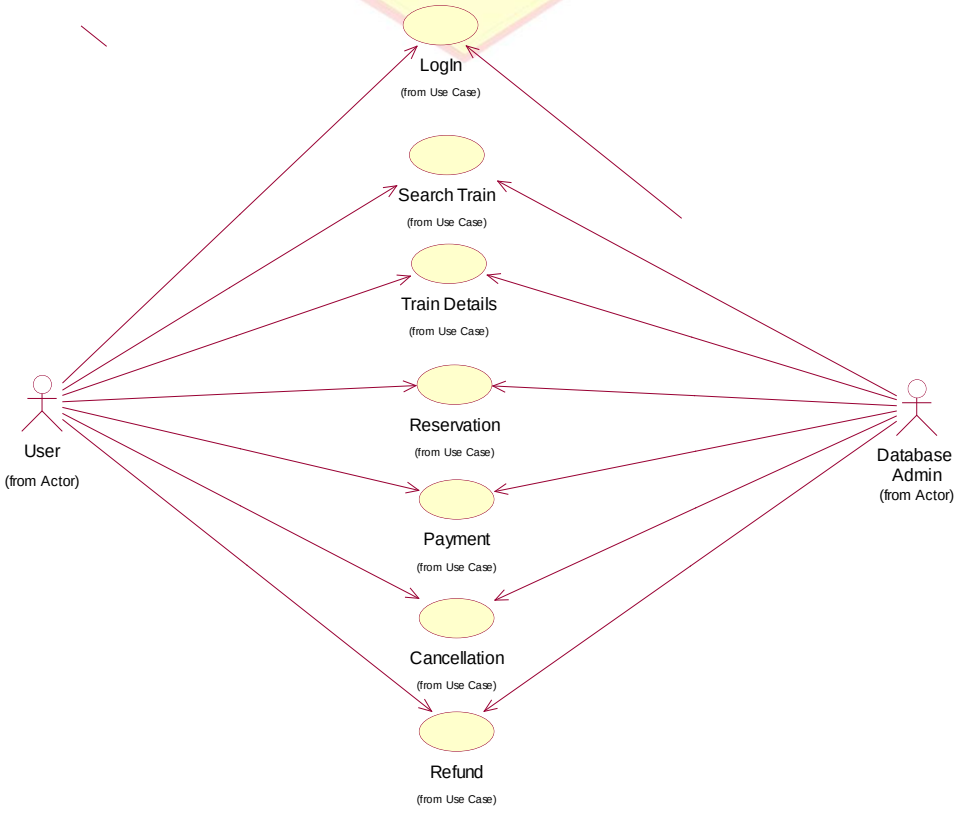
The aim of the project is to develop and implement the software for Railway ReservationSystem.

PROBLEM STATEMENT:

Itis a system which provides an effective way to reserve ticket with remote access to the issuing authority. It helps the user to book ticket without standing in queue and need not to go to booking office. It manages all the information and data which are centrally stored. All the reservation, cancellation, updation etc. are reflected to the centrally stored database. Its basic process is to identify an authorized user and provide the user his/her required operation. Initially the user should authenticate them by creating an identity so that the user can be identified.

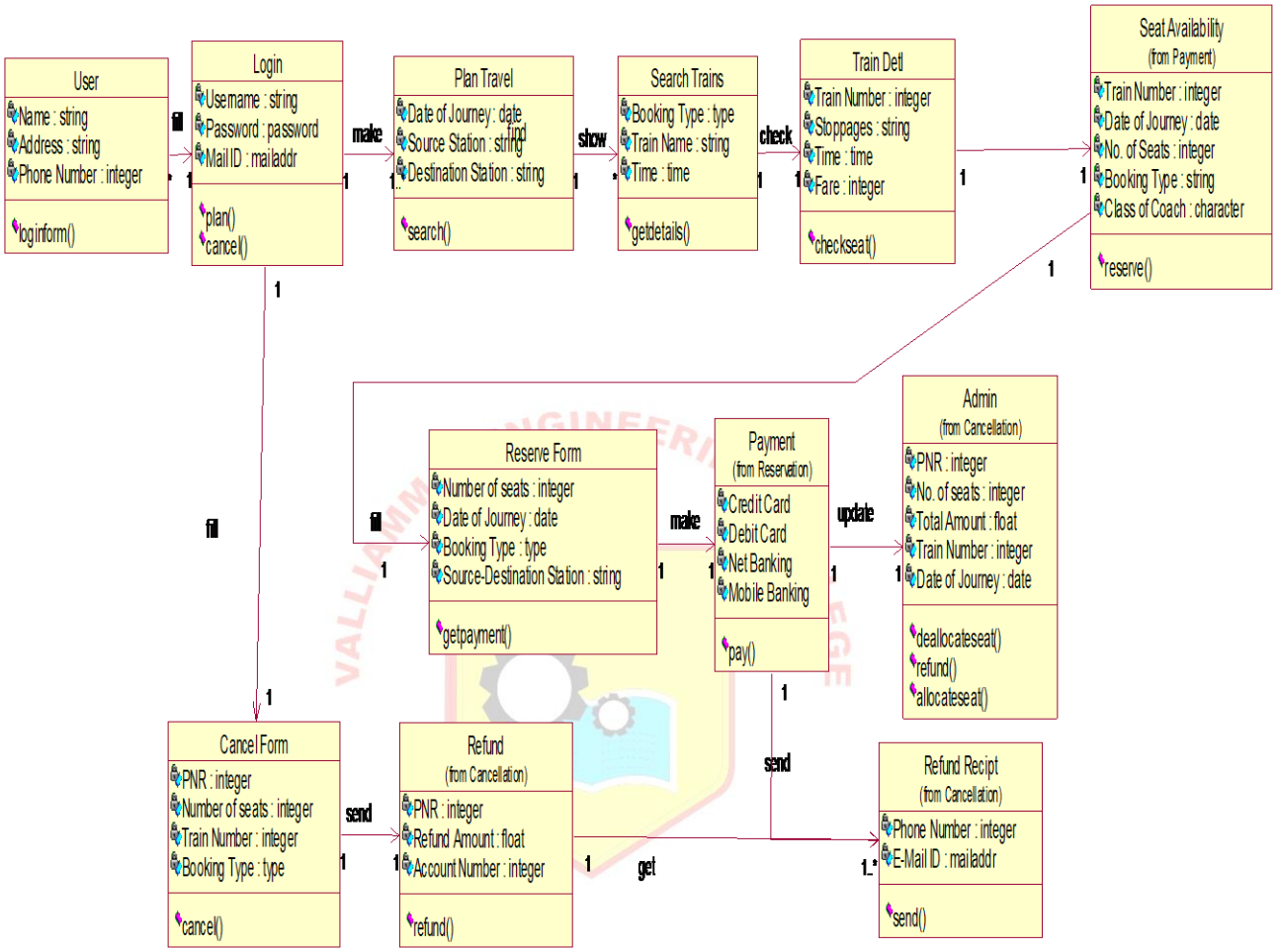
It provides various operations like reservation, cancellation, status details etc. In reservation, before reserving ticket, it shows the availability status also which is helpful to the user. A major part of this system is the support of internet payment, which needs a secure way to transfer the payment. At the end it provides the user with a e-ticket, which will be the authorized ticket with which the user will travel.

USE CASE DIAGRAM

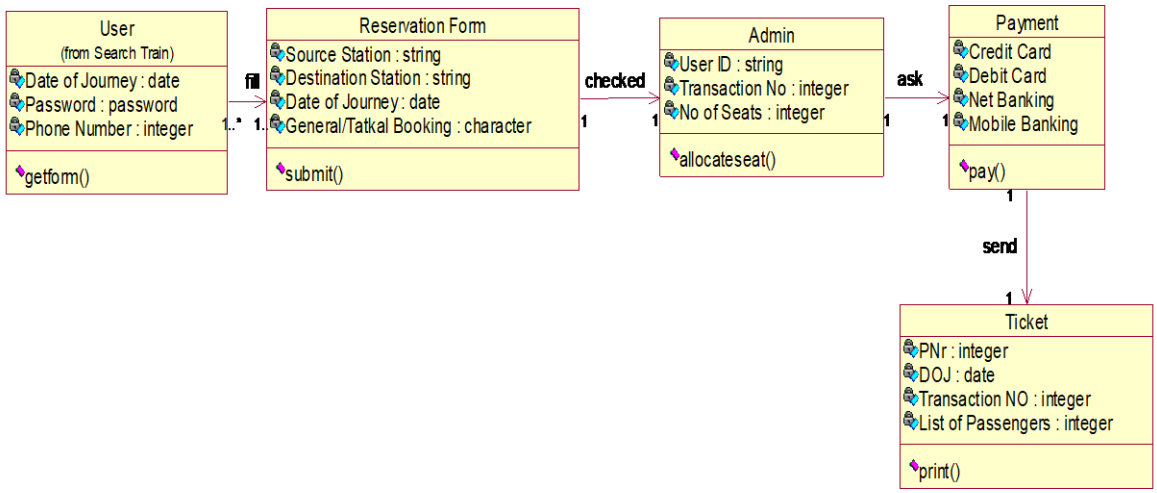


CLASS DIAGRAM

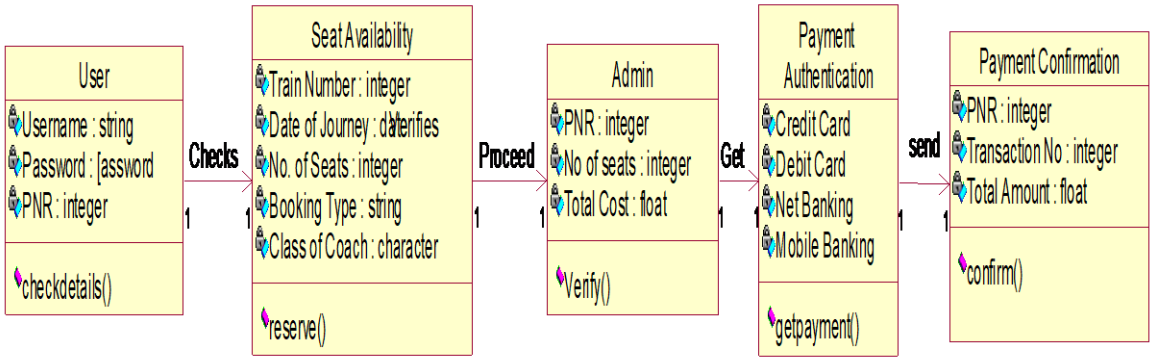
OVERALL CLASS DIAGRAM



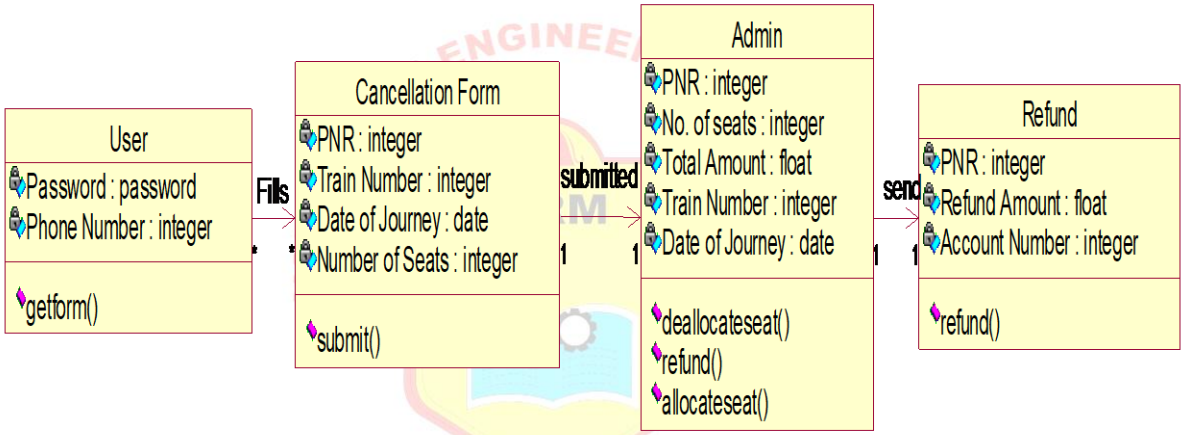
RESERVATION



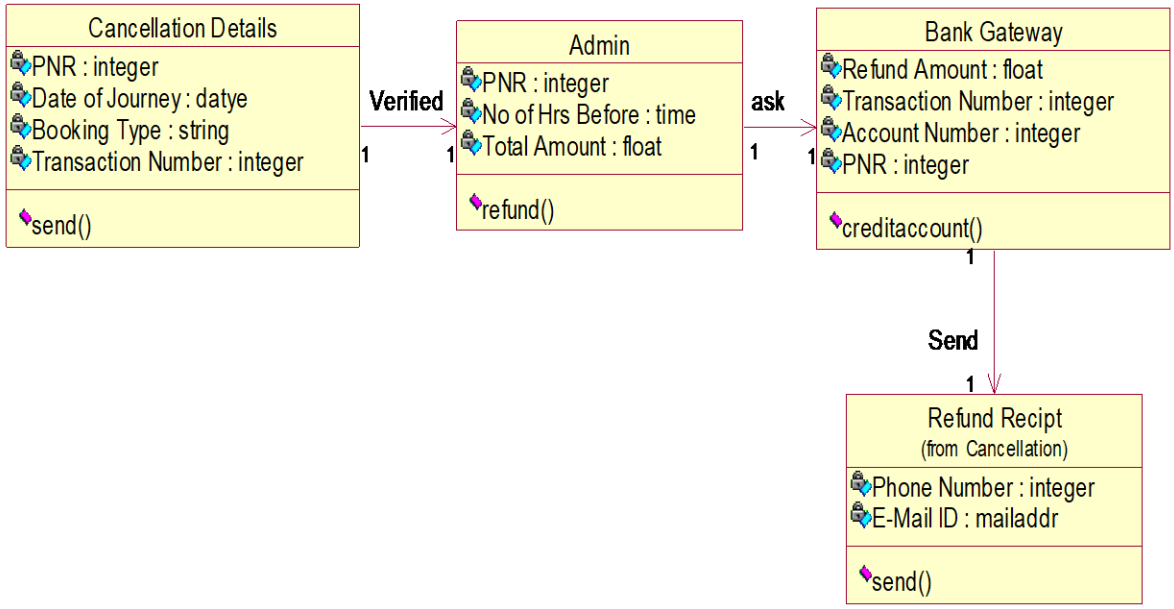
PAYMENT



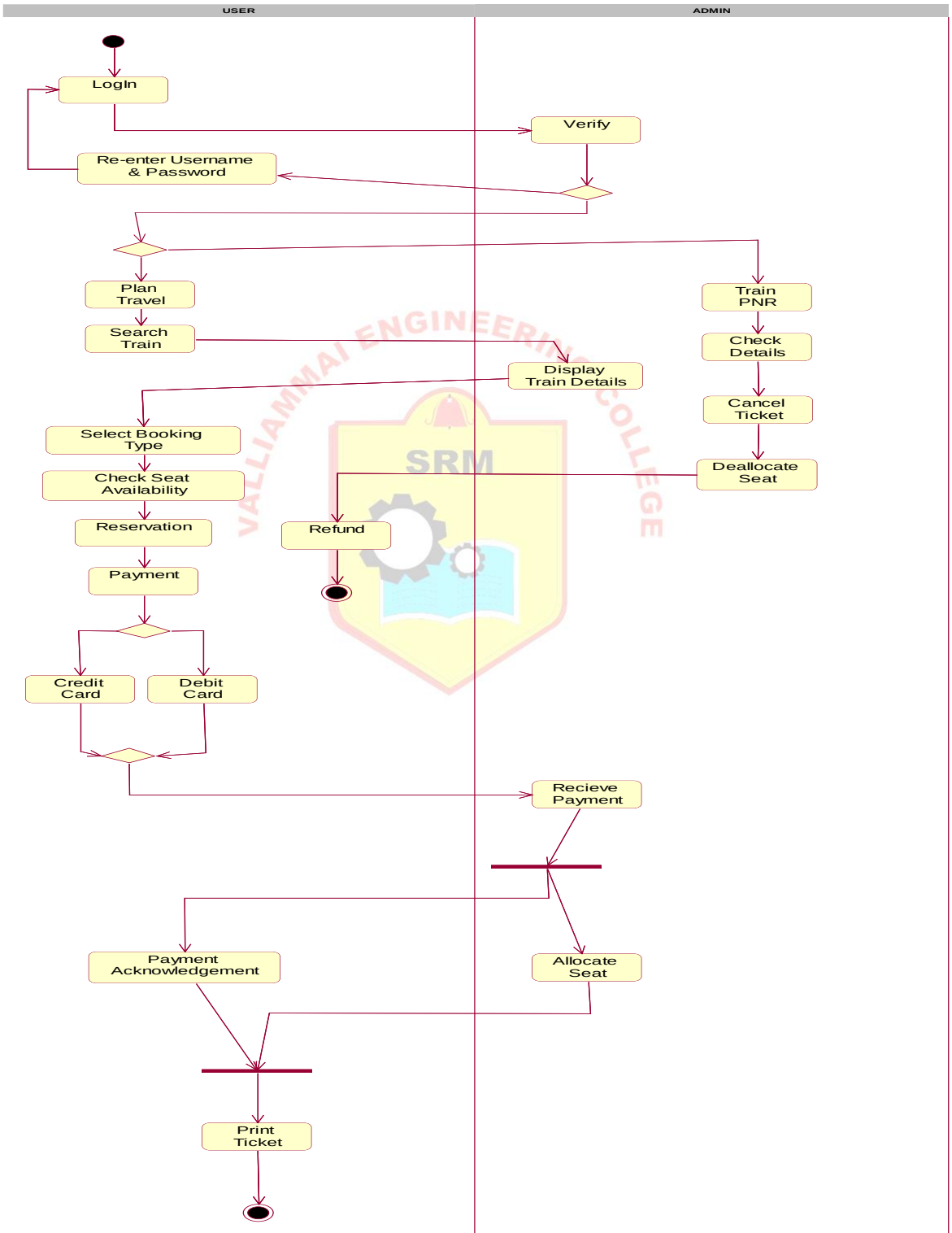
CANCELLATION



REFUND



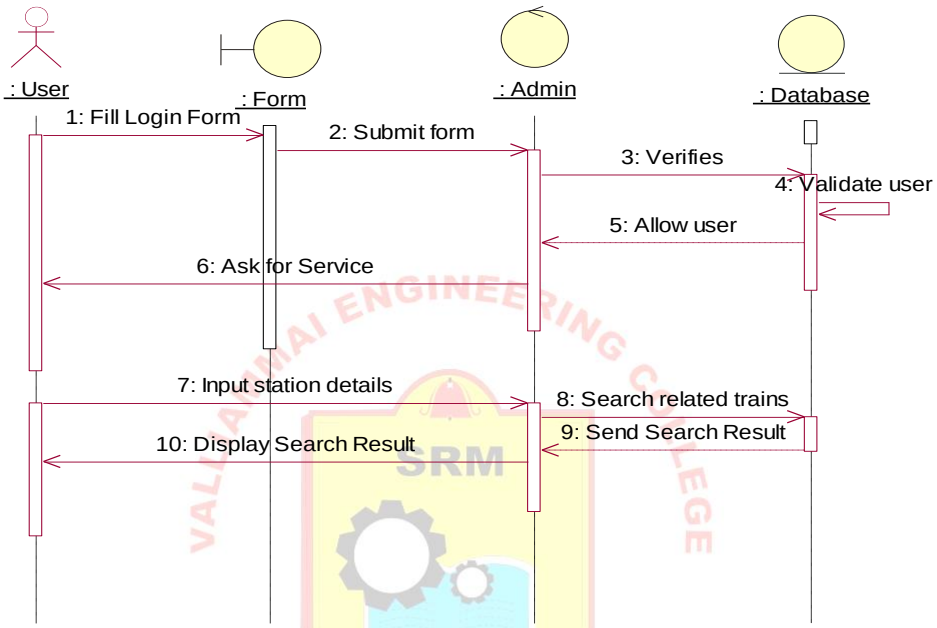
ACTIVITY DIAGRAM



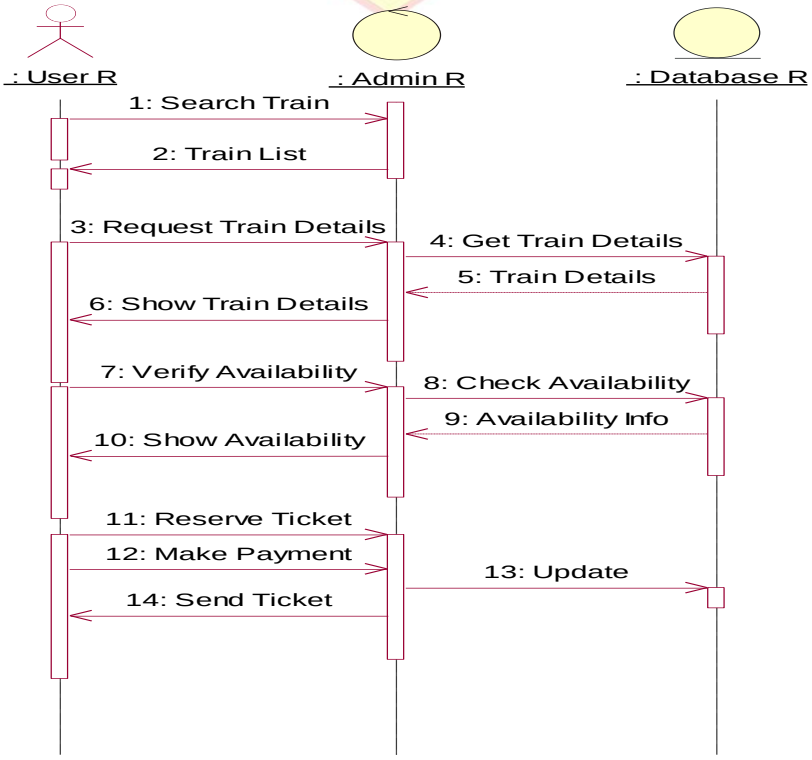
INTERACTION DIAGRAM

SEQUENCE DIAGRAM

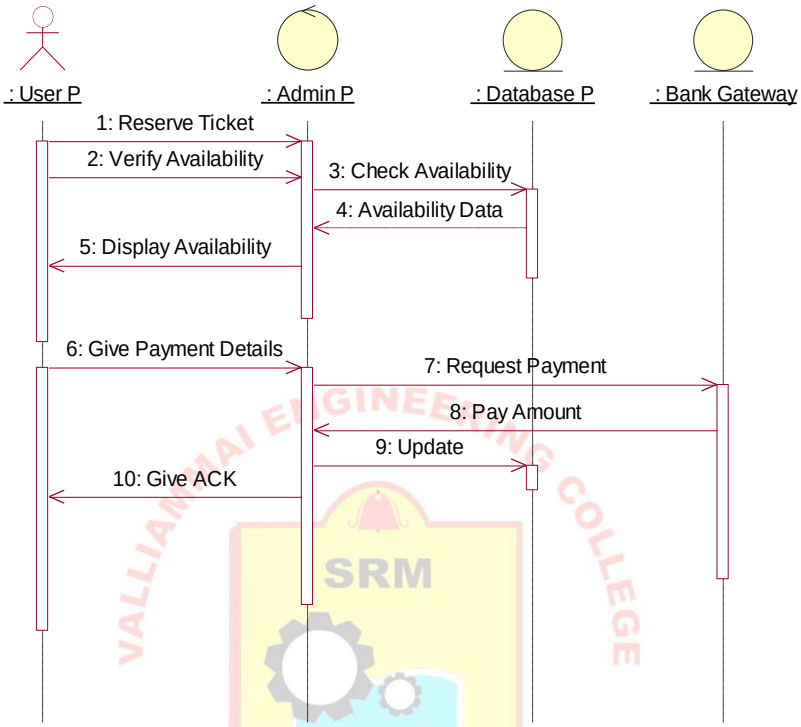
SEARCH TRAIN



RESERVATION

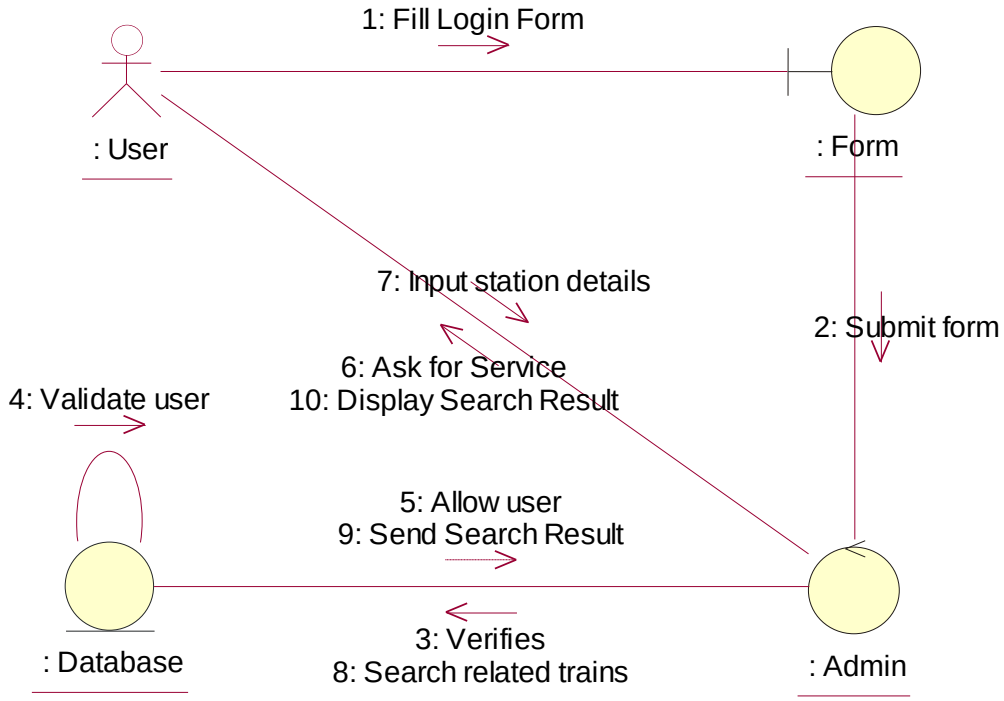


PAYMENT



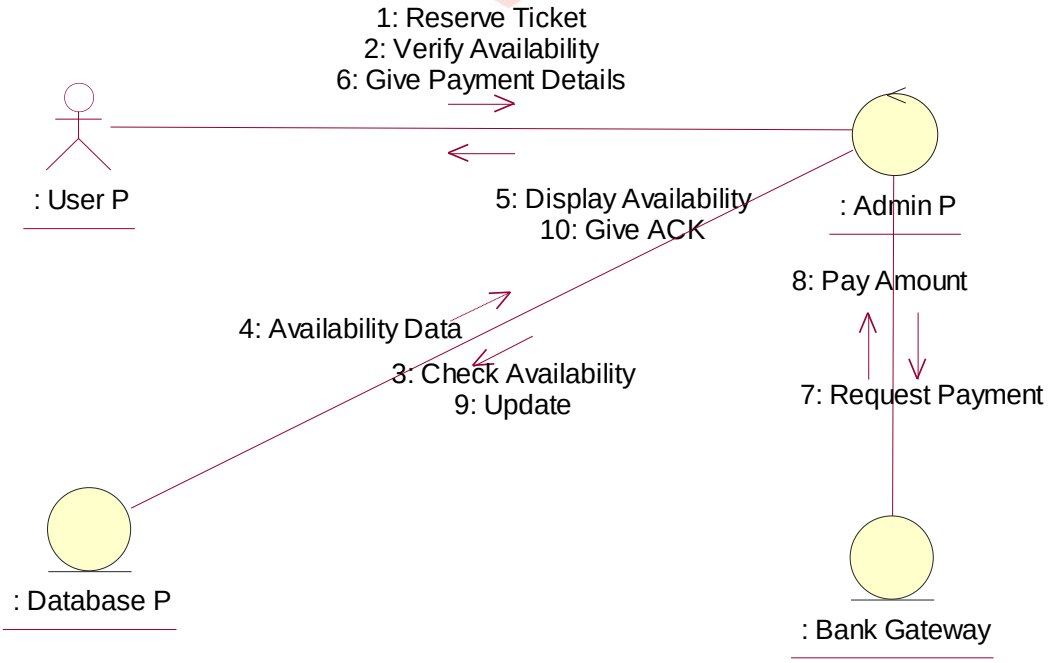
COLLABORATION DIAGRAM

SEARCH TRAIN

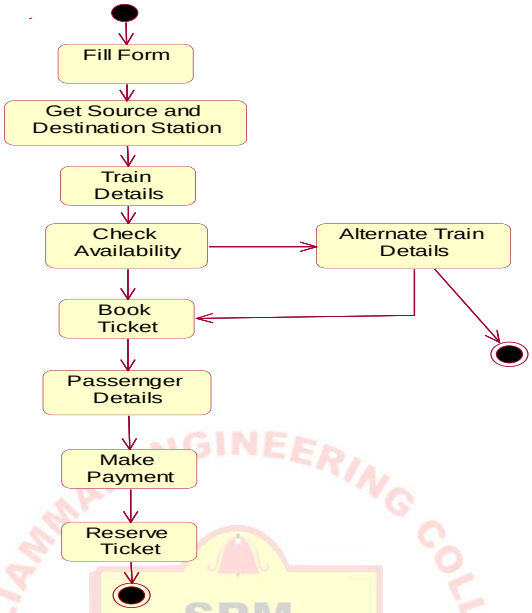


RESERVATION

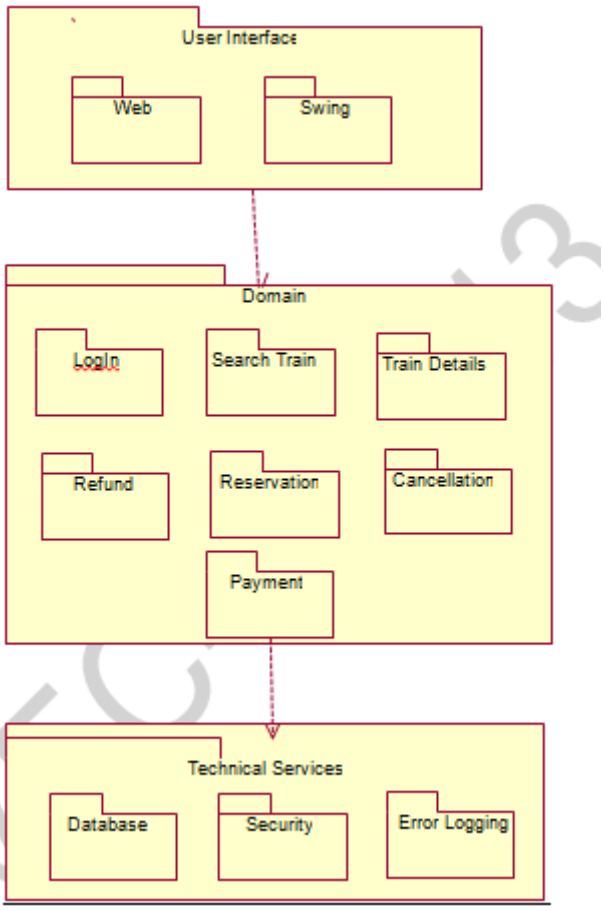
PAYMENT



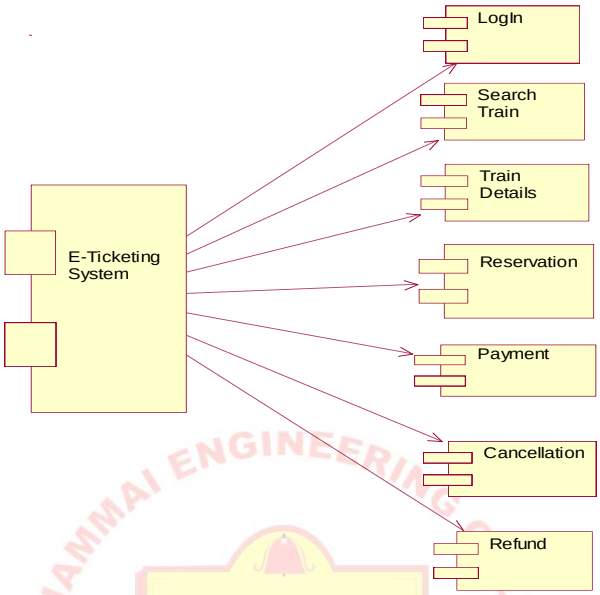
STATE CHART DIAGRAM



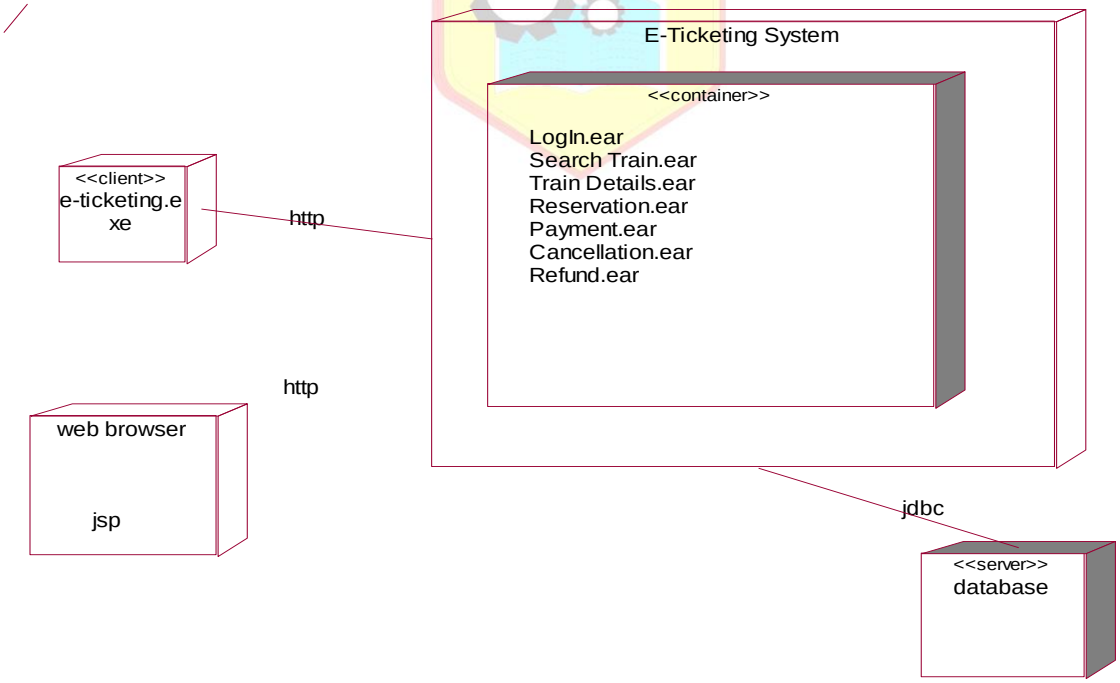
PACKAGE DIAGRAM



COMPONENT DIAGRAM



DEPLOYMENT DIAGRAM



RESULT:

Thus the project to develop an E-Ticketing System is done successfully.

Ex.No:8 SOFTWARE PERSONNEL MANAGEMENT SYSTEM

AIM:

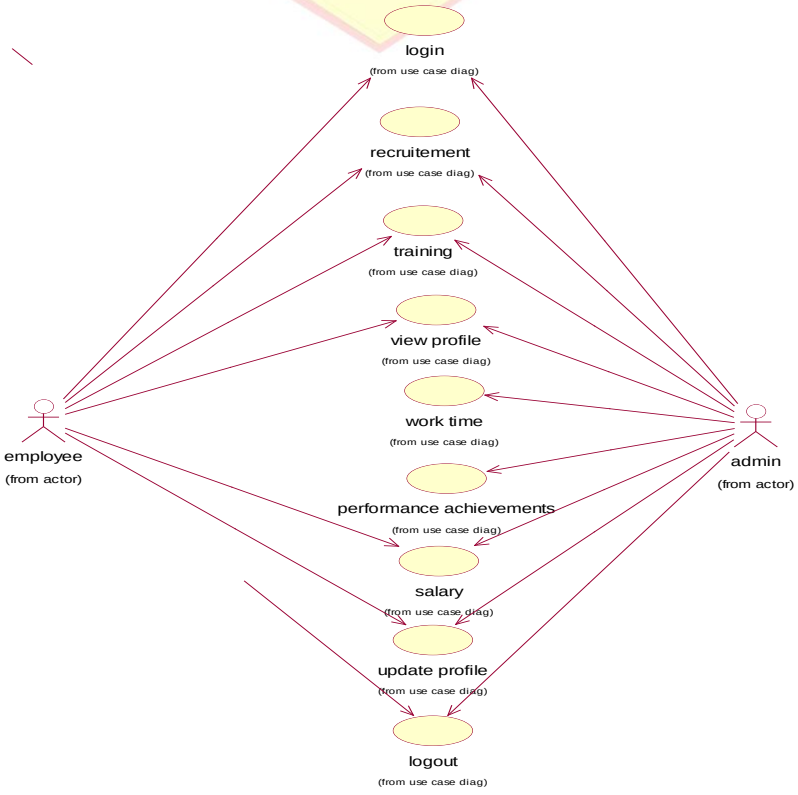
The aim of the project is to develop and implement the software for software personnel management system.

PROBLEM STATEMENT:

In a simpler way, the application allows the HR department to manage its employee in a better way. It will take very little time to find out all the details about an employee and his contribution to the organization. It will also facilitate keeping track of all the records of employee thereby making it easier for HR department.

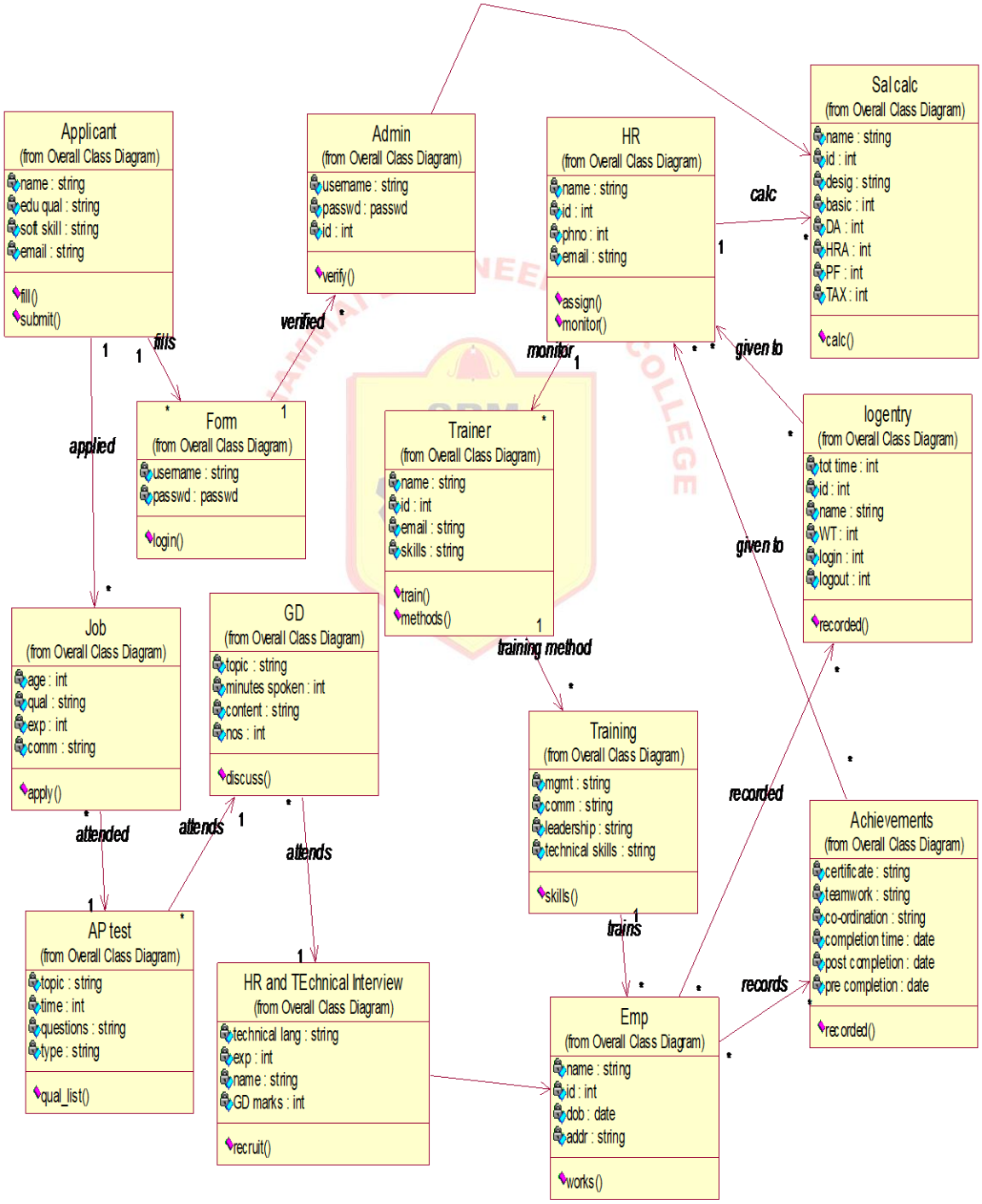
It involves new system upgrades of software to send and capture information related to payment and management of employee. He uses system to plan and analyze performance metrics driven human resource functions including recruitment, attendance, compensation and benefits. Software personnel management system should align for maximum operative efficiency with financial accounting operations, customer relationship management, security and business of organization.

USE CASE DIAGRAM



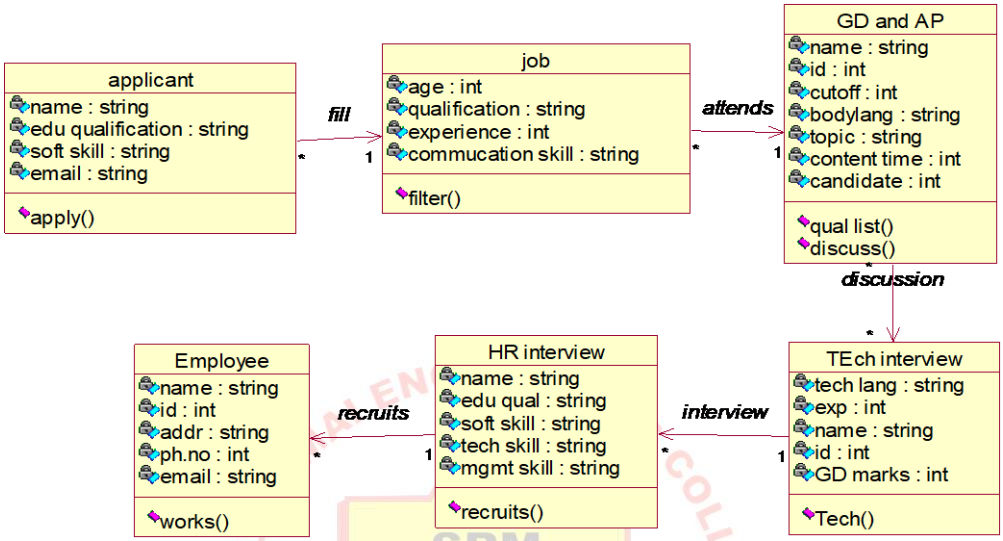
CLASS DIAGRAM

OVERALL CLASS DIAGRAM

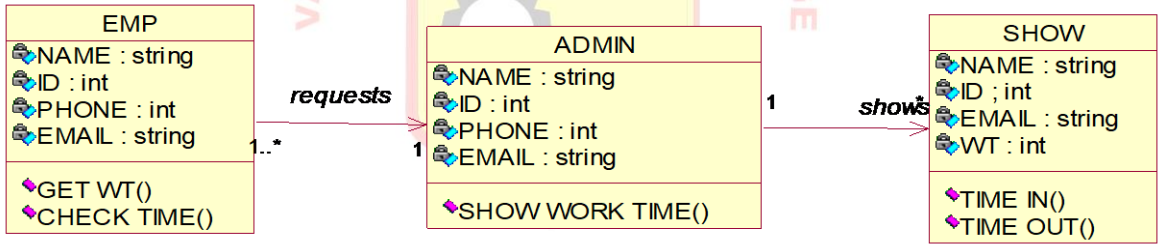


INTERACTION DIAGRAM

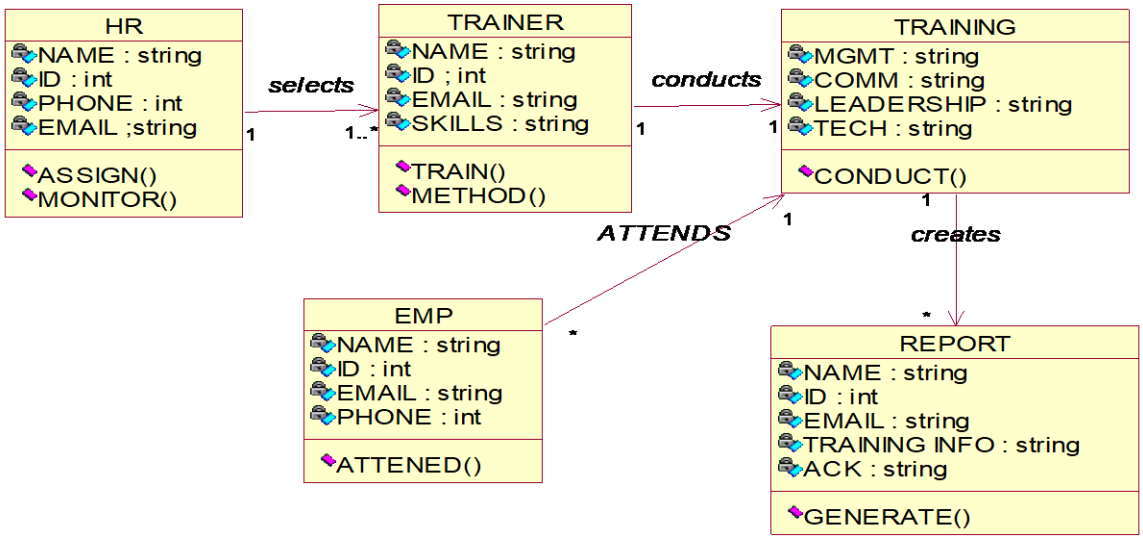
RECRUITMENT



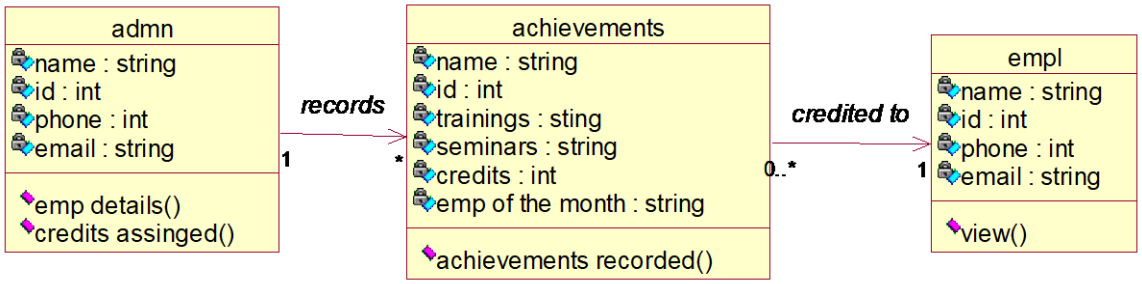
WORK TIME



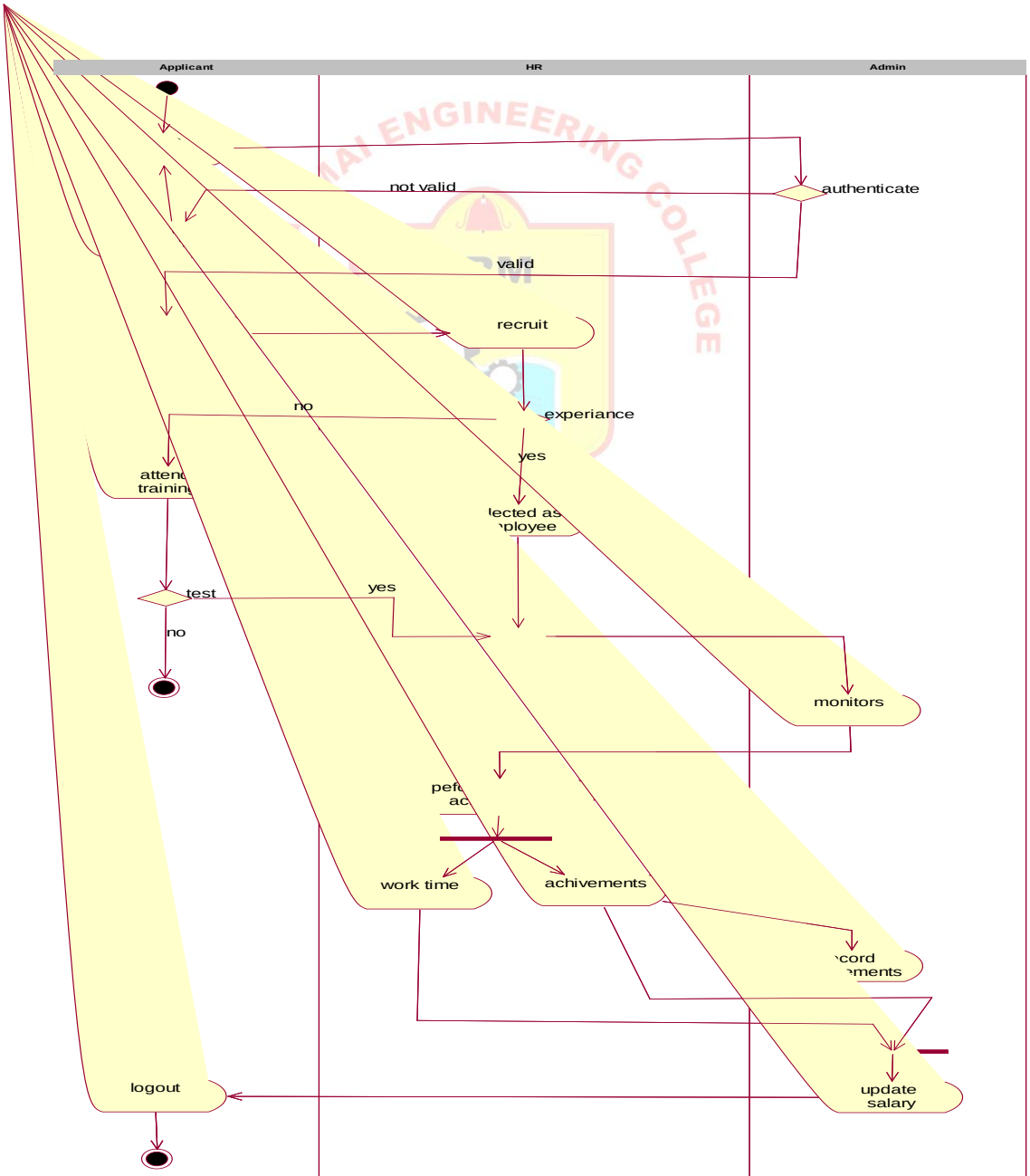
TRAINING



ACHIEVEMENTS

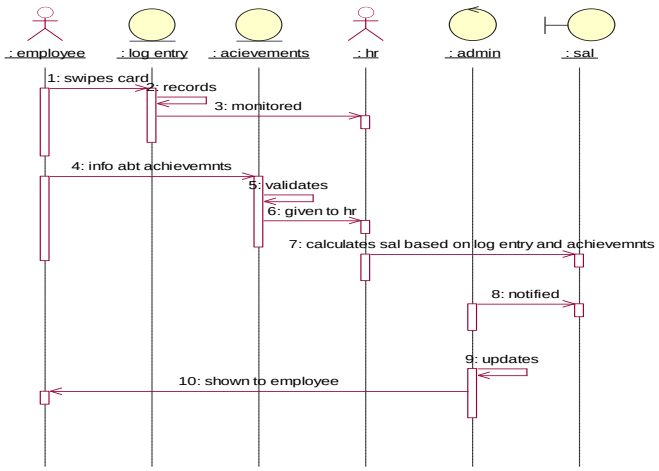


ACTIVITY DIAGRAM

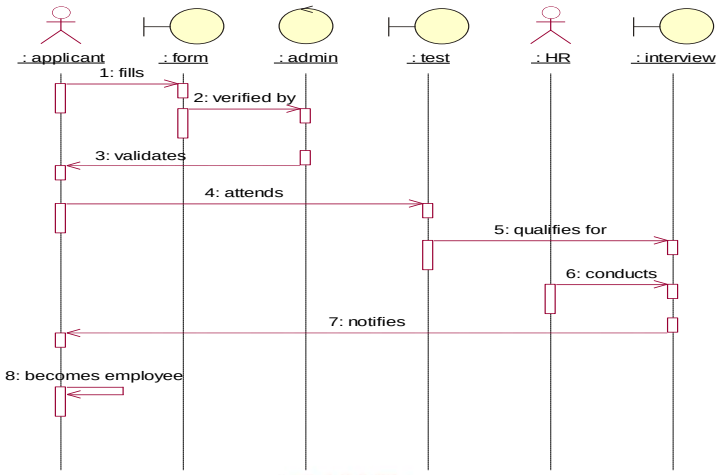


SEQUENCE DIAGRAM

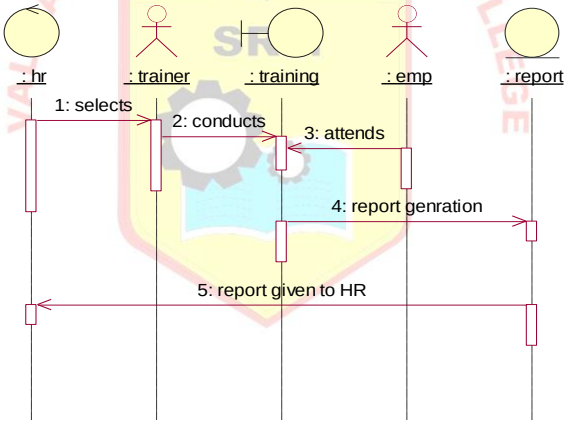
SALARY



RECRUITMENT

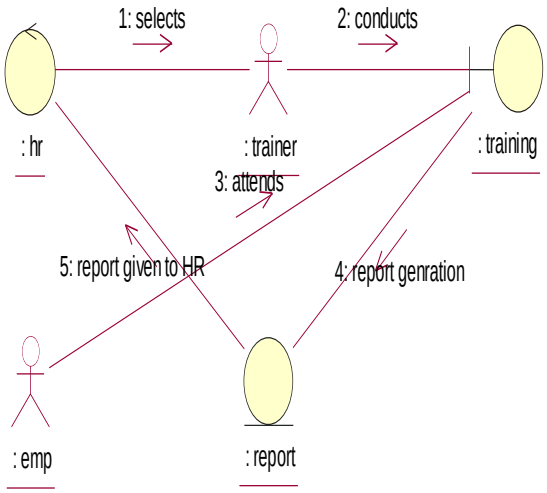


TRAINING

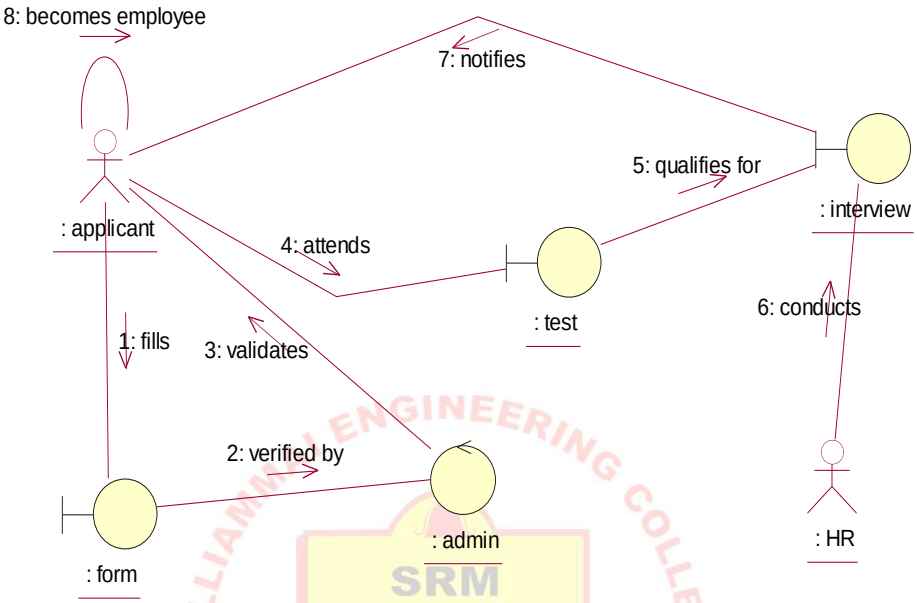


COLLABORATION DIAGRAM

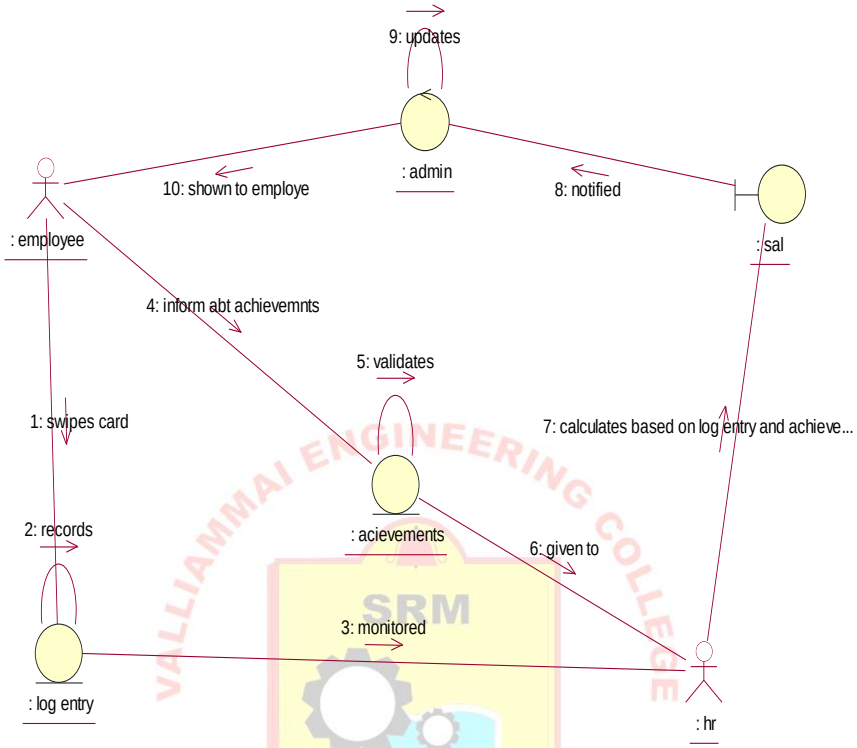
TRAINING



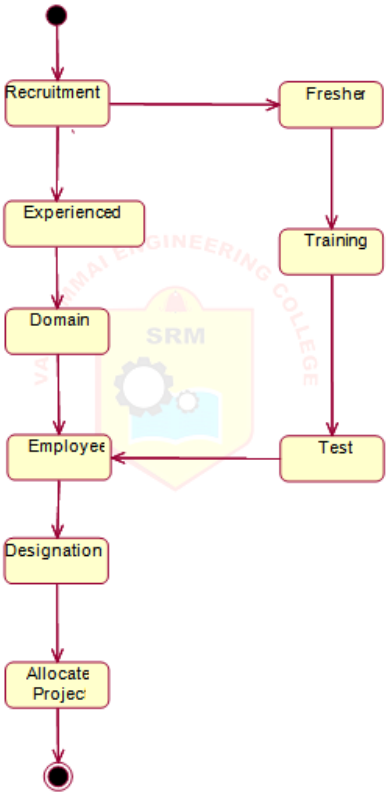
RECRIUTMENT



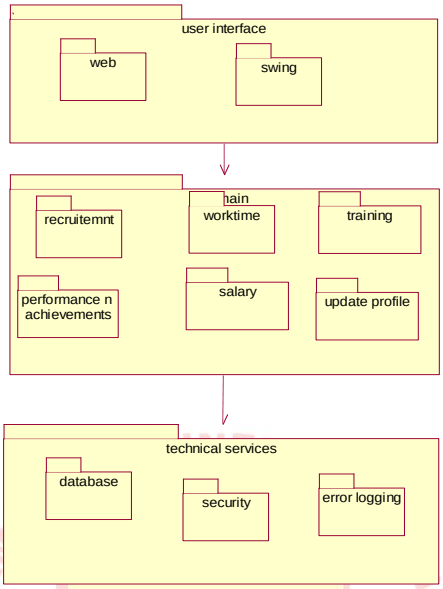
SALARY CALCULATION



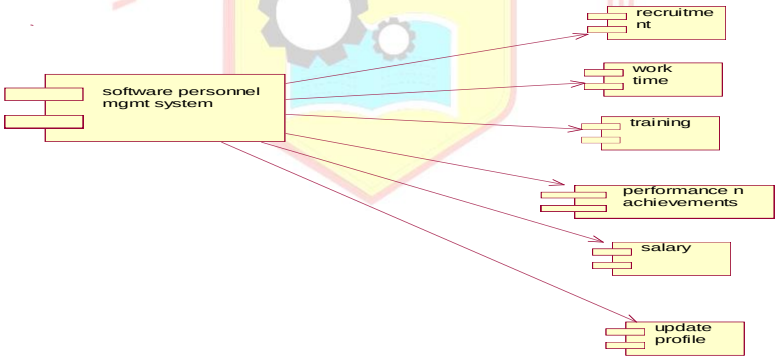
STATE CHART DIAGRAM



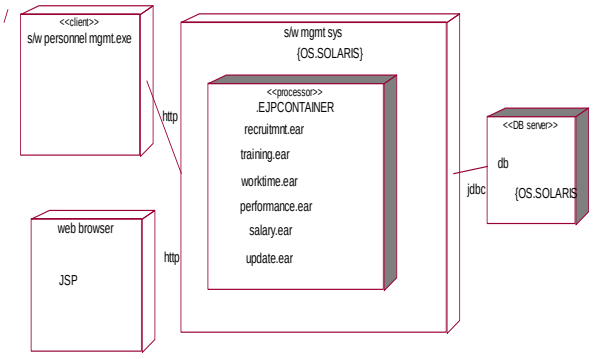
PACKAGE DIAGRAM



COMPONENT DIAGRAM



DEPLOYMENT DIAGRAM



RESULT:

Thus the project to develop aRailway Reservation System is done successfully.

Ex.No:9 **CREDIT CARD PROCESSING SYSTEMS**

AIM:

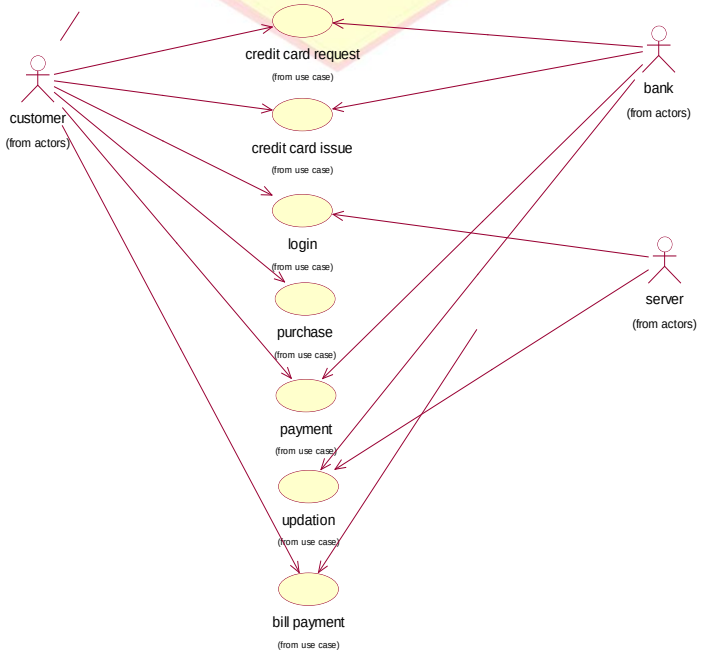
The aim of the project is to develop and implement the software for credit card processing system.

PROBLEM STATEMENT:

The credit card is used for the transaction of money between the users on the bank for the credit card. The customer must have an account in the bank then the bank provides the credit card for the customer with a unique card numbercalled personal identification number (PIN) this PIN number contains the Security information.

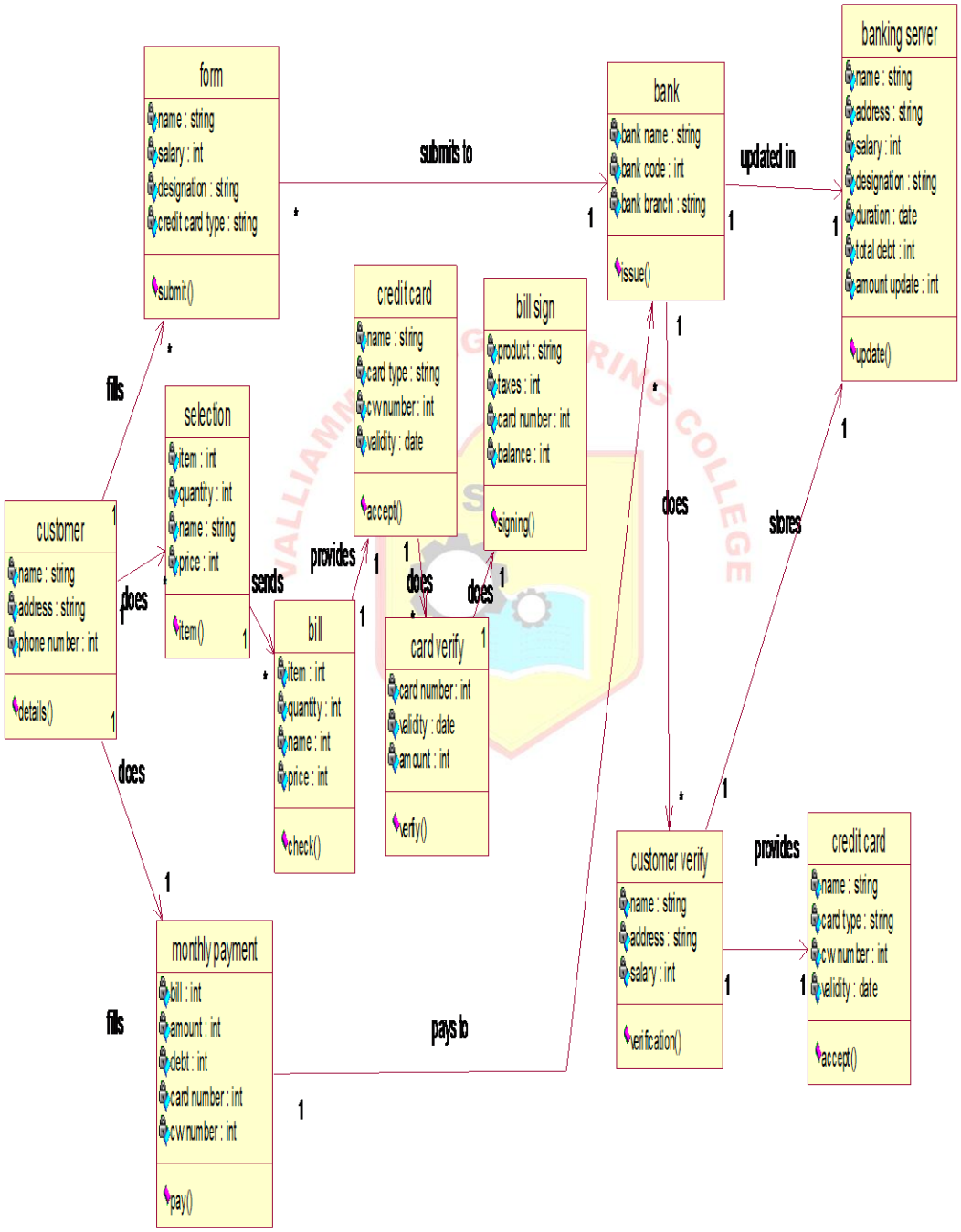
During the purchase of goods, using the credit card, the customer canbuy the goods, and the bank will pay the amount then after a certain period the amount due must be paid by the user to the bank. Thus the credit card paid in the bank, transaction credit card also be used for the online purchase of goods and only an authorized user can do the transaction after each transaction the amount is to be updated regularly by the bank.

USECASE DIAGRAM

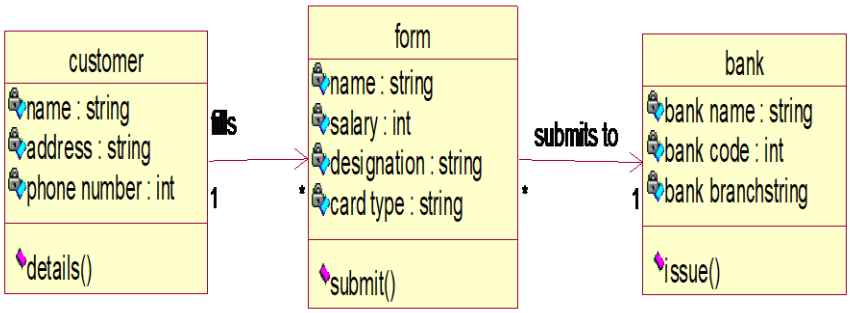


CLASS DIAGRAM

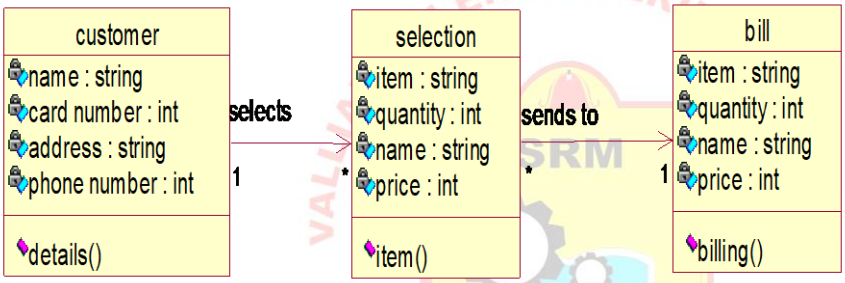
OVERALL CLASS DIAGRAM



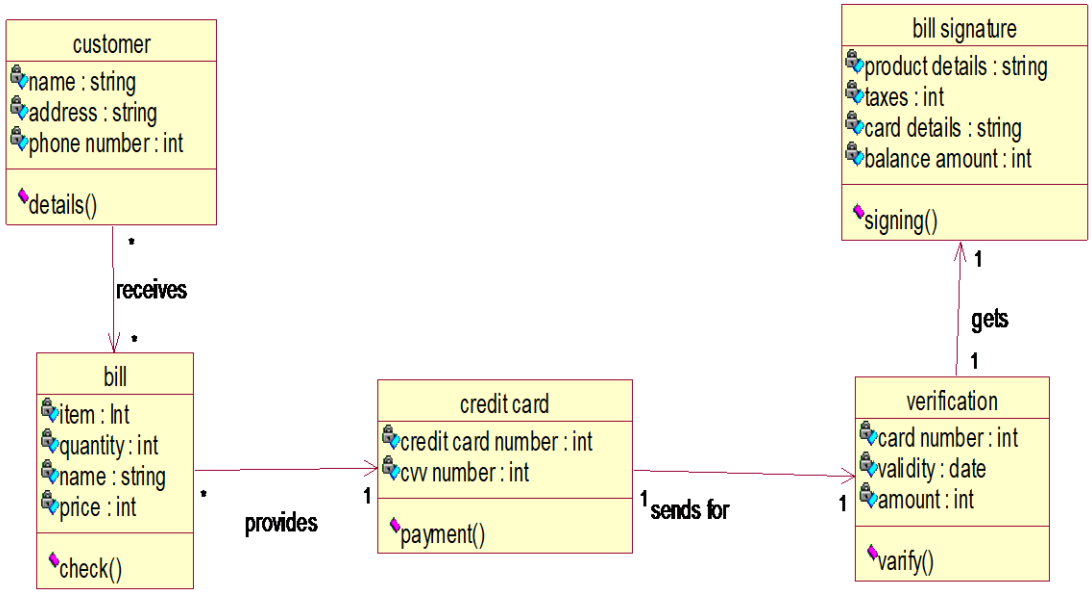
Credit card request



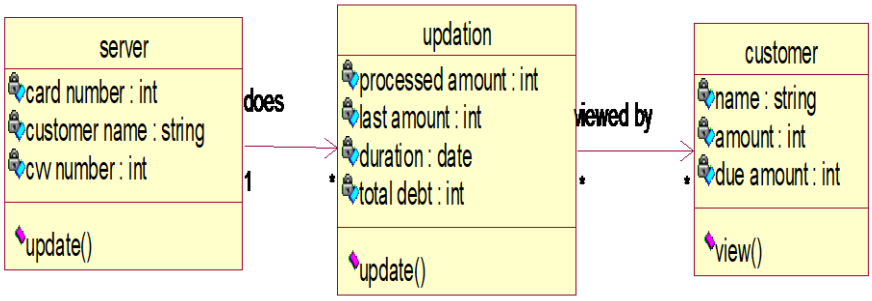
Purchase



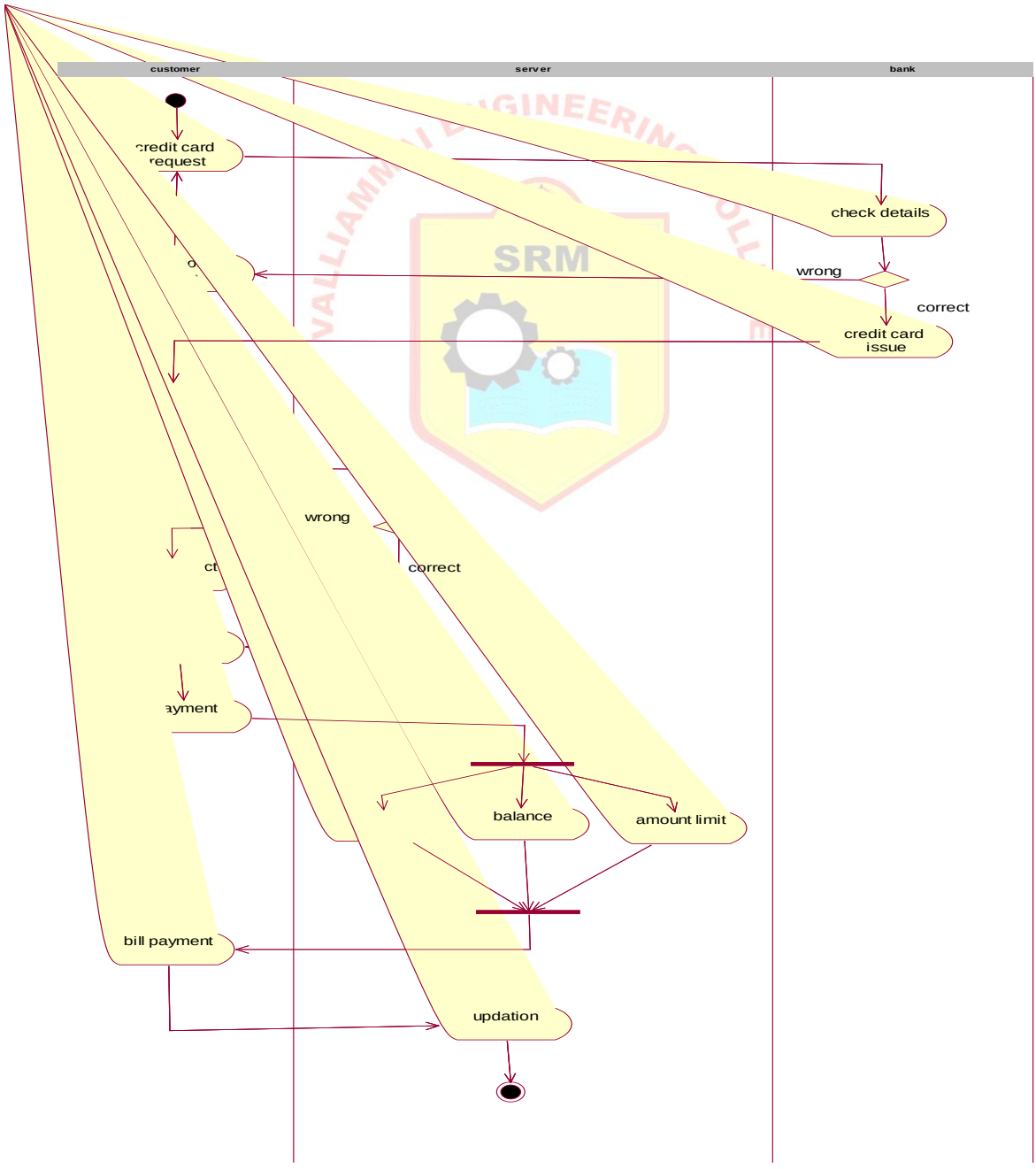
Payment



Updation



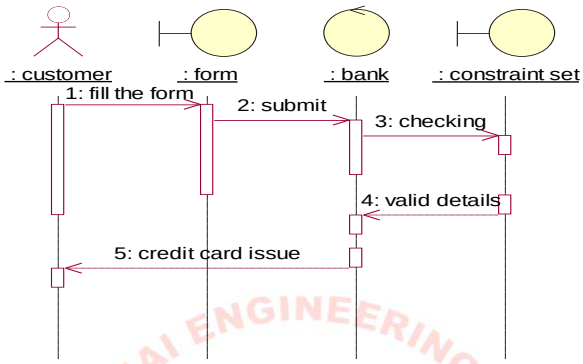
ACTIVITY DIAGRAM



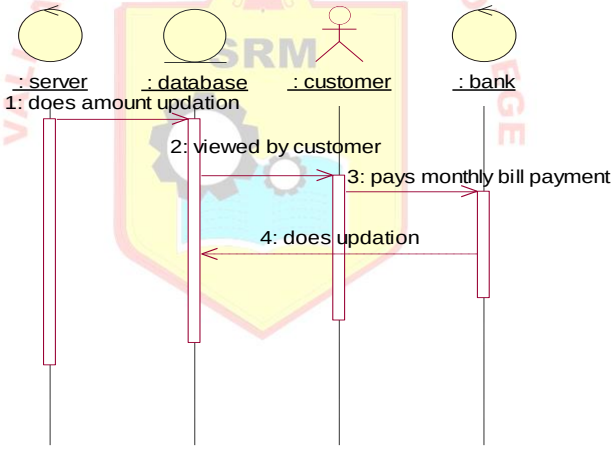
INTERACTION DIAGRAM

SEQUENCE DIAGRAM

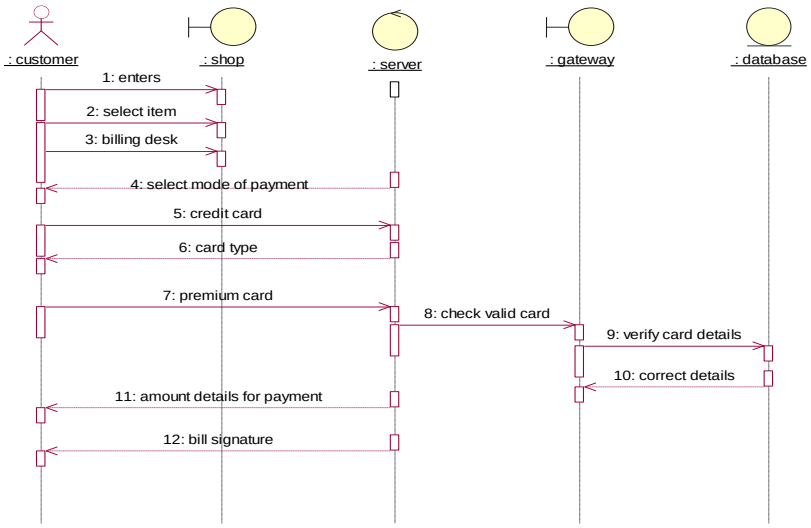
Credit card request



Updation

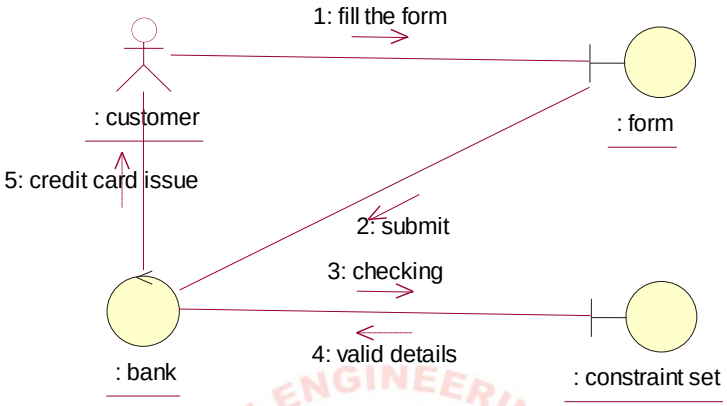


Payment

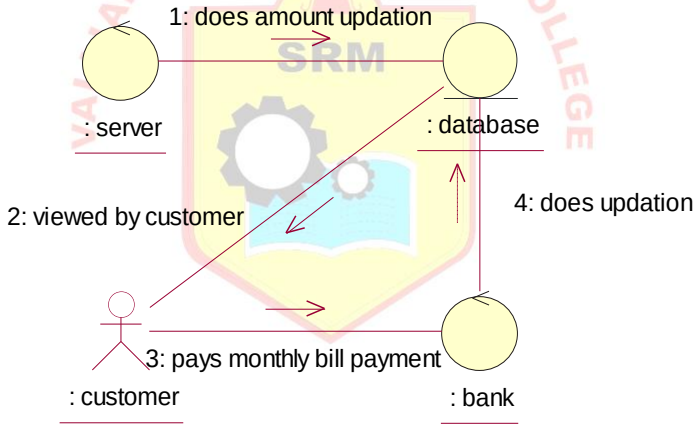


COLLABORATION DIAGRAM

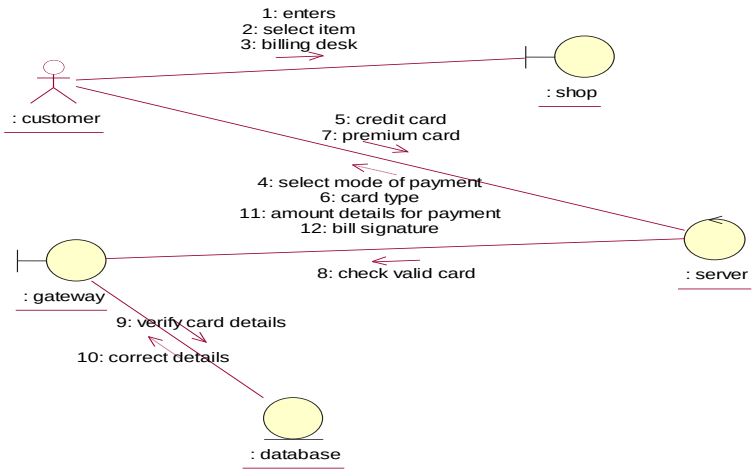
Credit card request



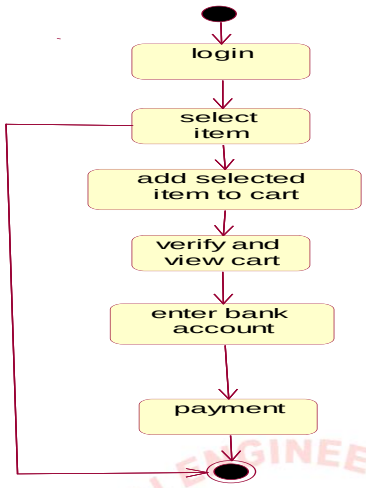
UPDATION



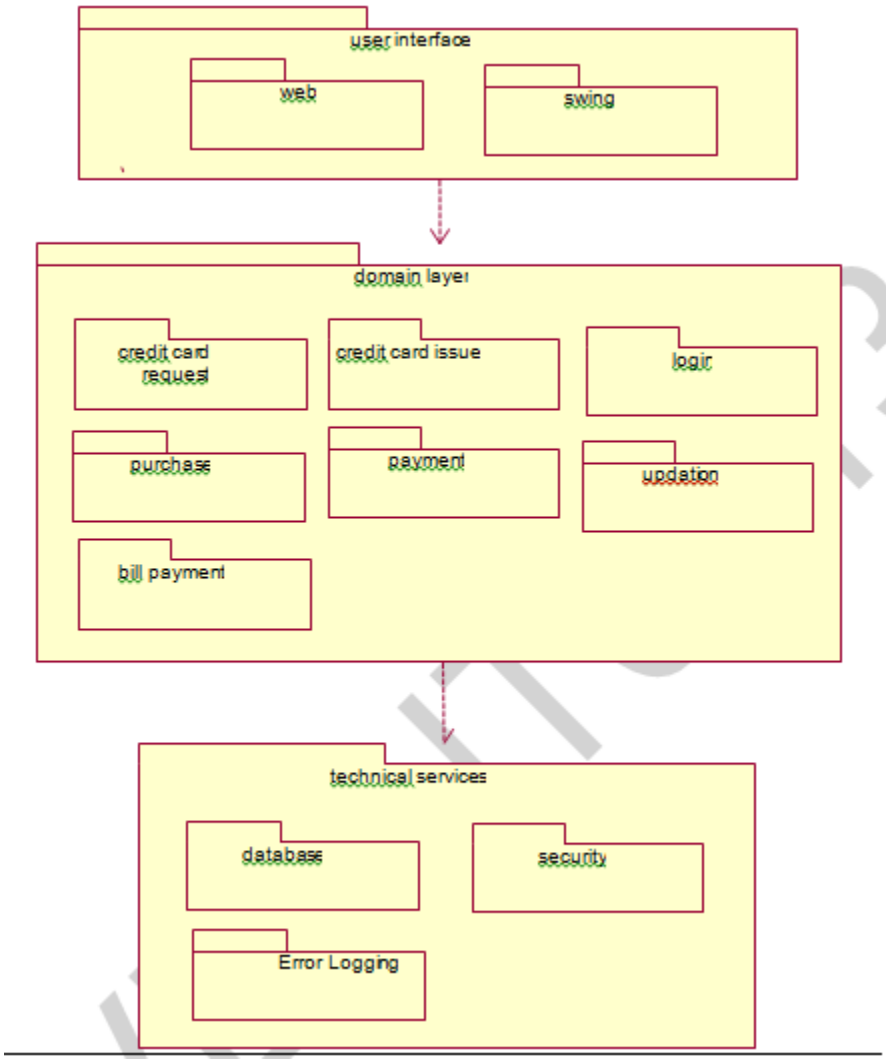
PAYMENT



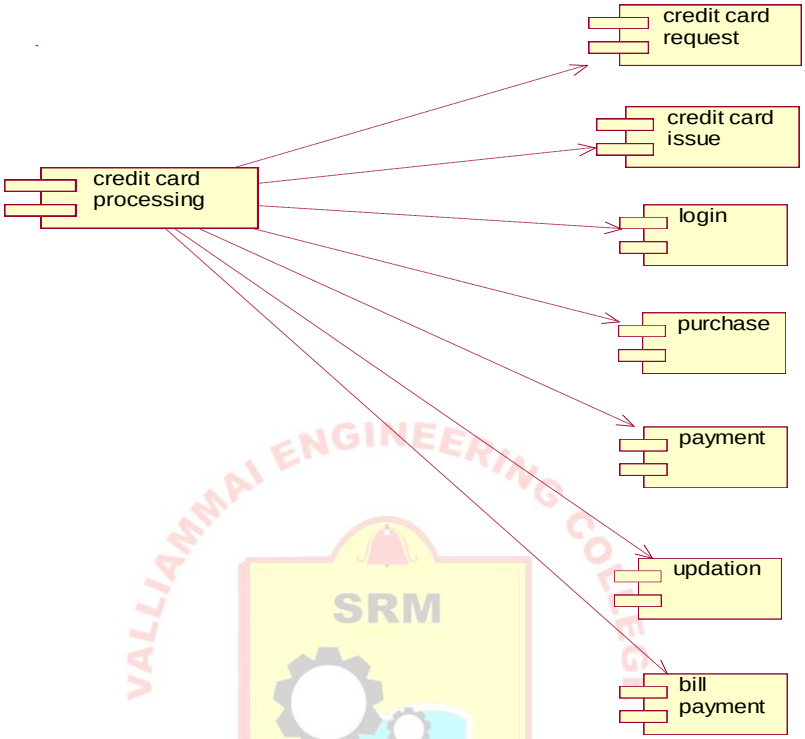
STATE CHART DIAGRAM



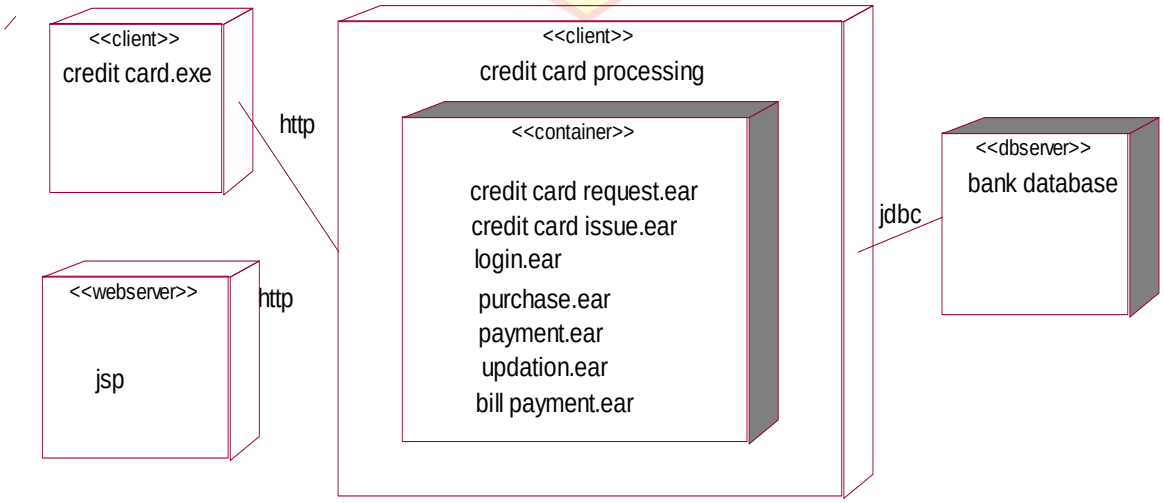
PACKAGE DIAGRAM



COMPONENT DIAGRAM



DEPLOYMENT DIAGRAM



RESULT:

Thus the project to develop a Credit Card Processing System is done successfully.

Ex.No: 10 **E-BOOKS MANAGEMENT SYSTEM**

AIM:

The aim of the project is to develop and implement the software for E-Book management system.

PROBLEM STATEMENT:

E-Book process is well organized on-line buying and selling of books. This process has various issues in the basis of maintenance of database and updatingin sites.

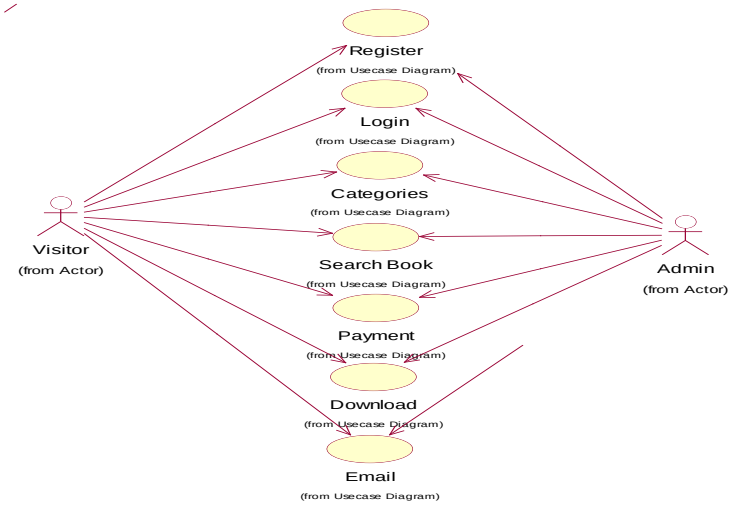
The process of e-books is fully based on on-line and the process for this mainly interaction between buyer and seller, buyer who enter the site for purchase of book will use search engine for book to purchase, the search engine will mainly focused on the database process, it use to search book for the buyer who mentioned the book name, author name, edition, publication details in the sites, so that the search engine will show many books.

There will be payment option and user should decide whether he want which one. In case of normal boo purchase if it is not available it is difficult for the customer and time wastage also, but e-book avoids wastage of time and maintains the books, if we need any book, we should register in the site.

E-BOOK ADVANTAGE:

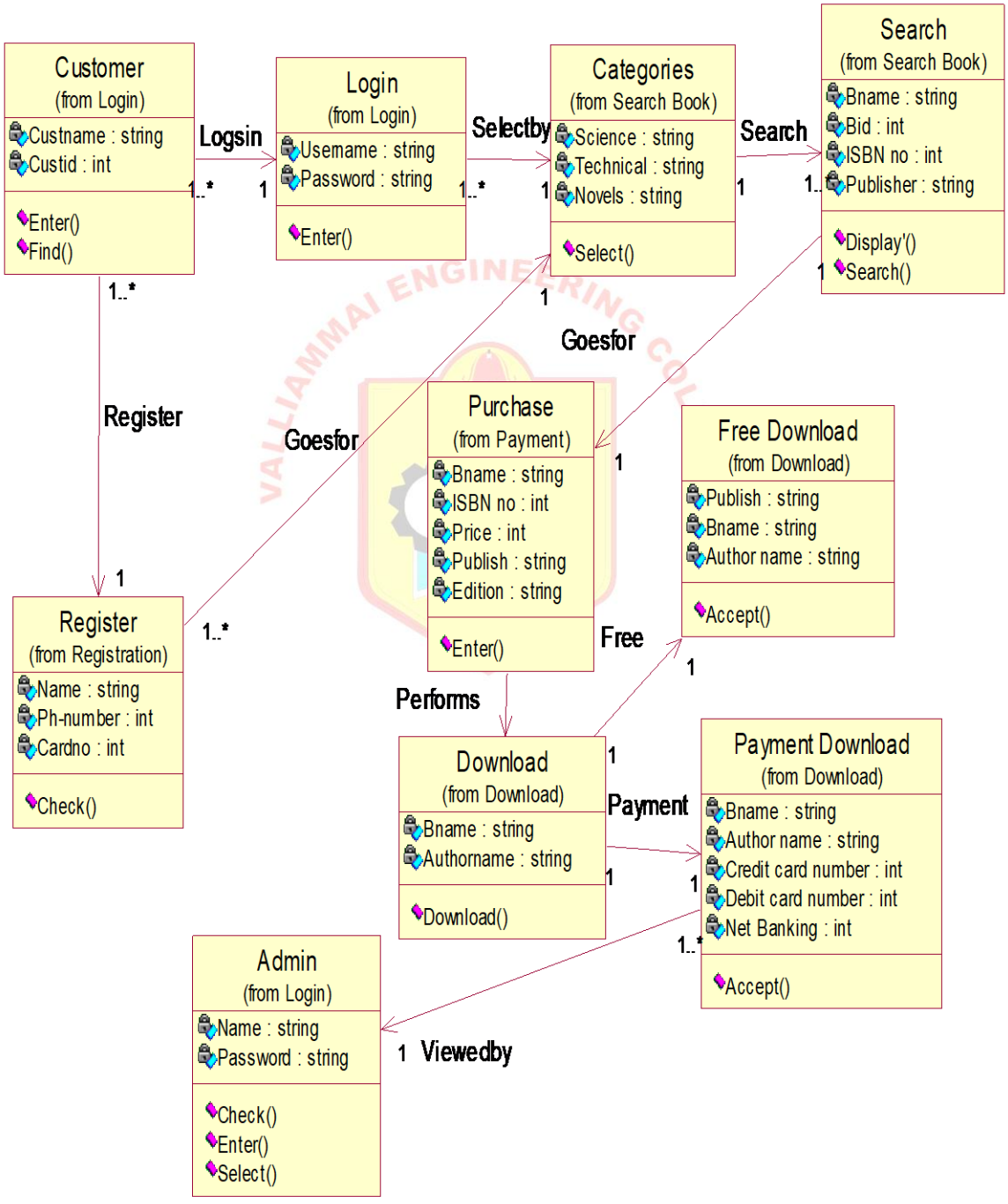
Efficient use
Avoid time wastage
Provide necessary information.

USECASE DIAGRAM

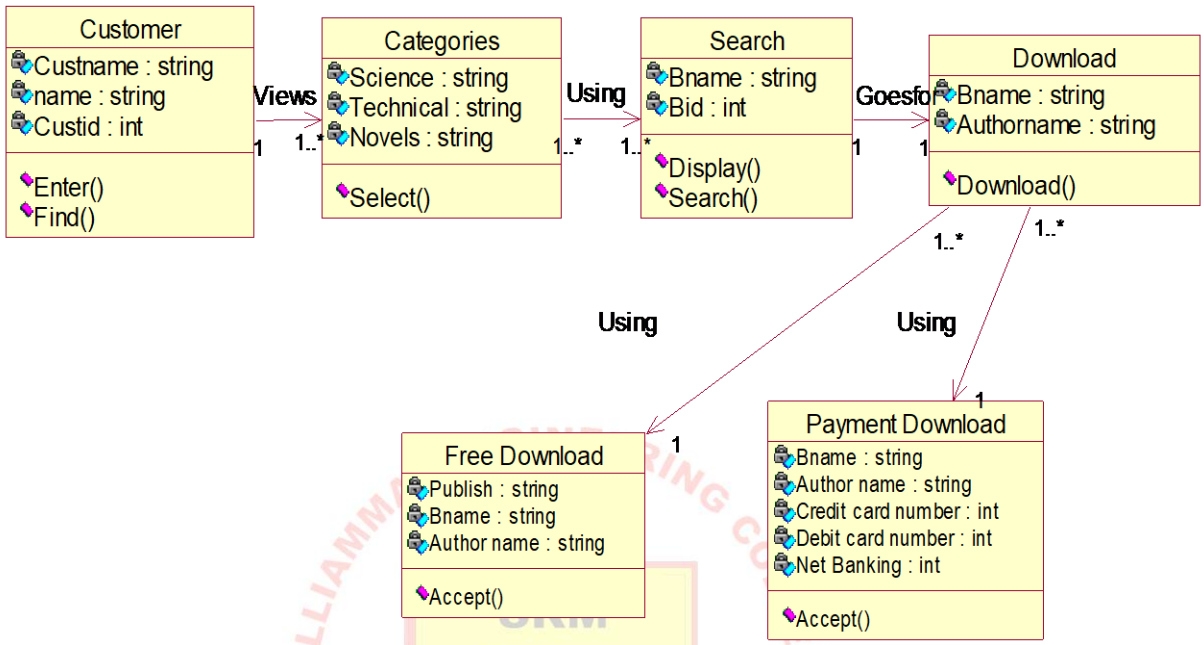


CLASS DIAGRAM

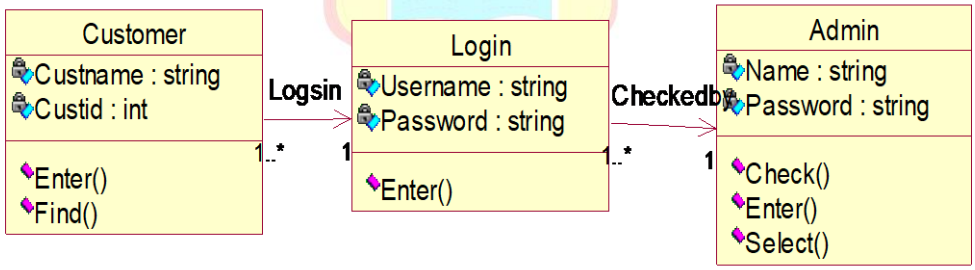
OVERALL CLASS DIAGRAM



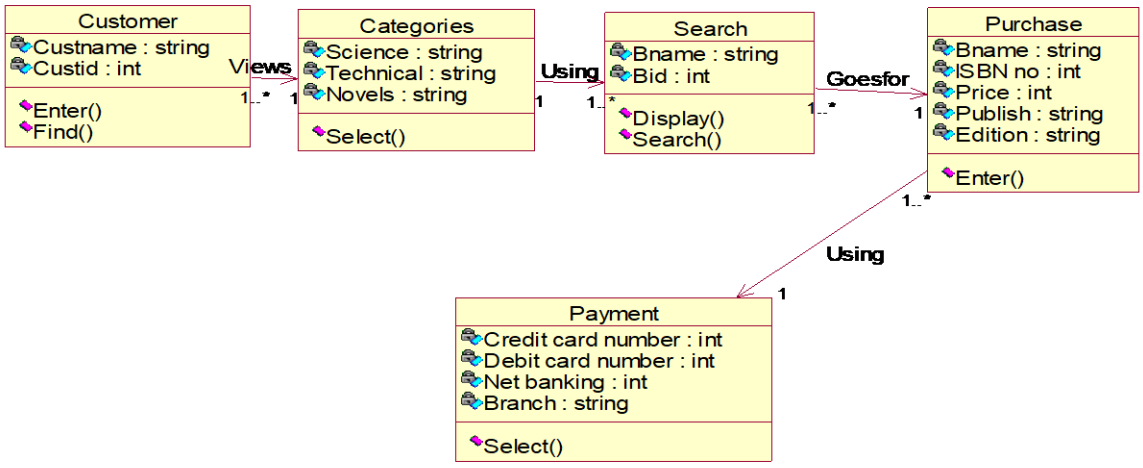
DOWNLOAD



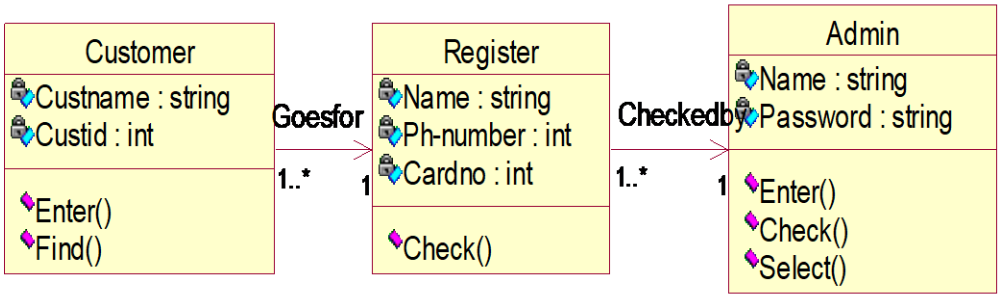
LOGIN



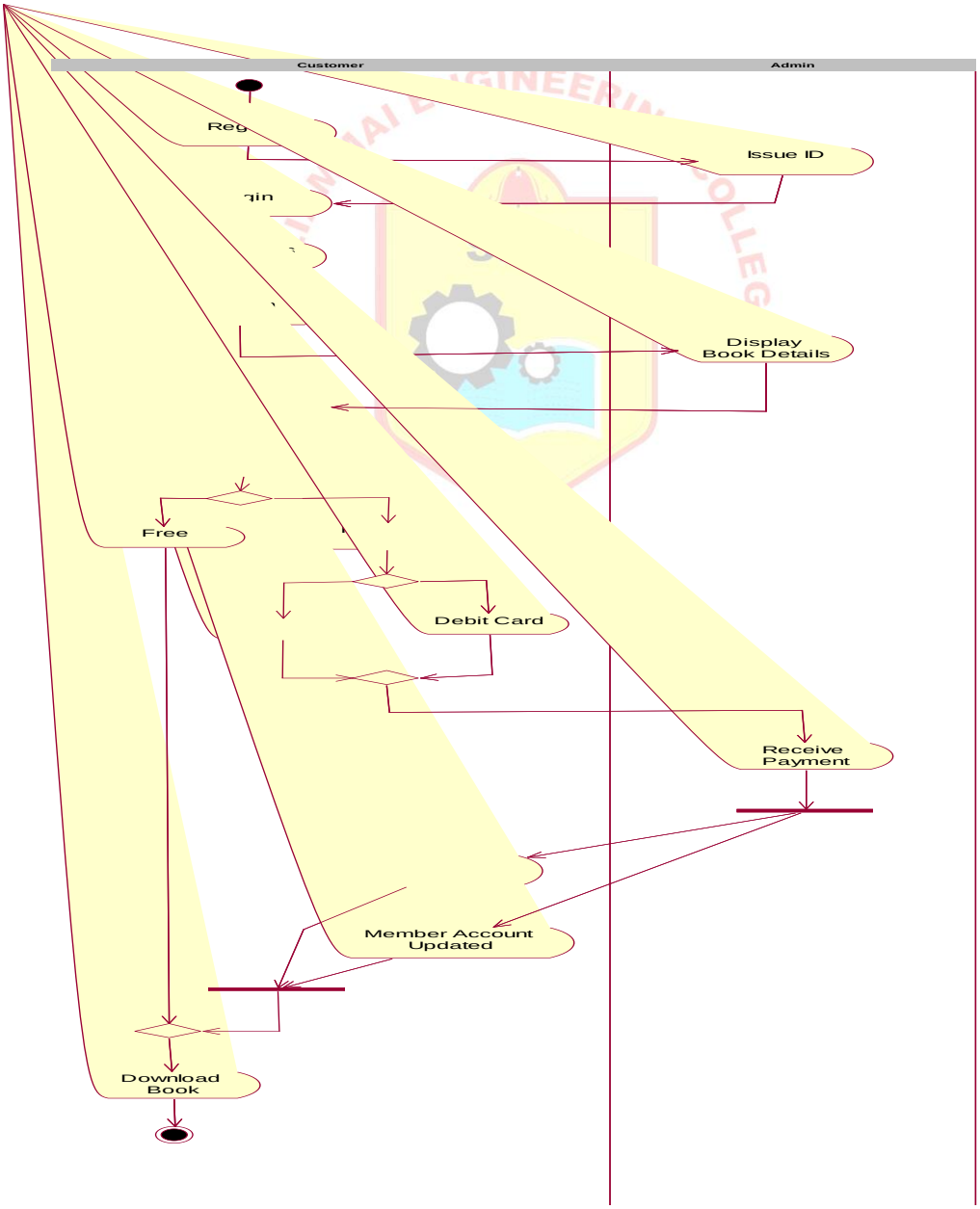
PAYMENT



REGISTRATION

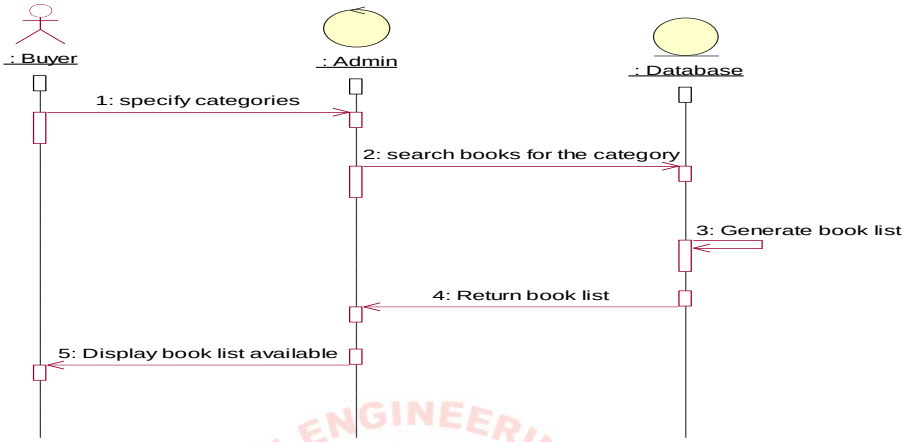


ACTIVITY DIAGRAM

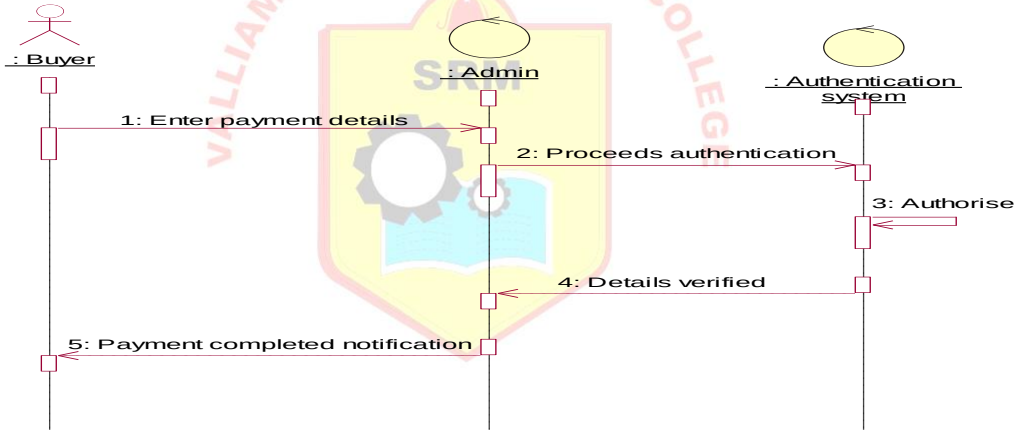


SEQUENCE DIAGRAM

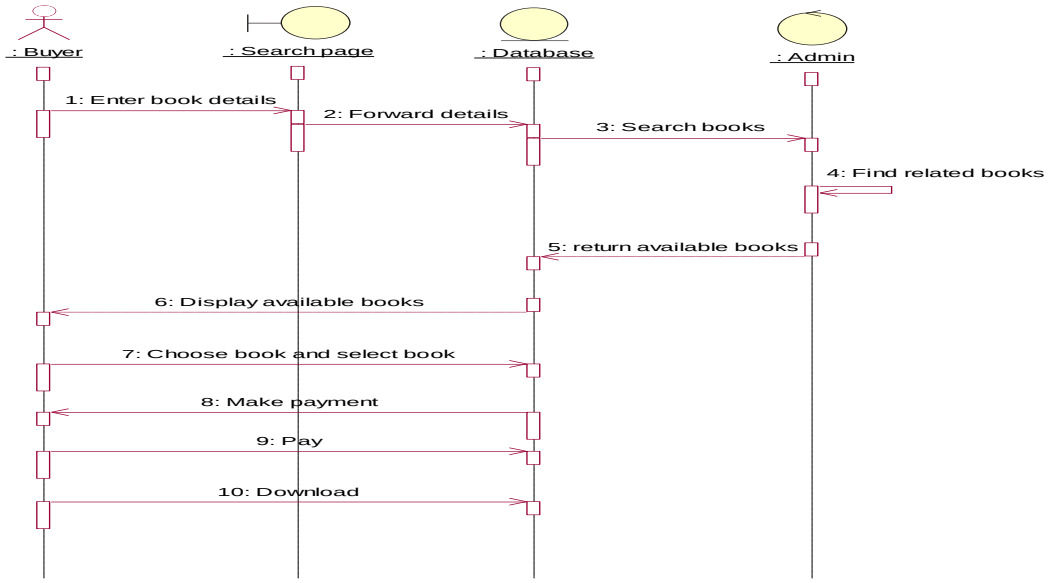
Categories



Payment

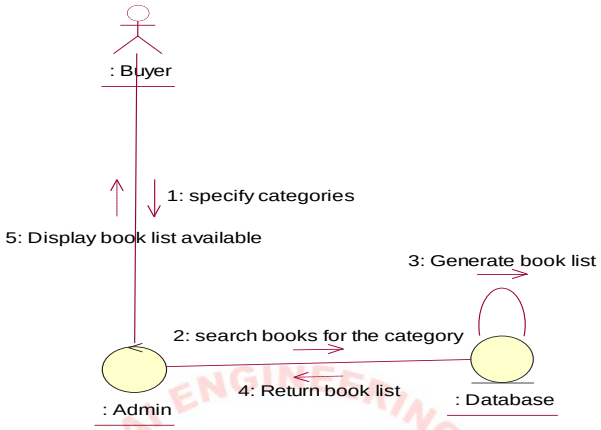


Search

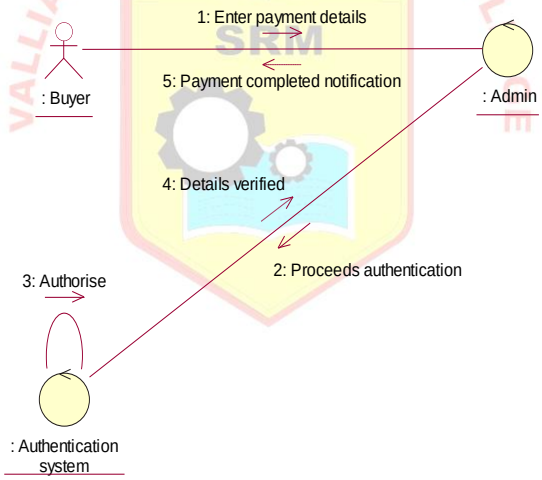


COLLABORATION DIAGRAM

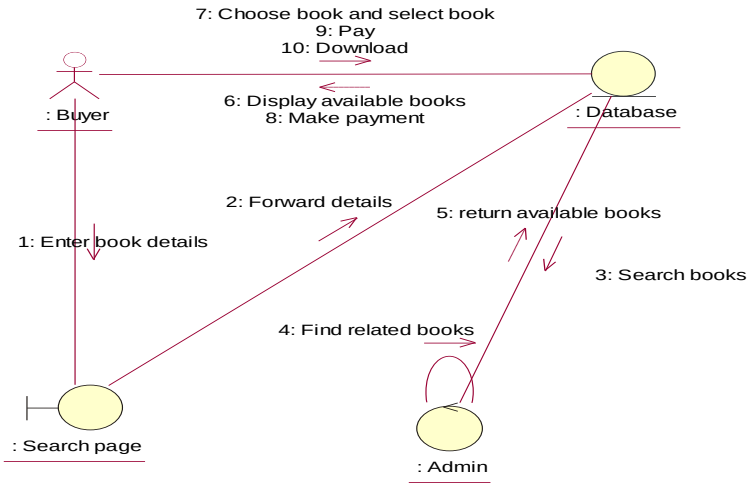
Categories



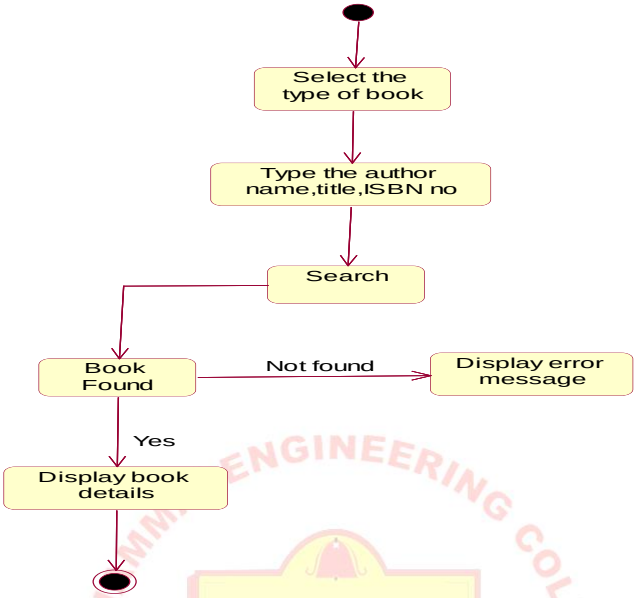
Payment



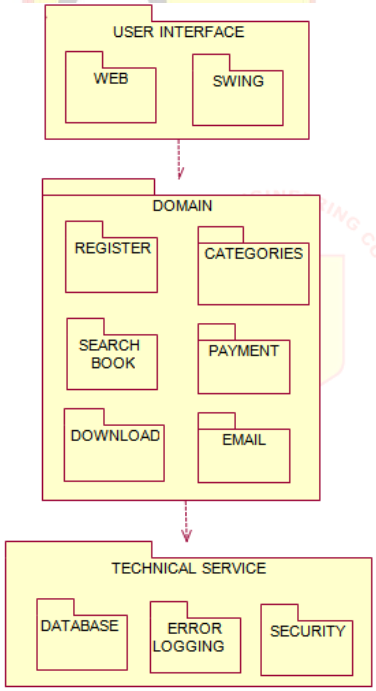
Search



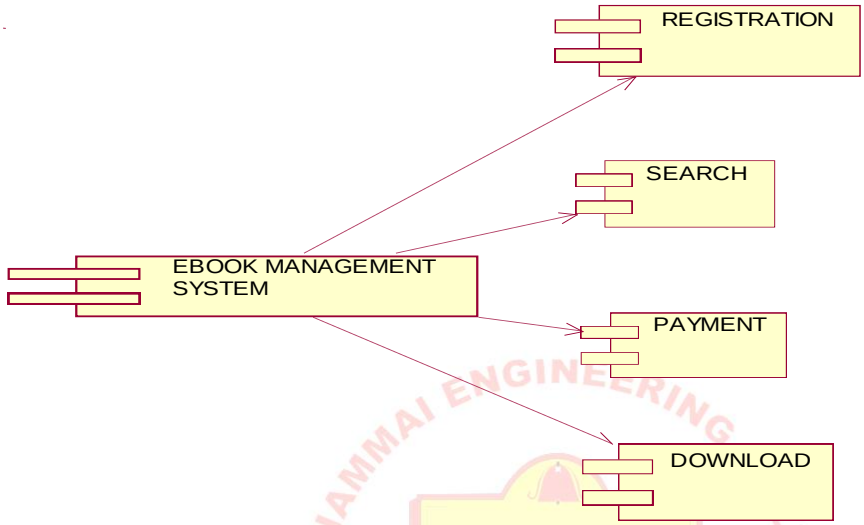
STATECHART DIAGRAM



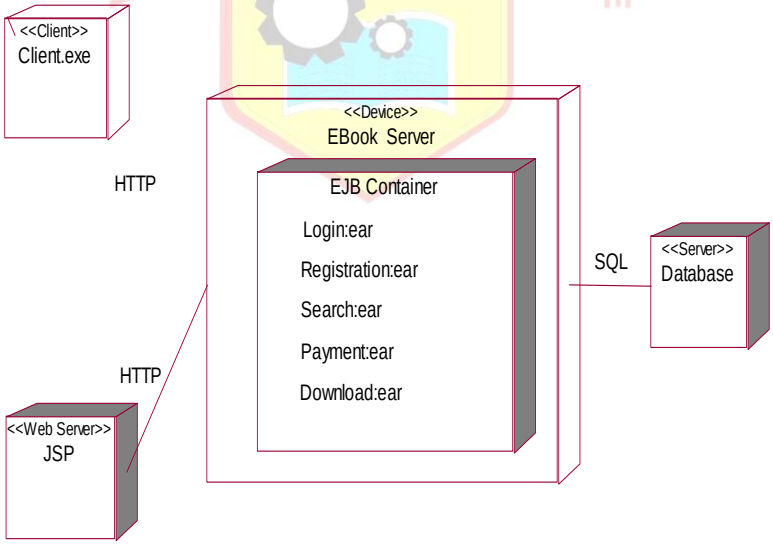
PACKAGE DIAGRAM



COMPONENT DIAGRAM



DEPLOYMENT DIAGRAM



RESULT:

Thus the project to develop an E-Book Management System is done successfully.

Ex.No:11 **RECRUITMENT SYSTEMS**

AIM:

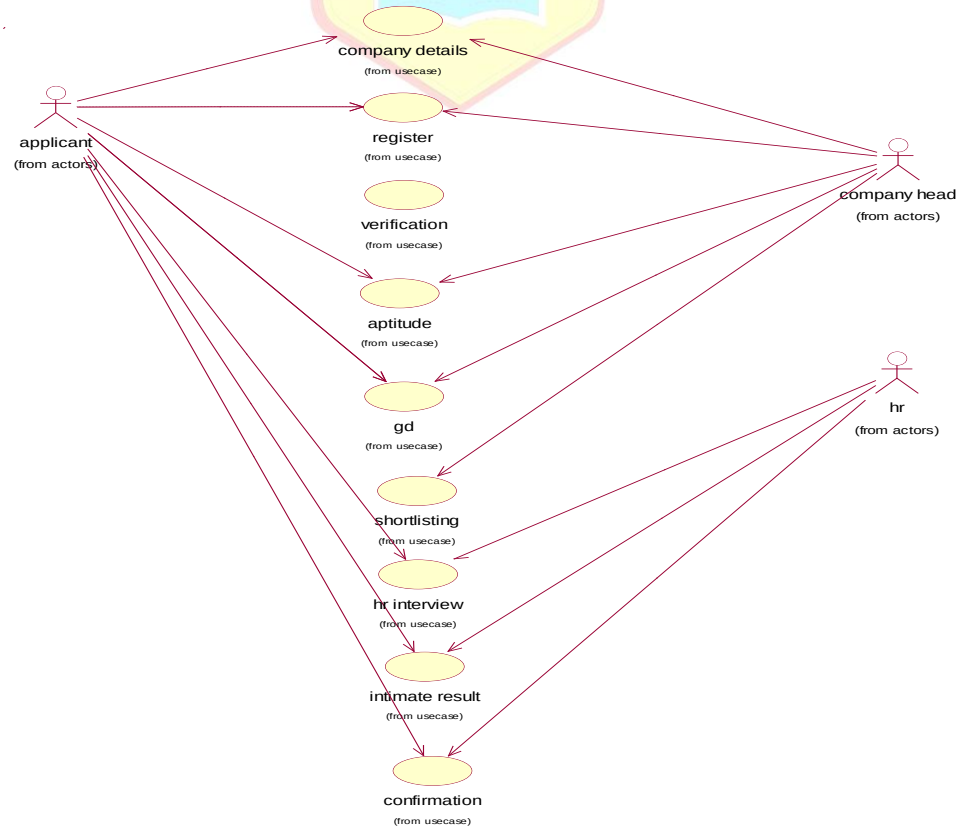
The aim of the project is to develop and implement the software for Recruitment system.

PROBLEM STATEMENT:

The recruitment system allows the job seekers to enroll their names through process of registration. The employer also can get the list of available candidates and shortlist for their company requirement.Once the applicant enrolls he receives an id, which helps him in further corresponding.A fees amount is received from job seekers for enrollment.

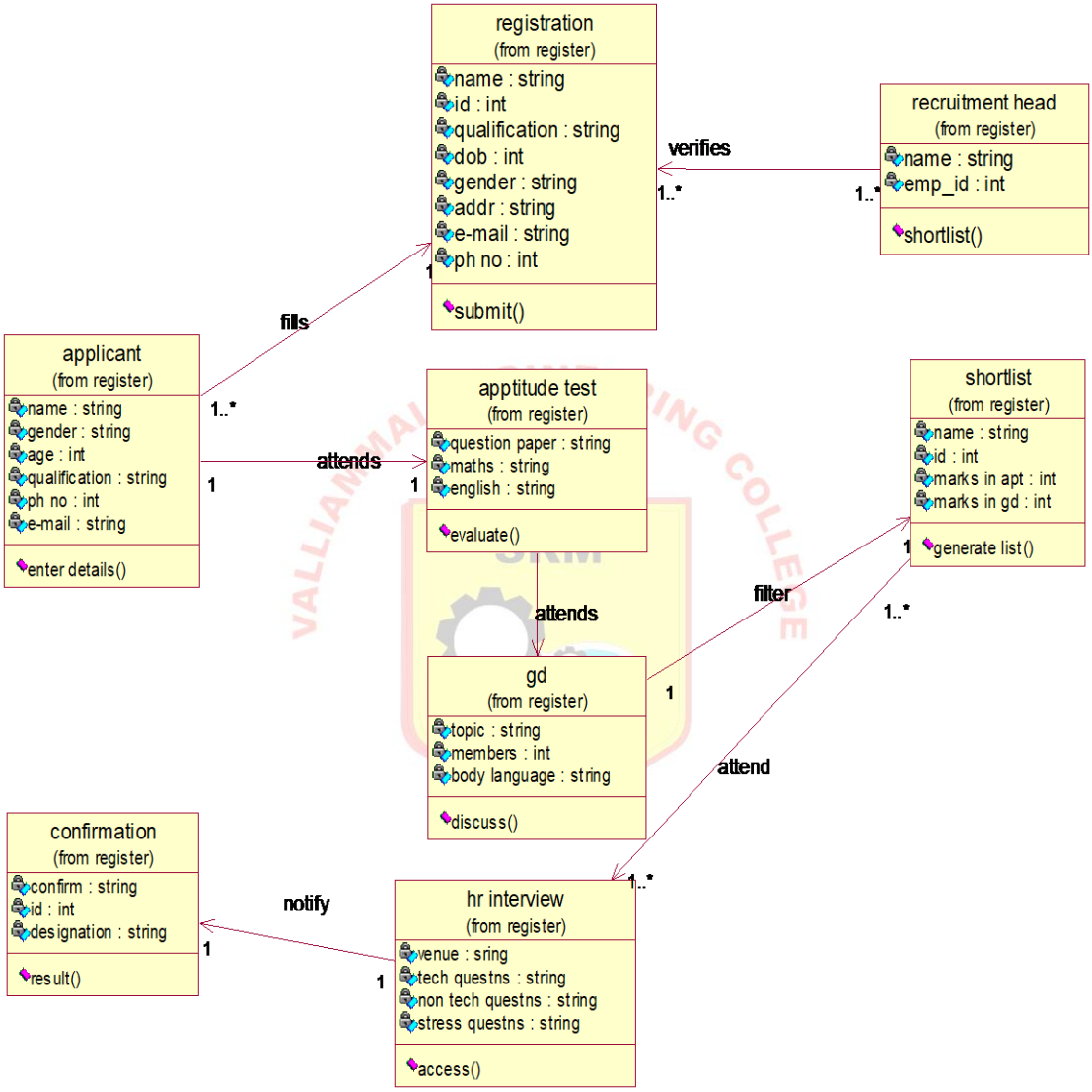
This system makes the task of the job seeker easier rather than waiting in queue for enrollment.This reduces the time consumption for both the job seeker and employer. After the registration gets over, the applicant profile is verified and he attends aptitude and GD based on the result the applicant attends a technical interview with HR, and the selected candidate receives the offer letter.

USECASE DIAGRAM

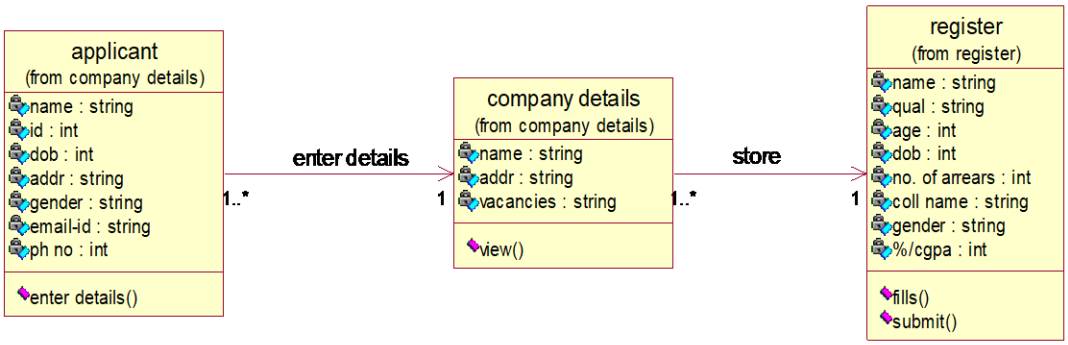


CLASS DIAGRAM

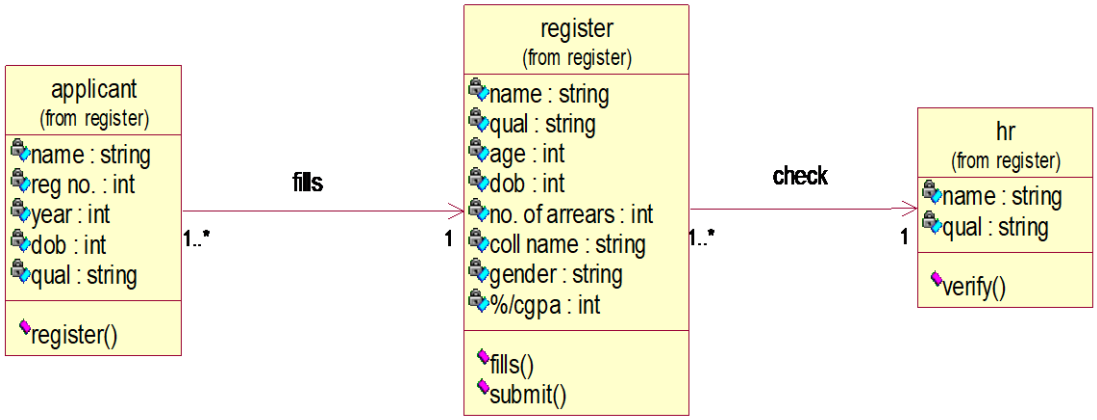
OVERALL CLASS DIAGRAM



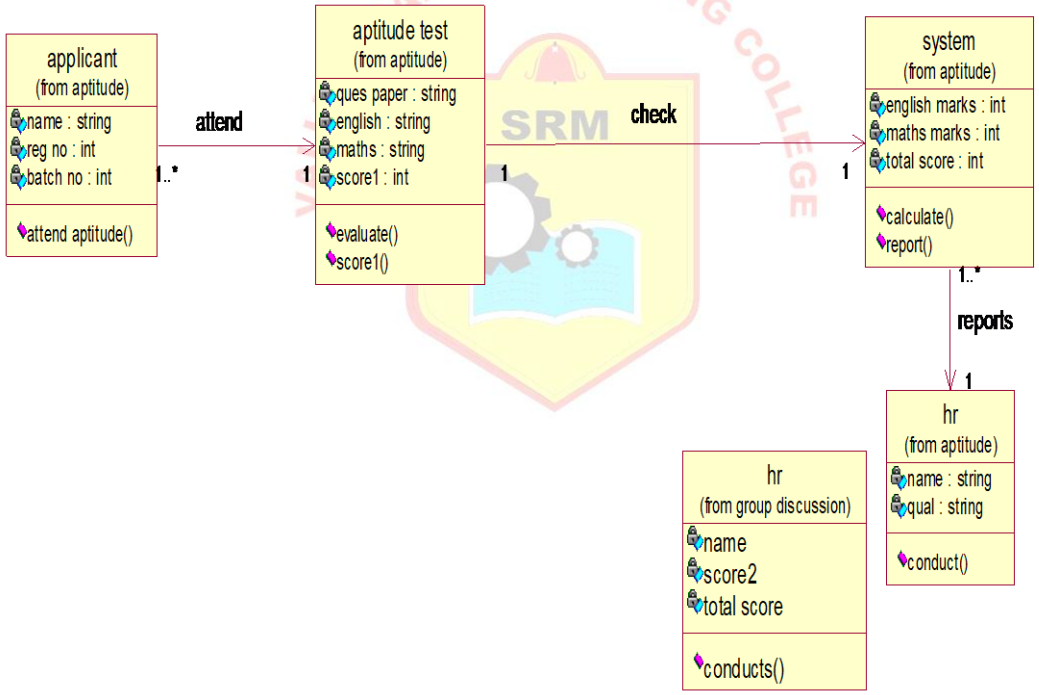
COMPANY DETAILS



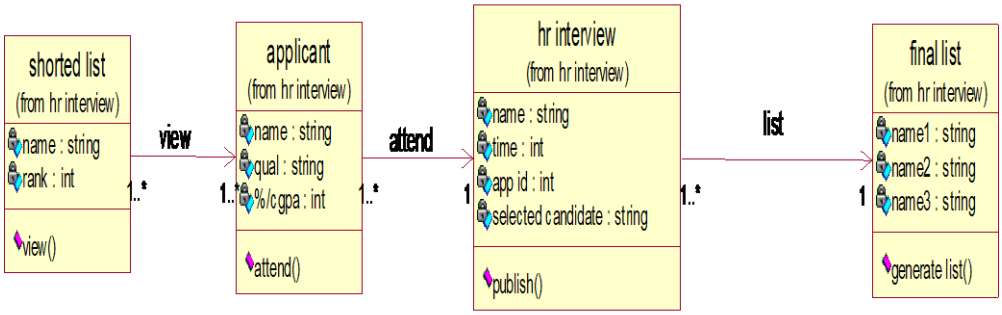
REGISTRATION



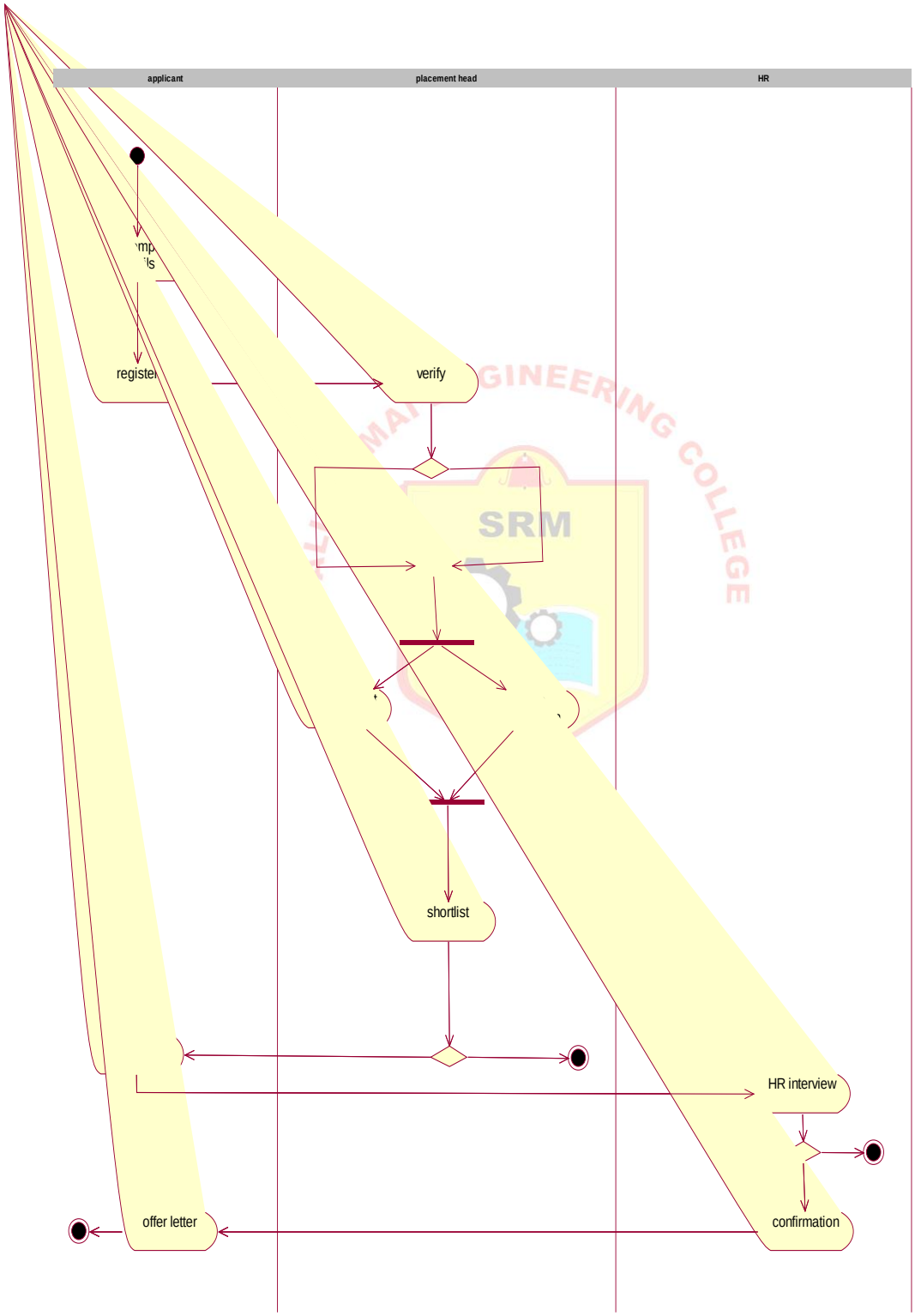
APTITUDE TEST



HR INTERVIEW

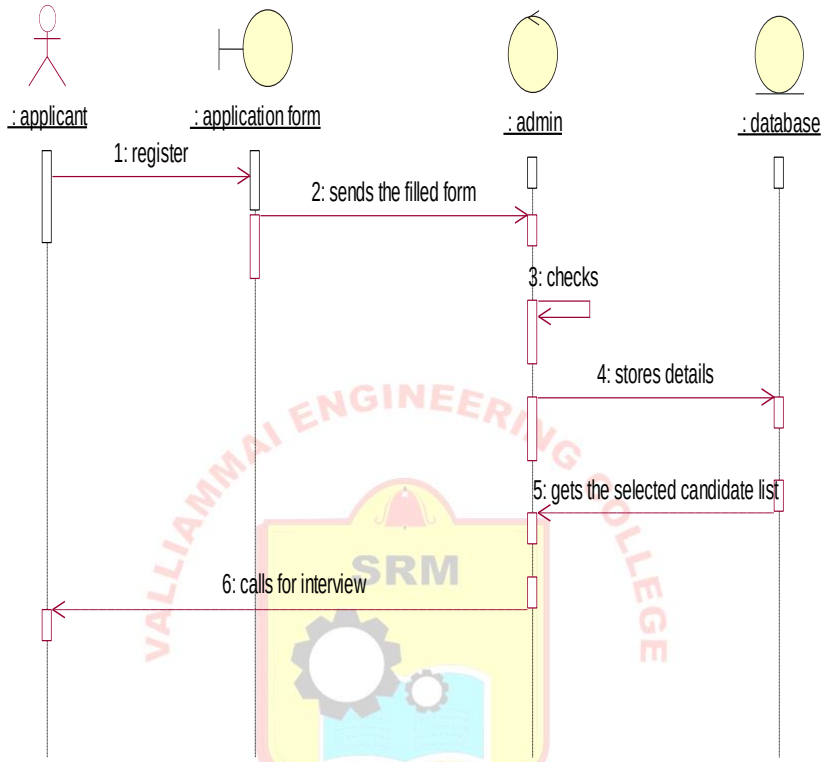


ACTIVITY DIAGRAM

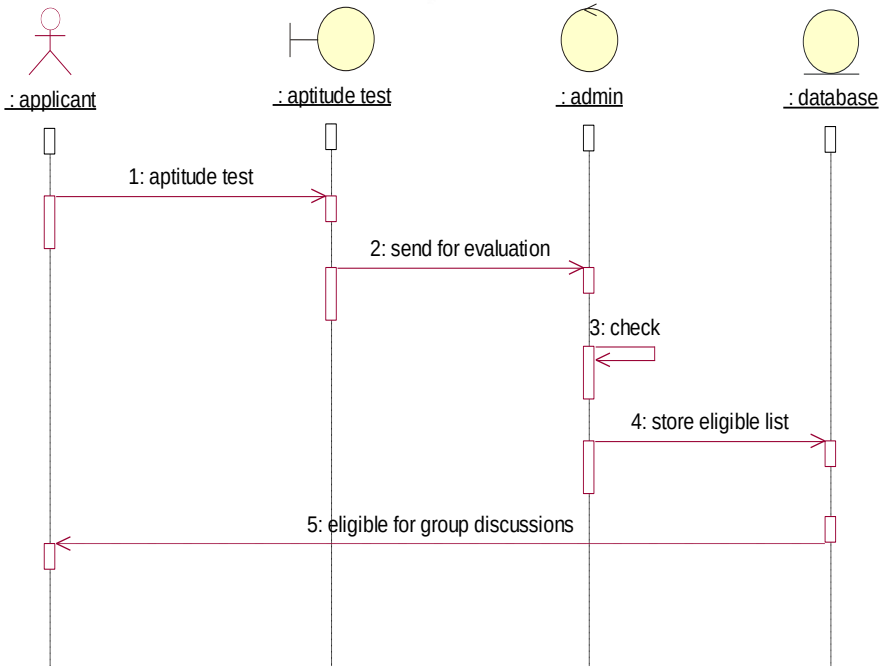


SEQUENCE DIAGRAM

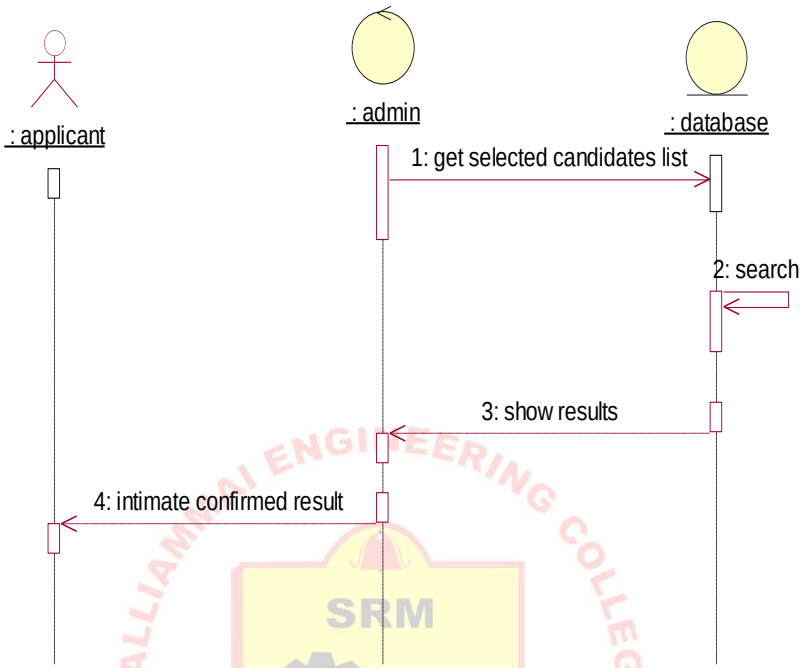
REGISTRATION



APTITUDE TEST

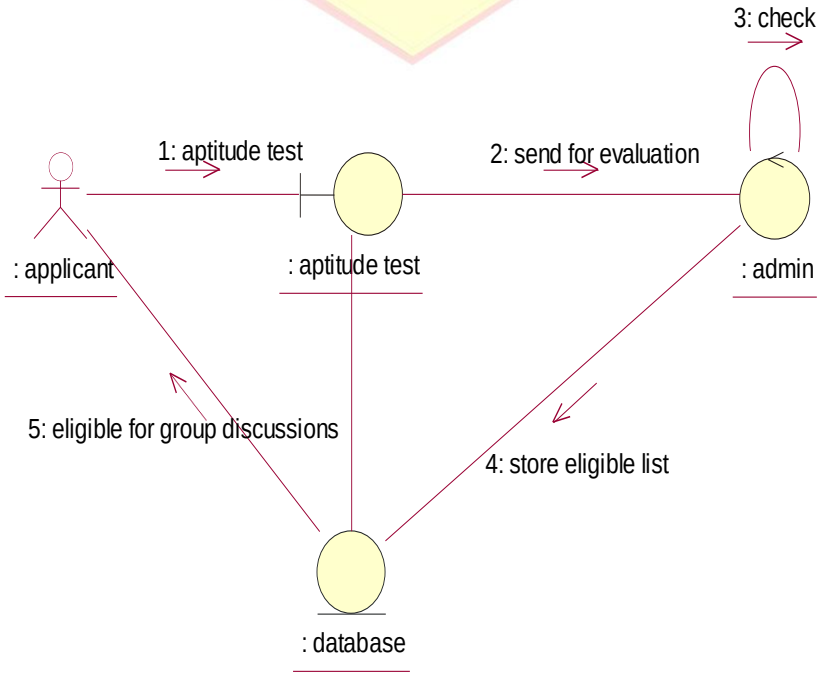


CONFIRMATION

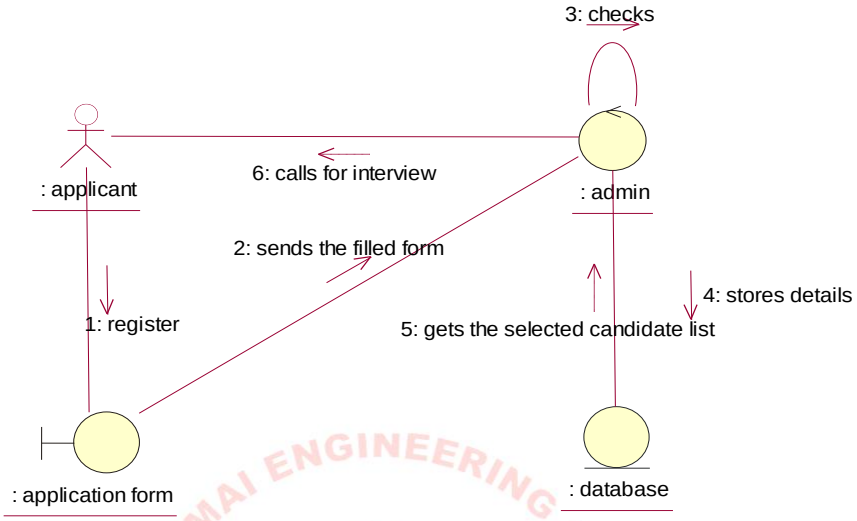


COLLABORATION DIAGRAM

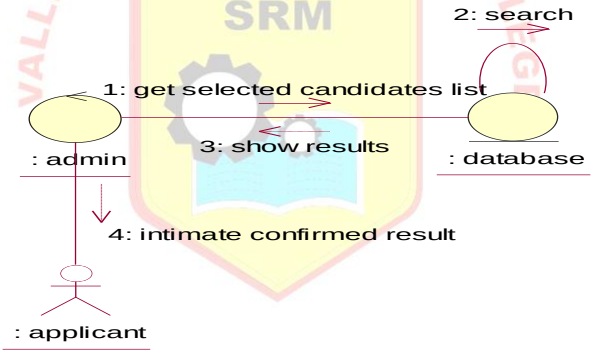
APTITUDE TEST



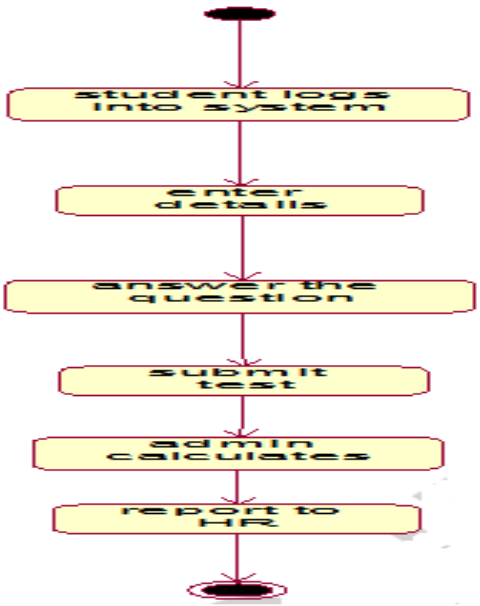
REGISTERATION



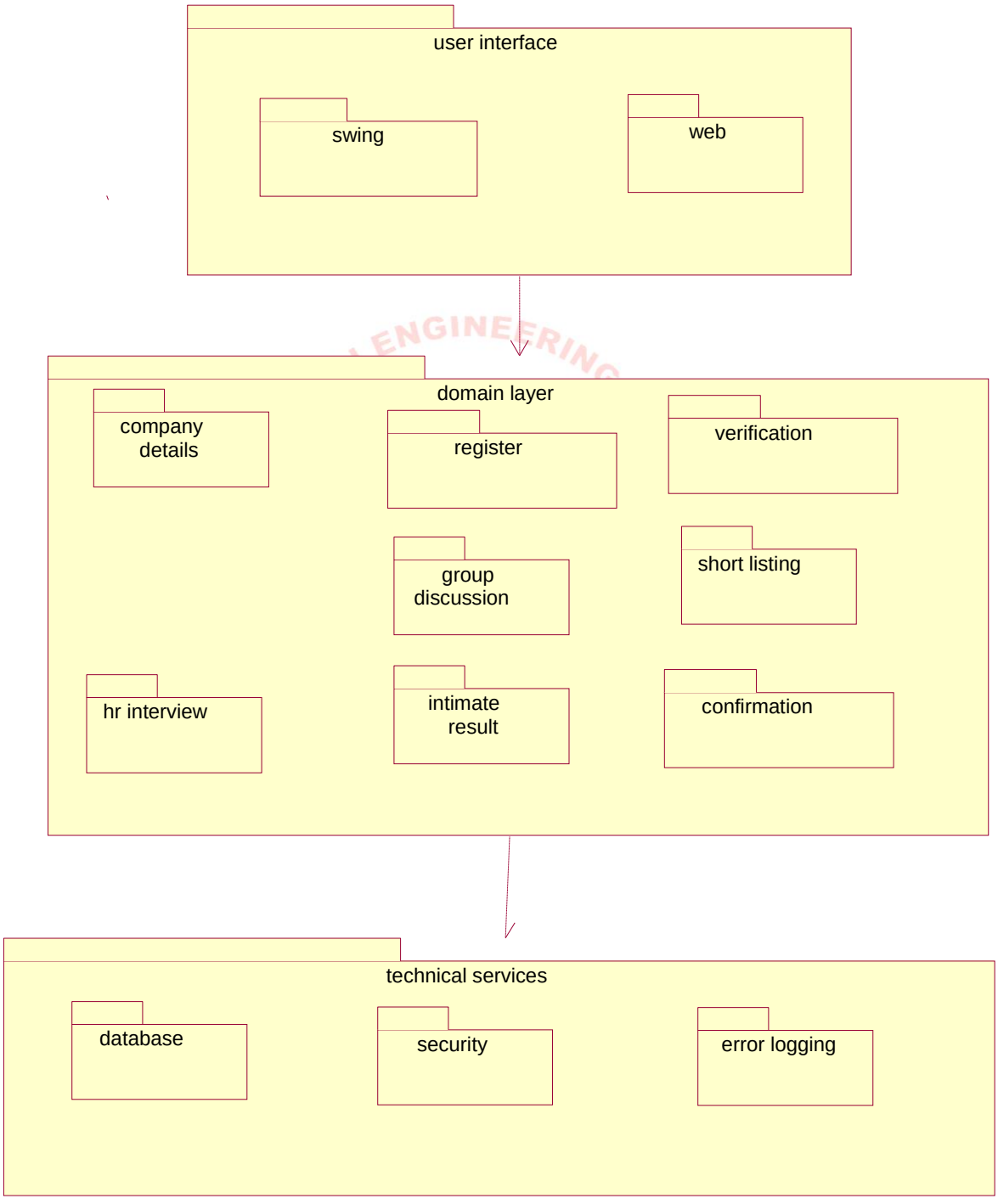
CONFIRMATION



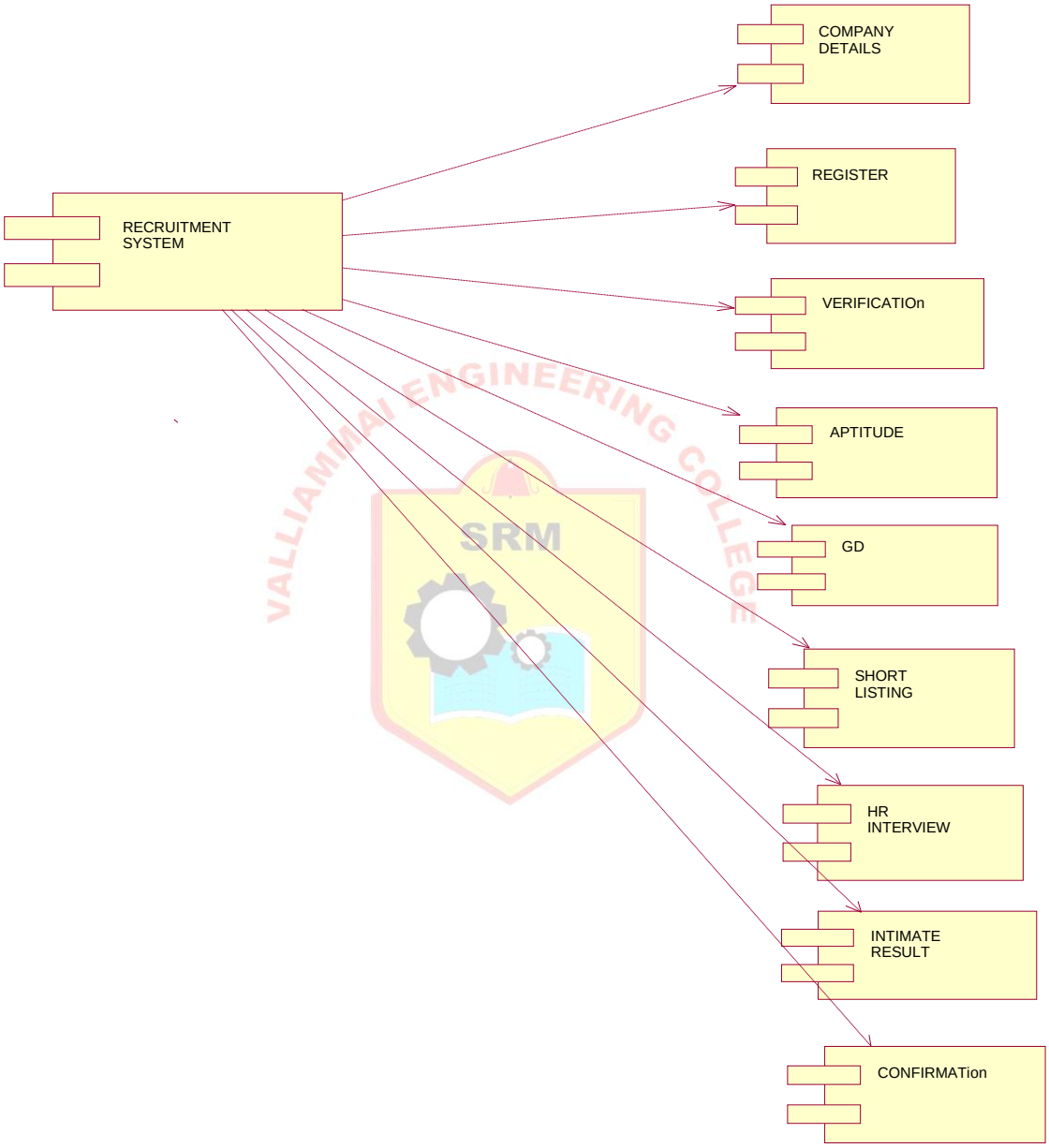
STATECHART DIAGRAM



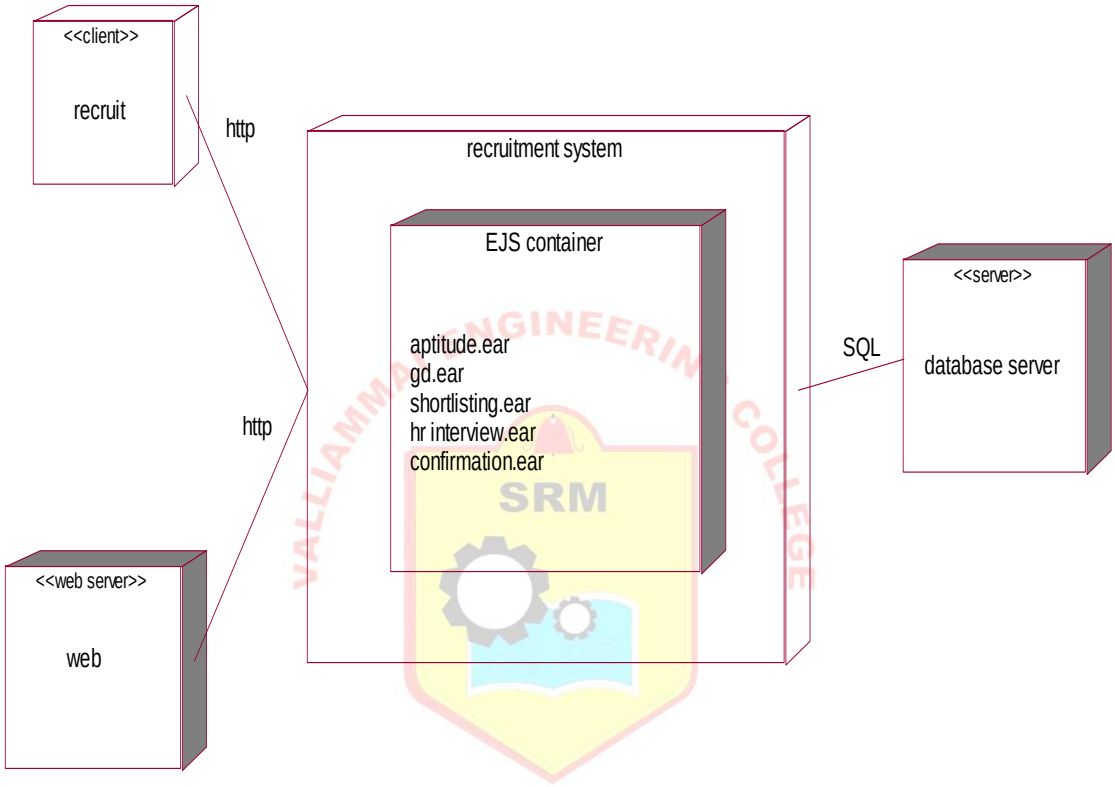
PACKAGE DIAGRAM



COMPONENT DIAGRAM



DEPLOYMENT DIAGRAM



RESULT:

Thus the project to develop a Recruitment System is done successfully.

Ex.No:12 **FOREIGN TRADING SYSTEMS**

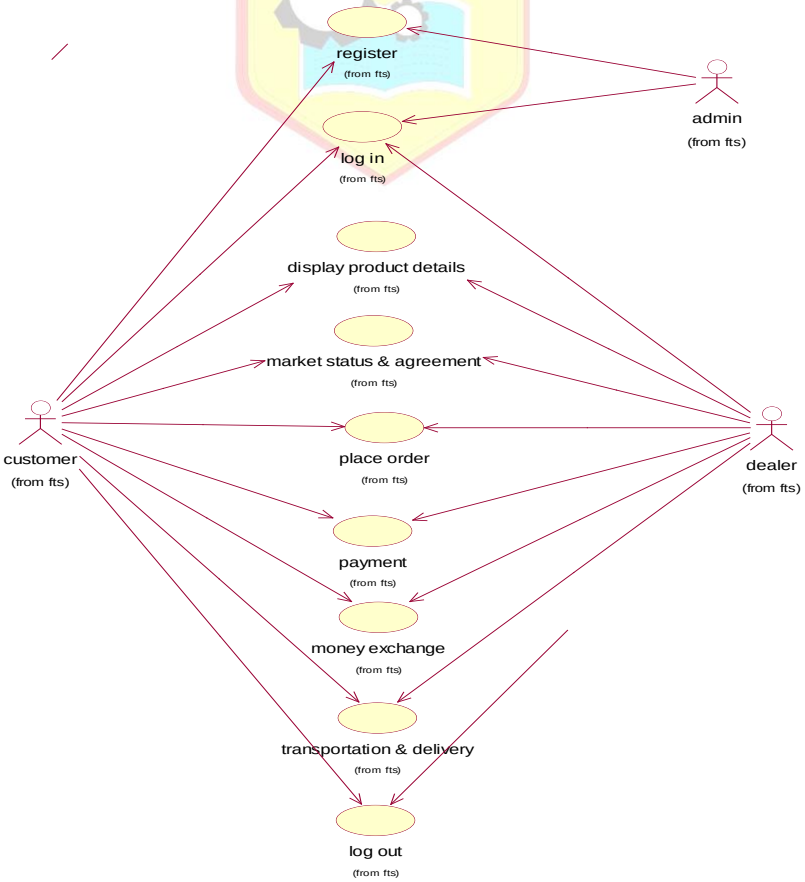
AIM:

The aim of the project is to develop and implement the software forforeign trading system.

PROBLEM STATEMENT:

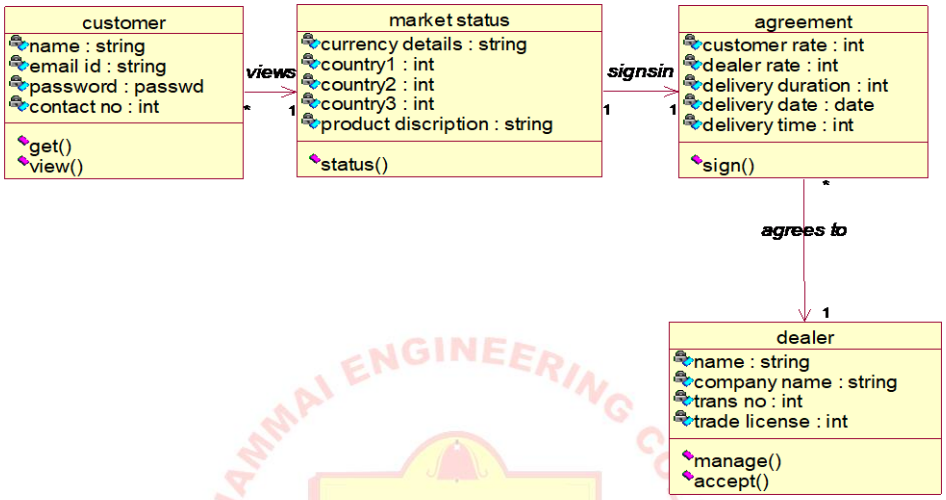
Foreign trading system involves details about the export and import of materials between two or many countries. This project provides the complete information about various products exported and imported across the world from the promoters to the buyers. The main objective of this project is to ensure globalization and ensuring that the buyer all over the world gets the desired product that helps in development of their globalization. Currency converter gives you accurate and instant foreign currency conversions. In currency exchange money value of each country vary every day. The change will be traced and updated by the system. Transportation of goods should include quality verification also.

USECASE DIAGRAM

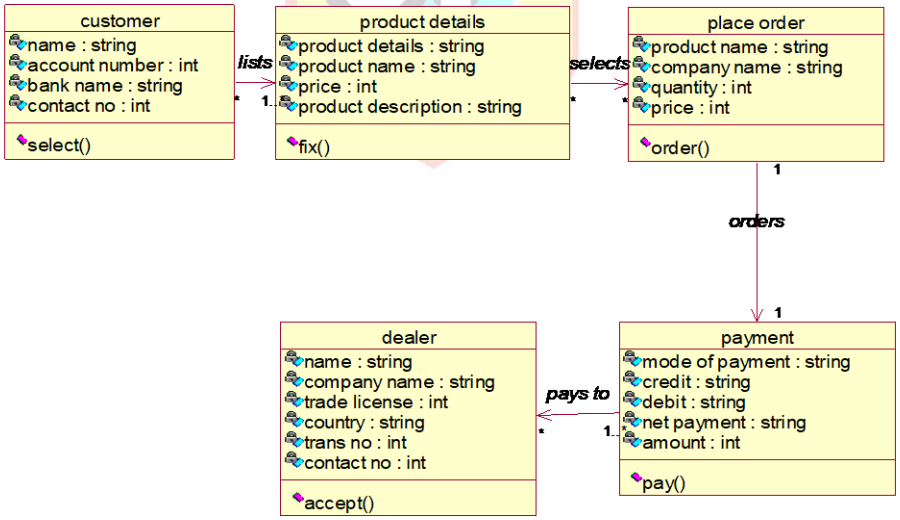


CLASS DIAGRAM

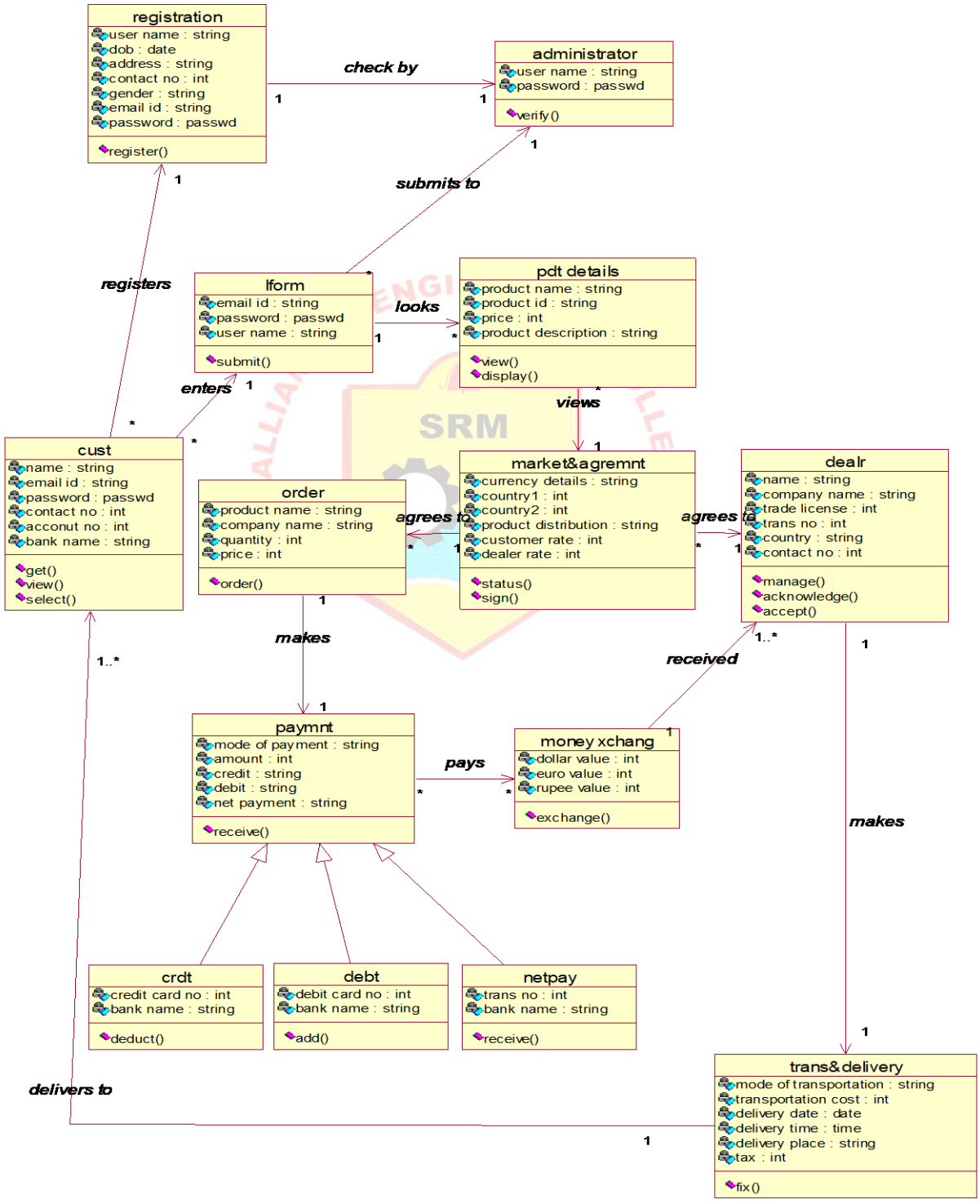
MARKET STATUS



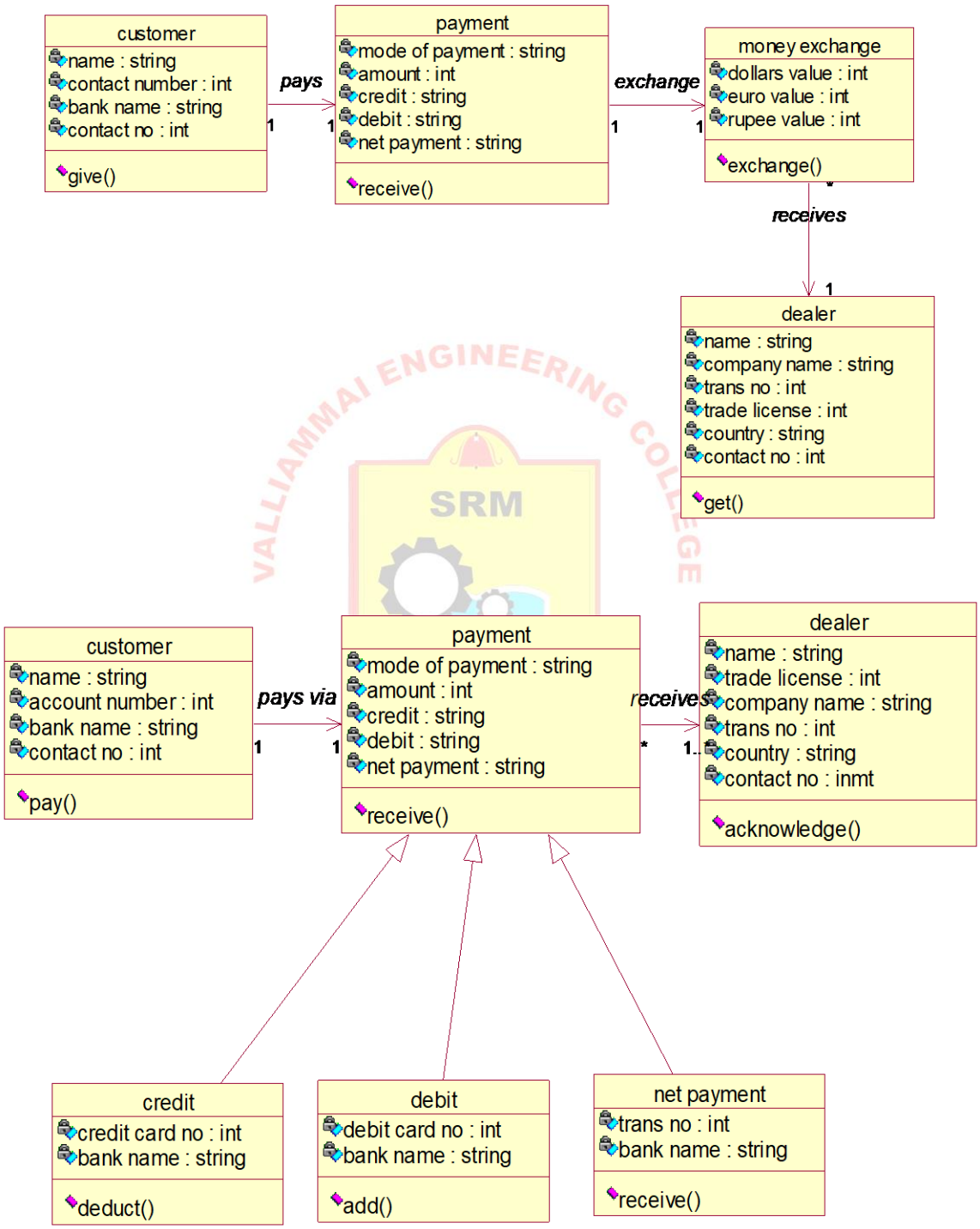
PLACE ORDERS



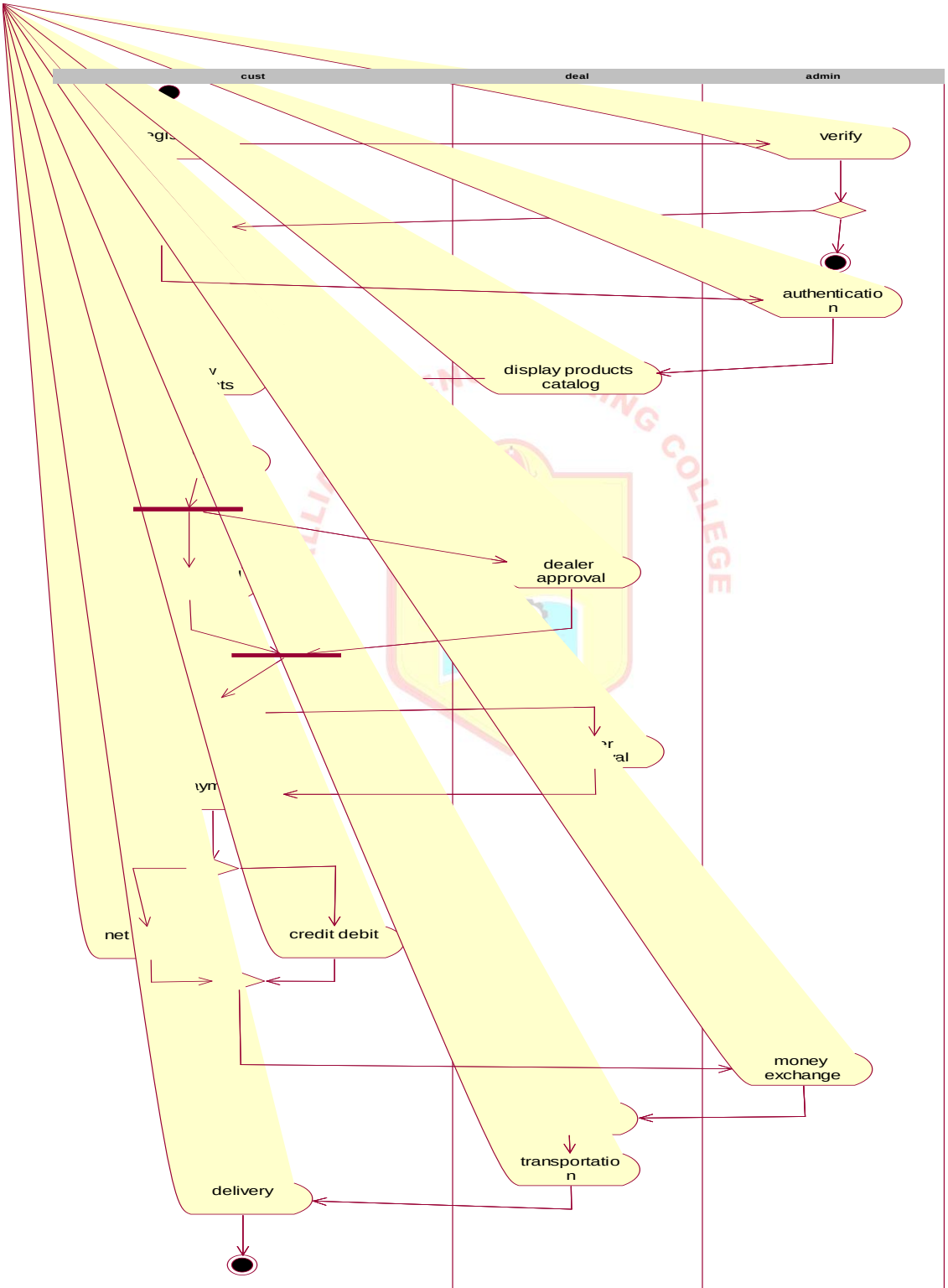
MONEY EXCHANGE



PAYMENT

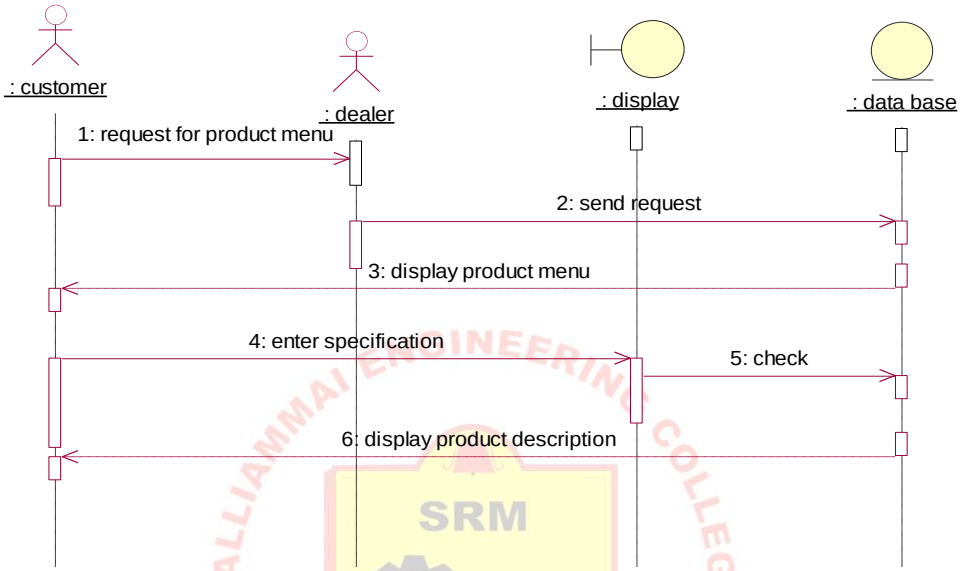

customer
name : string
contact number : int
bank name : string
contact no : int
give()
pays
1
1
payment
mode of payment : string
amount : int
credit : string
debit : string
net payment : string
receive()
exchange
1
1
money exchange
dollars value : int
euro value : int
rupee value : int
exchange()
receives
1
dealer
name : string
company name : string
trans no : int
trade license : int
country : string
contact no : int
get()
customer
name : string
account number : int
bank name : string
contact no : int
pay()
pays via
1
1
payment
mode of payment : string
amount : int
credit : string
debit : string
net payment : string
receive()
receives
*
1..
dealer
name : string
trade license : int
company name : string
trans no : int
country : string
contact no : inmt
acknowledge()
credit
credit card no : int
bank name : string
deduct()
debit
debit card no : int
bank name : string
add()
net payment
trans no : int
bank name : string
receive()

ACTIVITY DIAGRAM

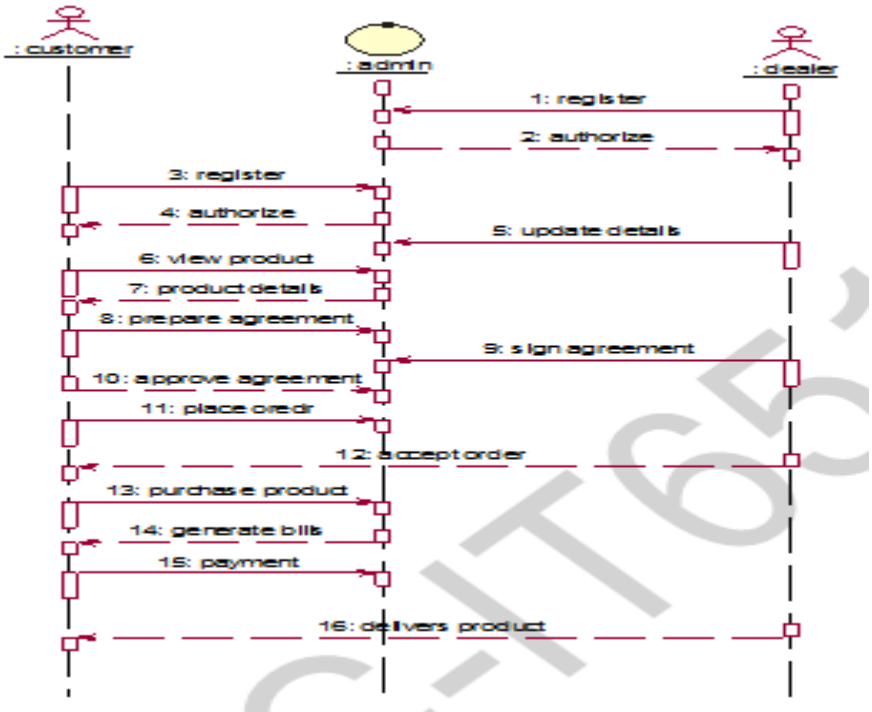


SEQUENCE DIAGRAM

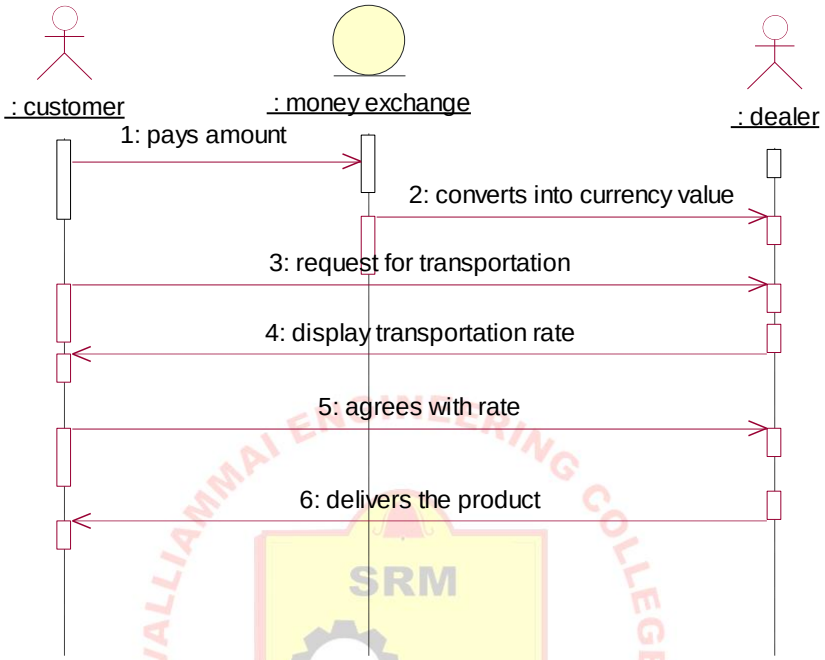
DISPLAY ITEM



PLACE ORDER

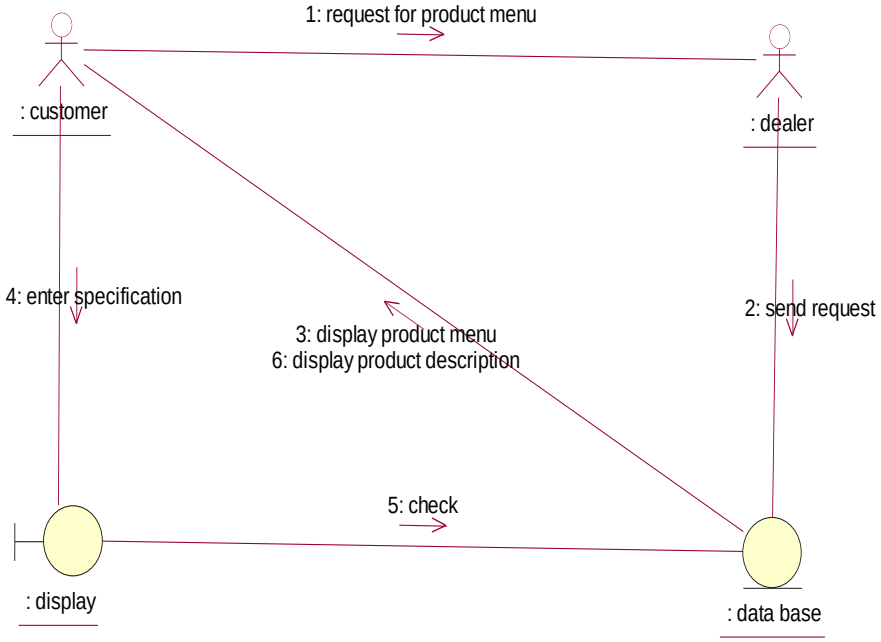


TRANSPORTATION AND DELIVERY

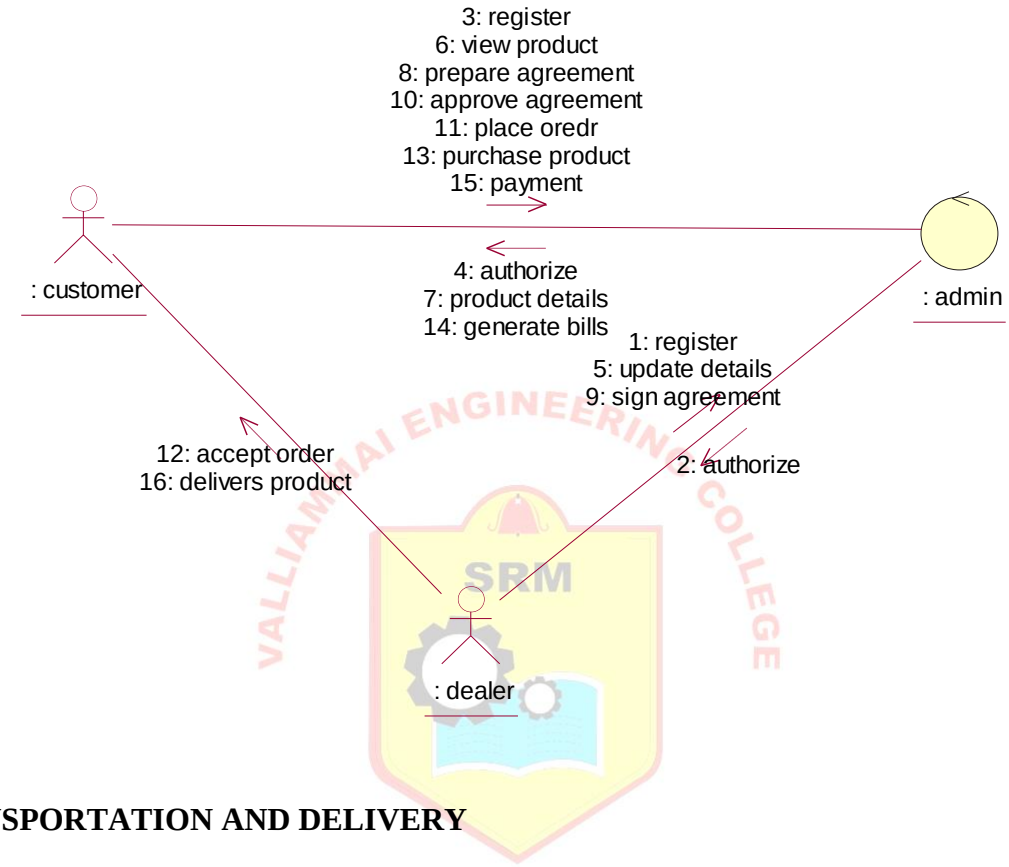


COLLABORATION DIAGRAM

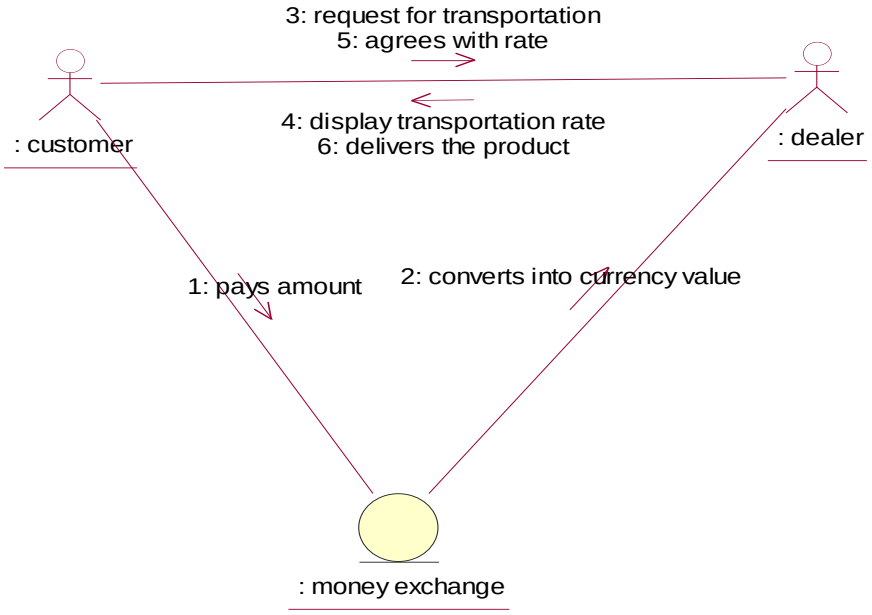
DISPLAY ITEM



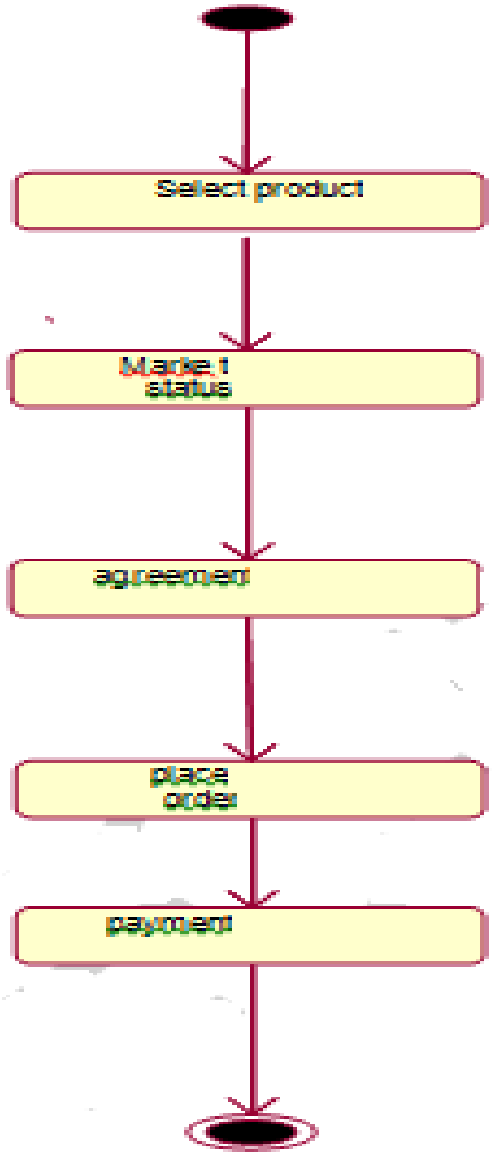
PLACE ORDER



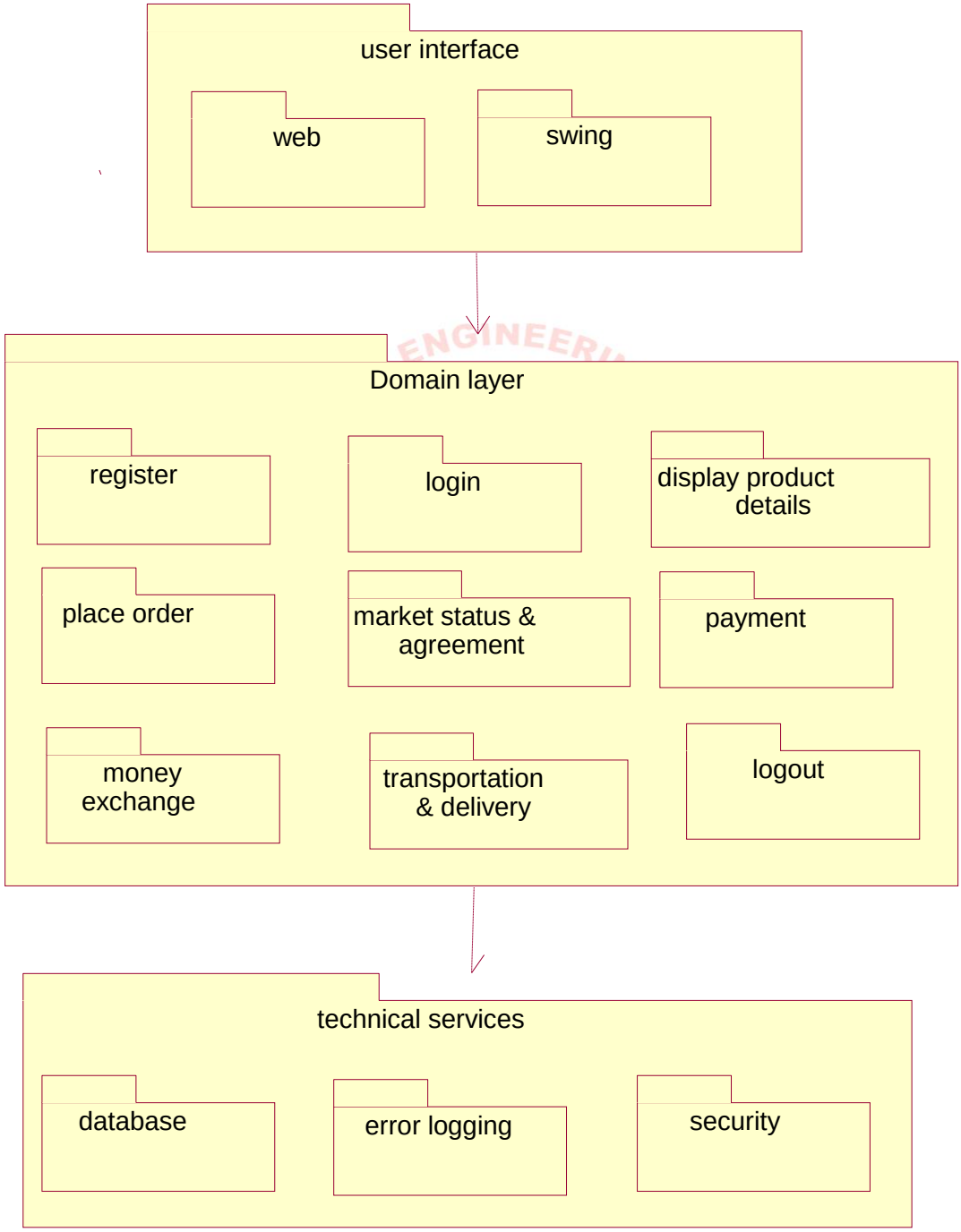
TRANSPORTATION AND DELIVERY



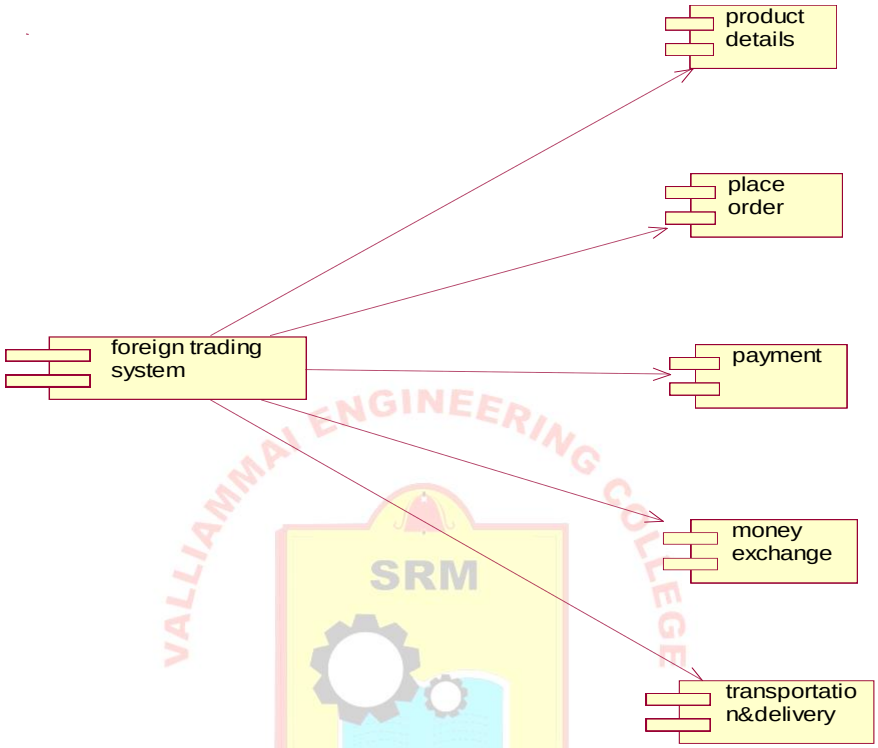
STATE CHART DIAGRAM



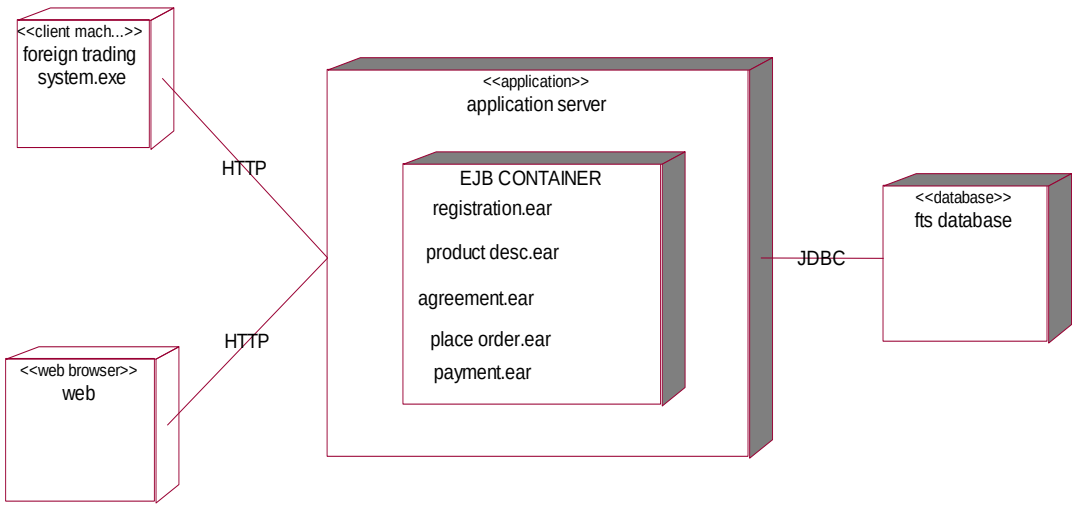
PACKAGE DIAGRAM



COMPONENT DIAGRAM



DEPLOYMENT DIAGRAM



RESULT:

Thus the project to develop a Foreign Trading System is done successfully.

Ex.No:13 **BPO MANAGEMENT SYSTEM**

AIM:

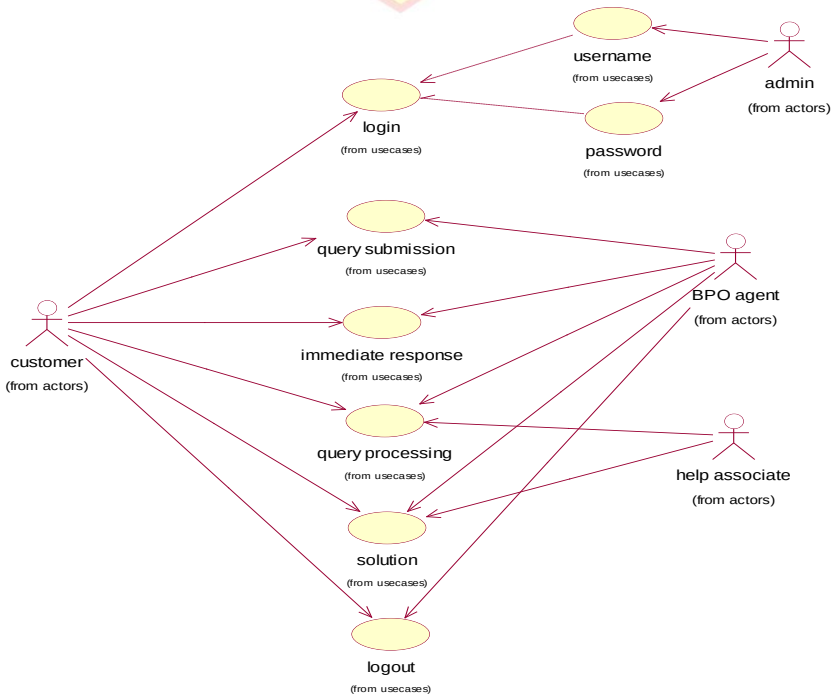
The aim of the project is to develop a BPO management system and to implement the software.

PROBLEM STATEMENT:

BPO focuses on hiring a third party company to do IT related services. A call center is an office for receiving product queries and providing solutions by telephone.

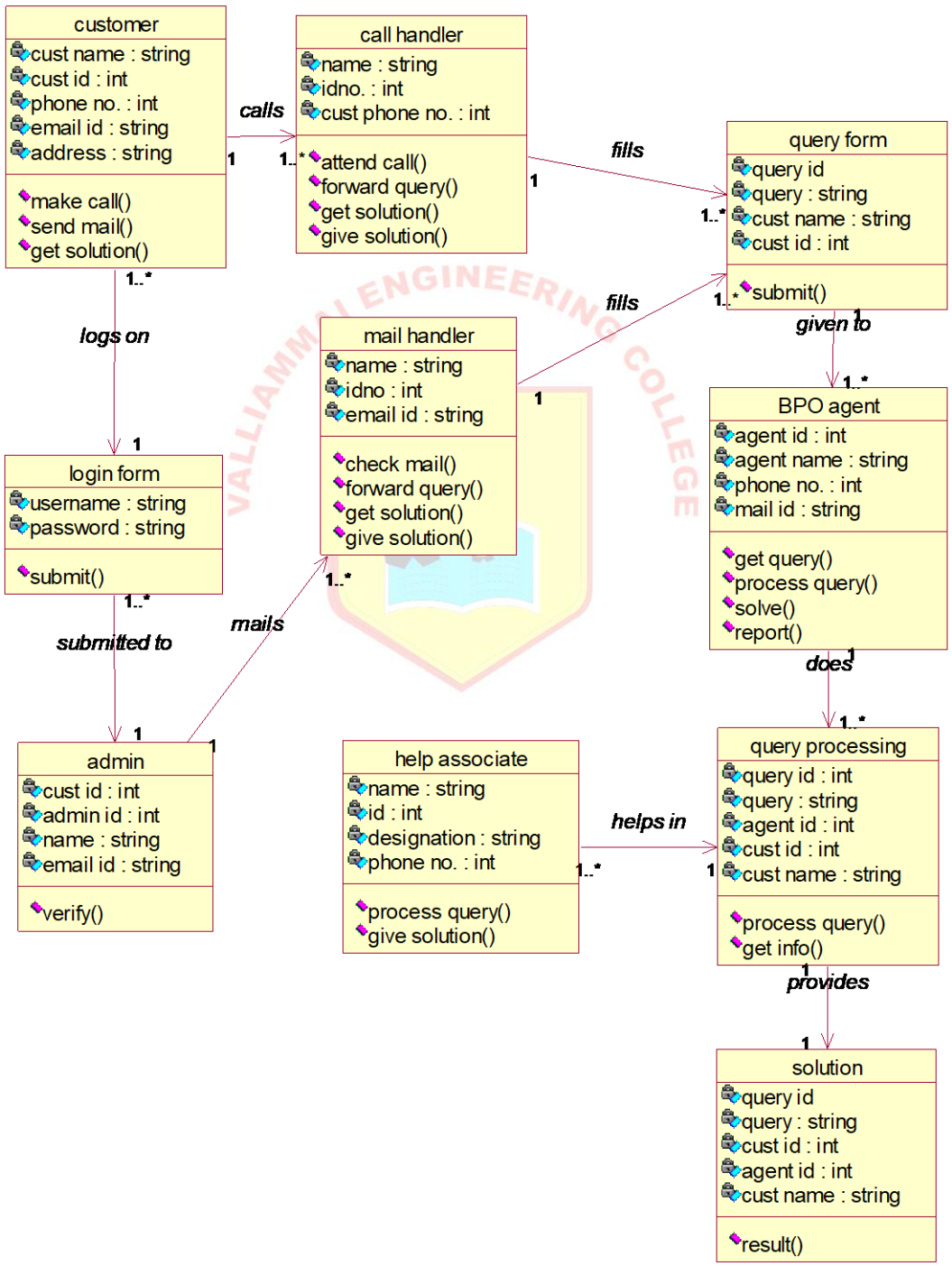
A BPO is phone operated by a company to administer product support or information queries from customers. Outgoing calls are made for assistance in resolving the queries in 3 ways they are voiced, non-voiced communication. Voice based BPOs are those BPOs where you are required to talk to the customers. Non-voiced based BPOs are BPOs which perform the outsourced wok for their clients but do not need to interact with client's customers. If the solutions are not available directly then some assistance is needed to resolve the queries.

USECASE DIAGRAM



CLASS DIAGRAM

OVERALL CLASS DIAGRAM:



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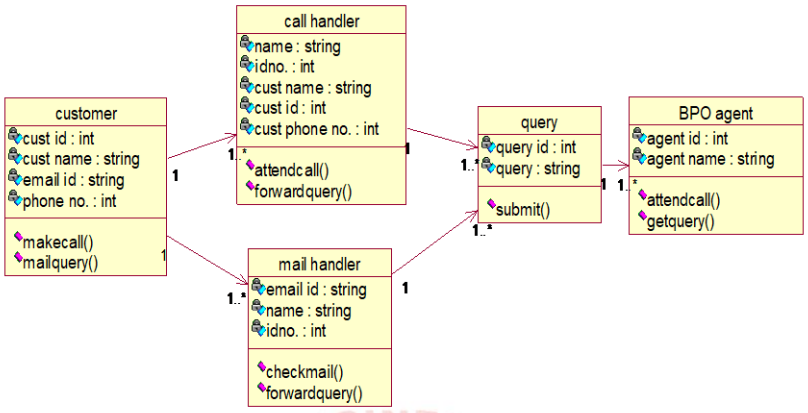

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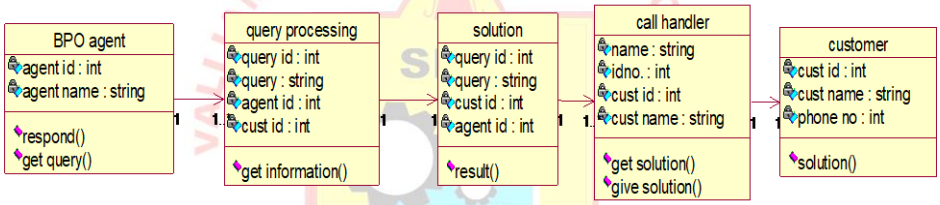

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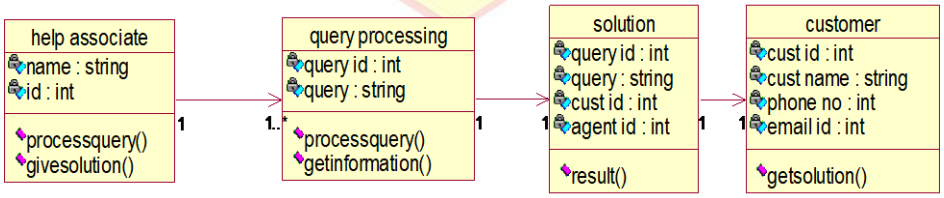
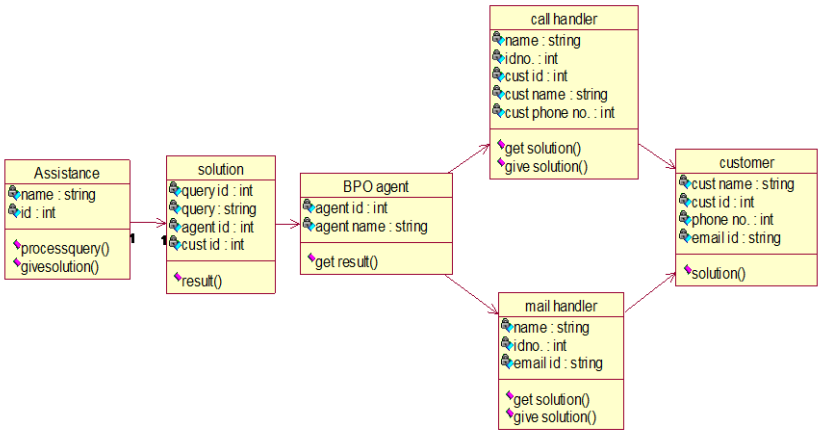


SOLUTION:



SEQUENCE DIAGRAM

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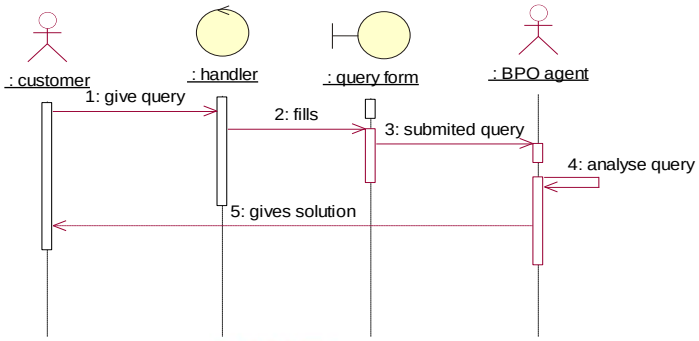

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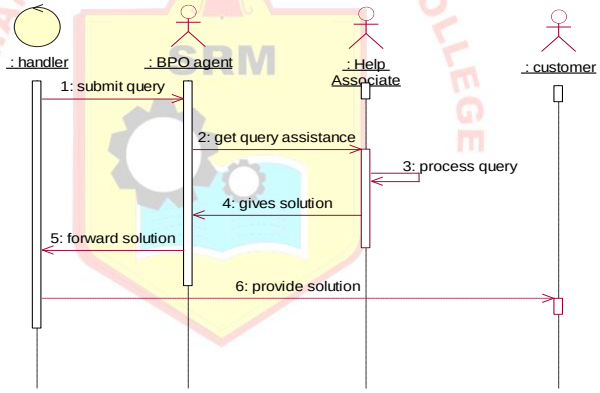
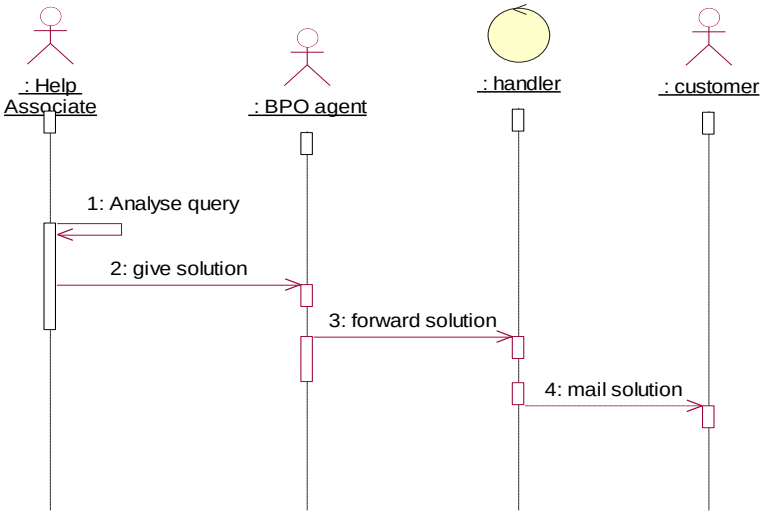
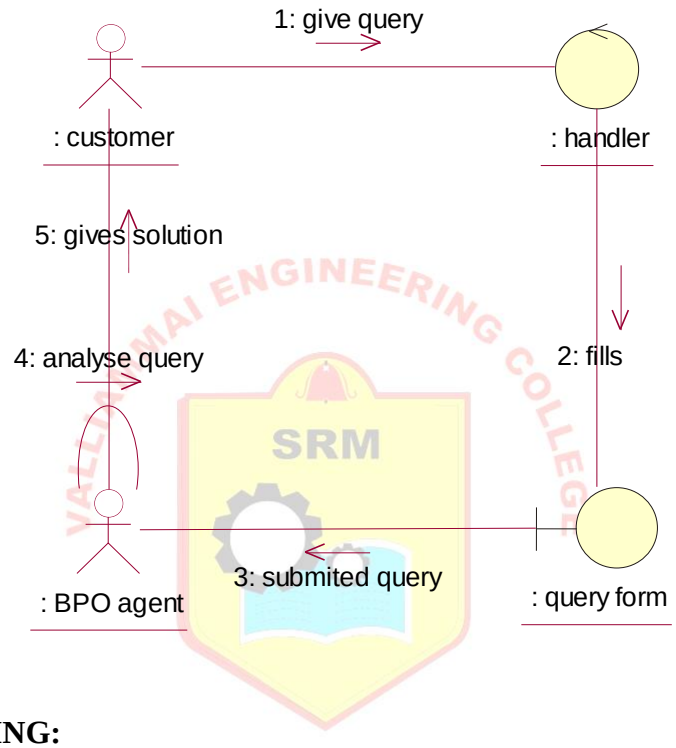


SOLUTION:



COLLABORATION DIAGRAM

QUERY SUBMISSION:



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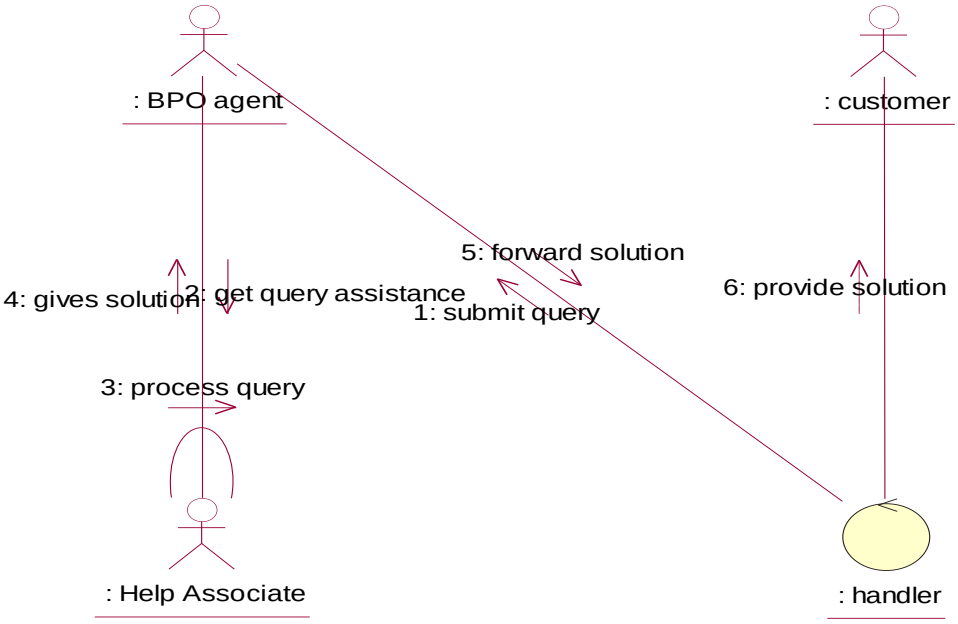
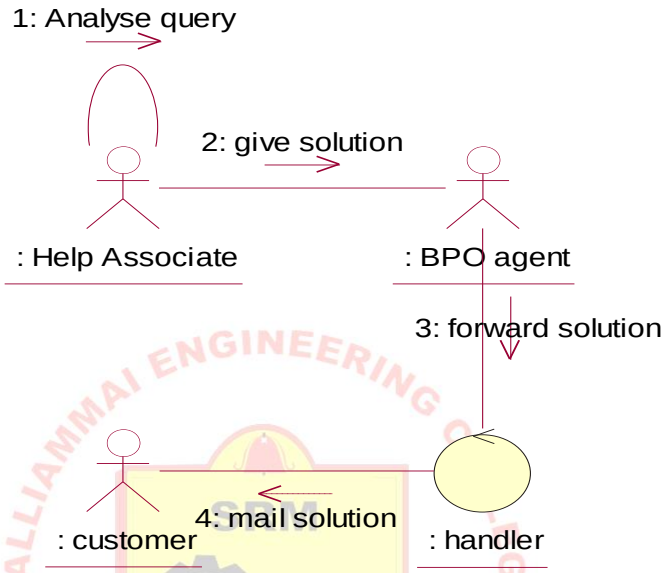
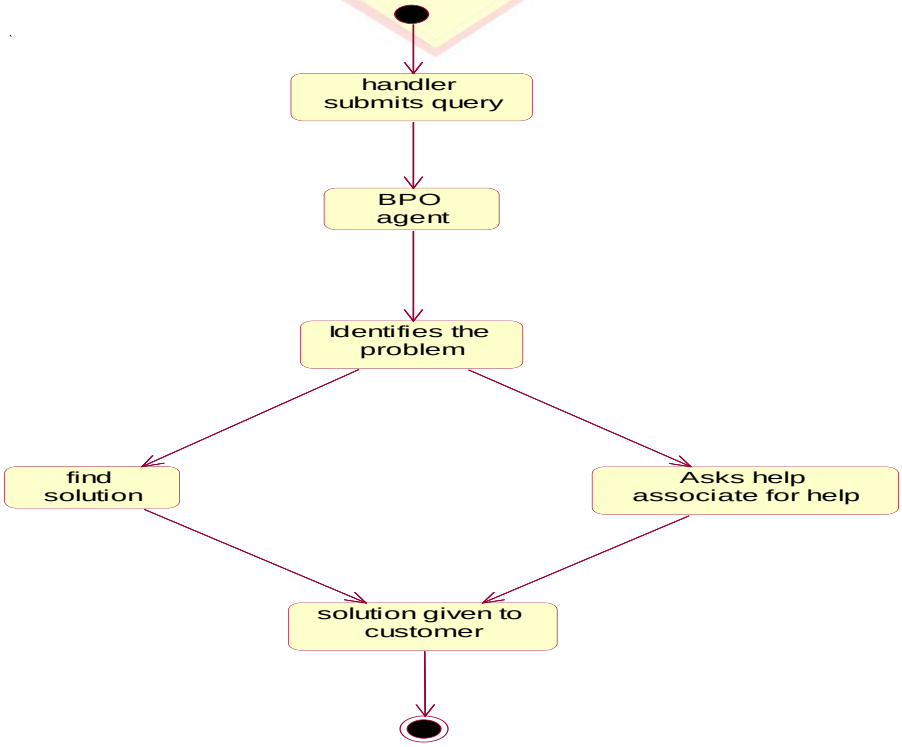


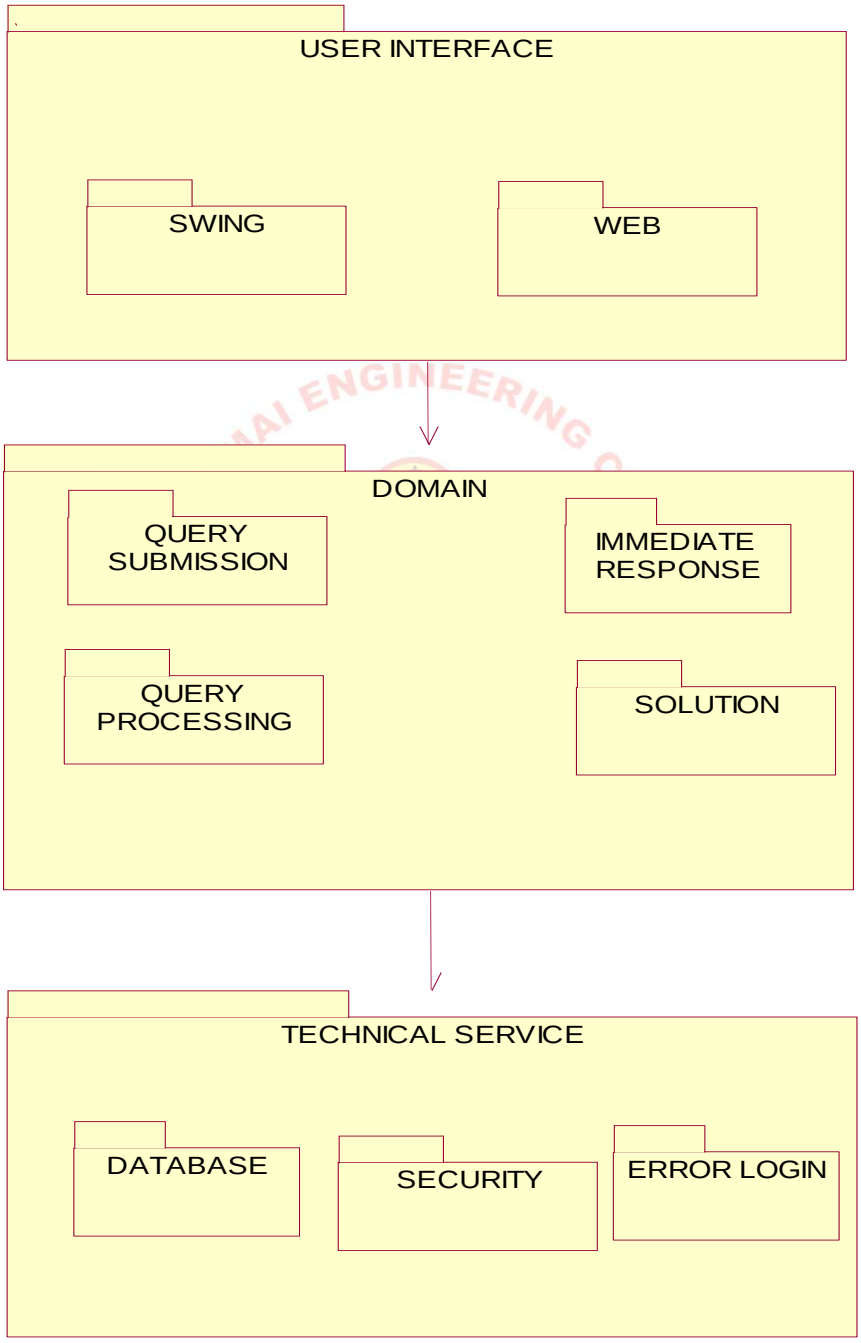
SOLUTION:



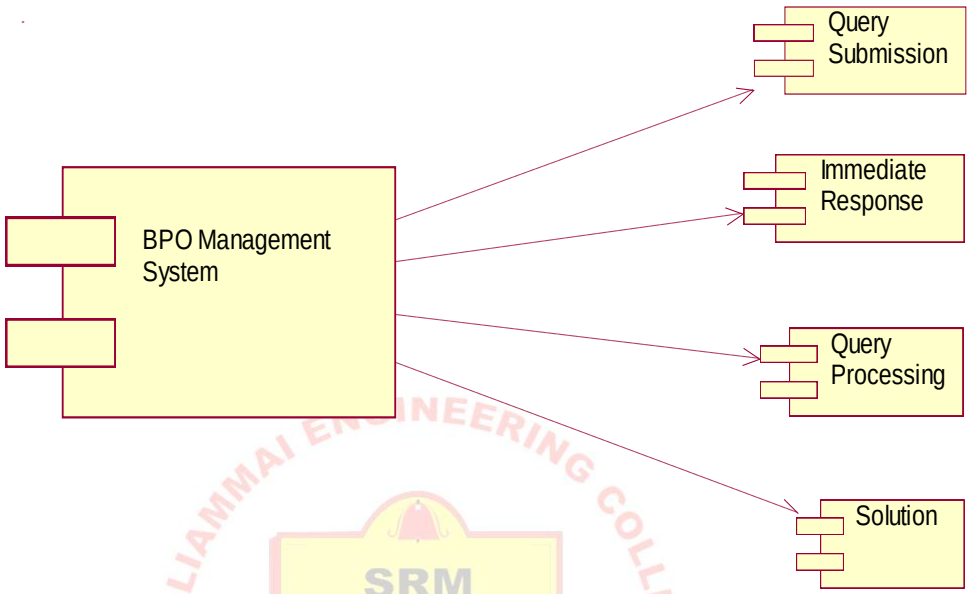
STATE CHART DIAGRAM



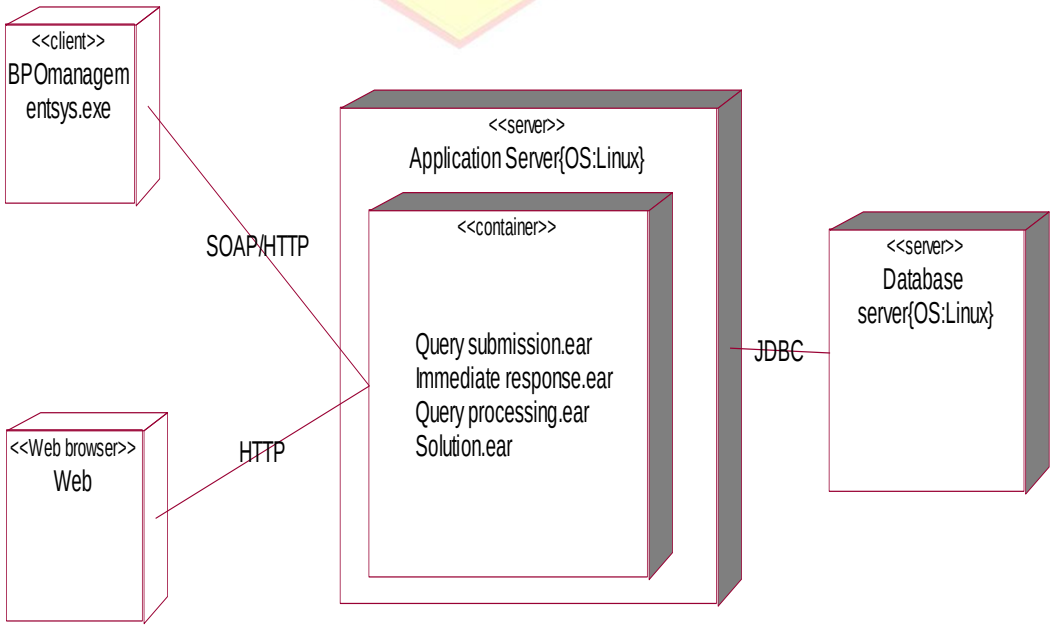
PACKAGE DIAGRAM



COMPONENT DIAGRAM



DEPLOYMENT DIAGRAM



RESULT:

Thus the project to develop a BPO Management System is done successfully.

Ex.No:14 **LIBRARY MANAGEMENT SYSTEMS**

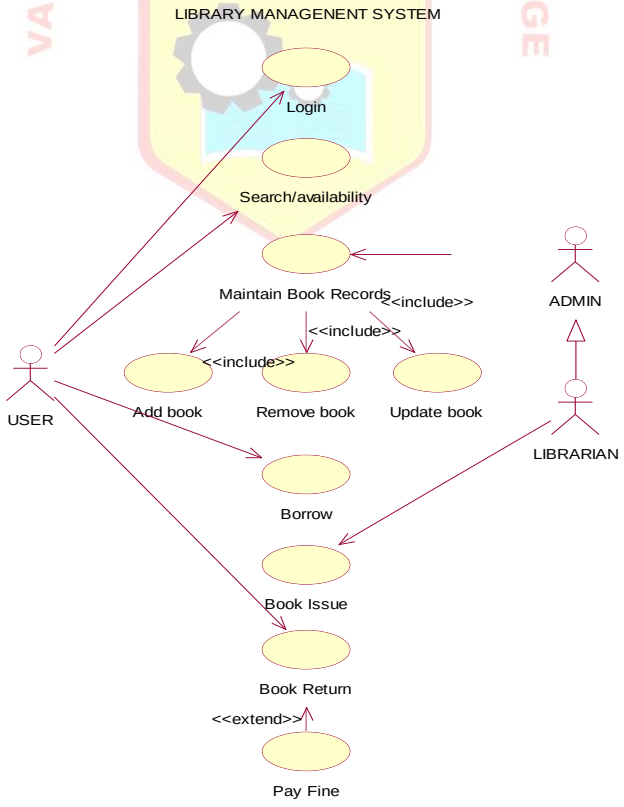
AIM:

To write the problem statement for the Library Management System.

PROBLEM STATEMENT:

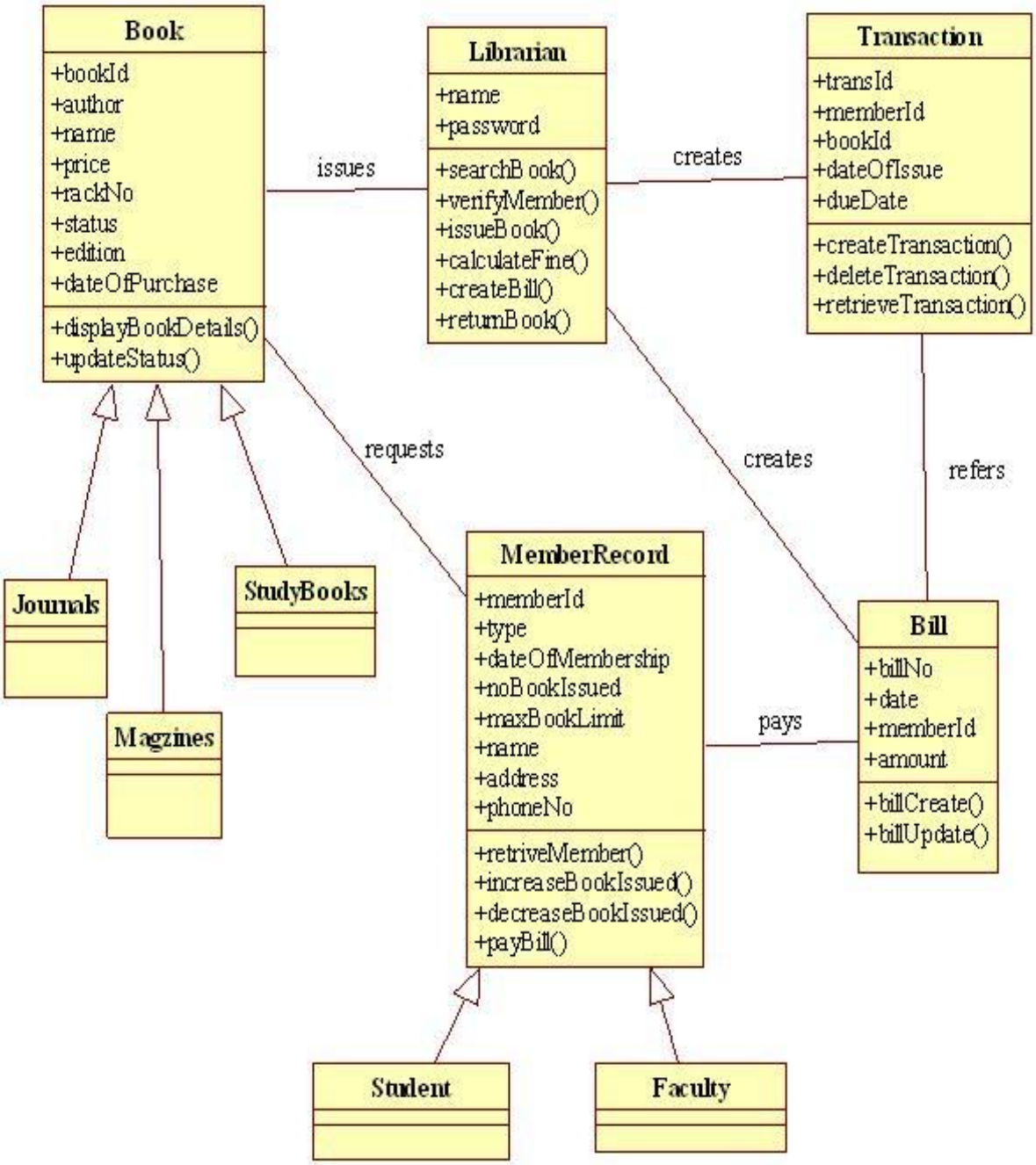
Library Management system is to manage the book transaction and user details.At first,users have to login the system and search for the required book for availability.If the book is availableusers will take the book and request for book to the admin.Admin collects the details of user and the book.Then the admin issues the book with the renewal date.Users have to return or renew the book with in the given date.If the user failed to return the book the fine amount is collected for the late submission corresponding to the variation in date.

USE CASE DIAGRAM

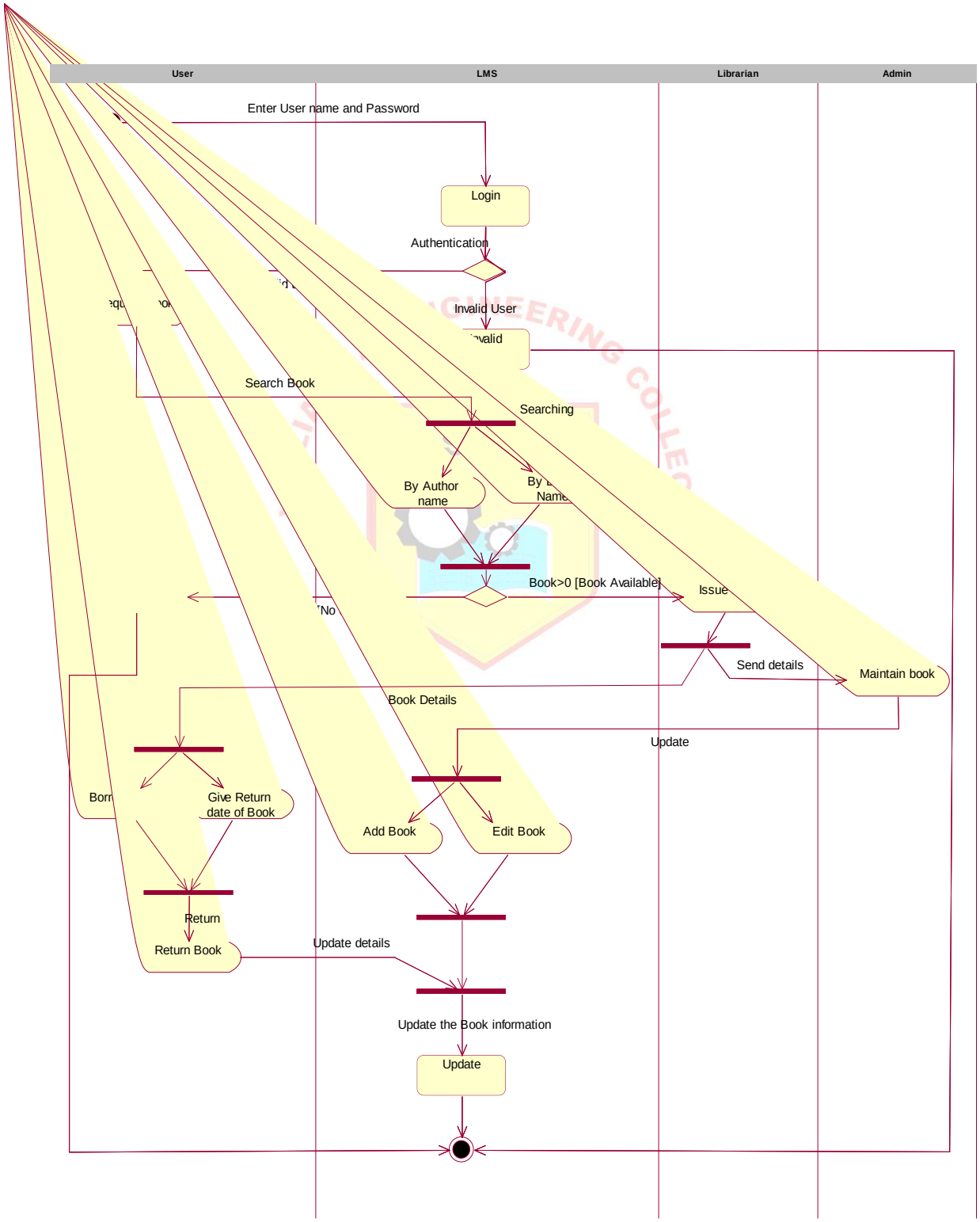


CLASS DIAGRAM

OVERALL CLASS DIAGRAM:

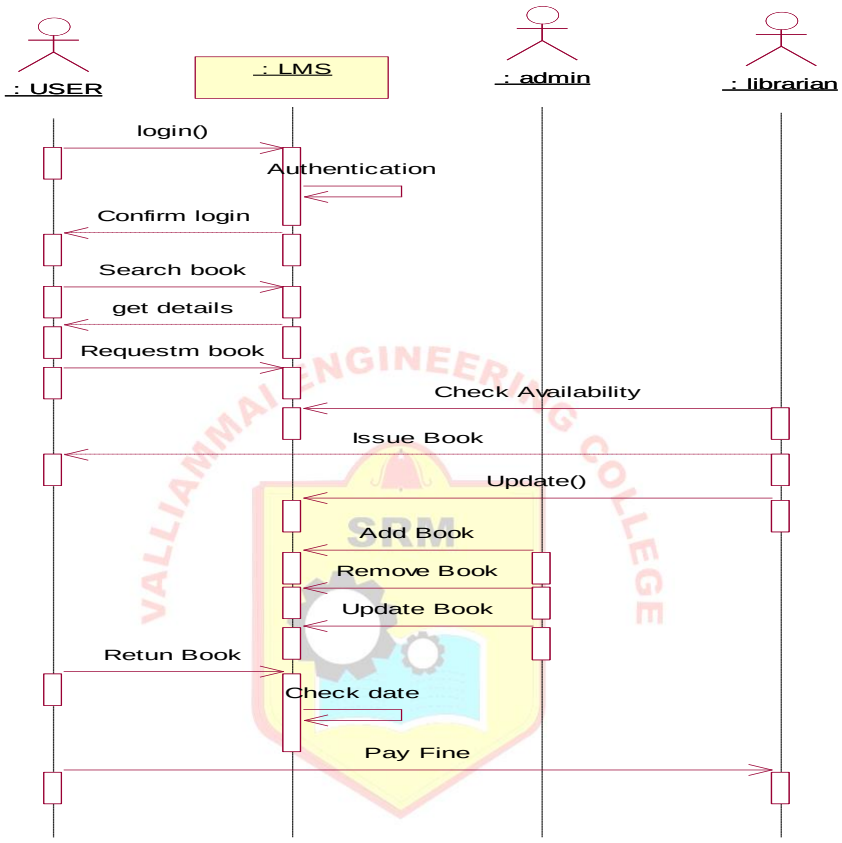


ACTIVITY DIAGRAM



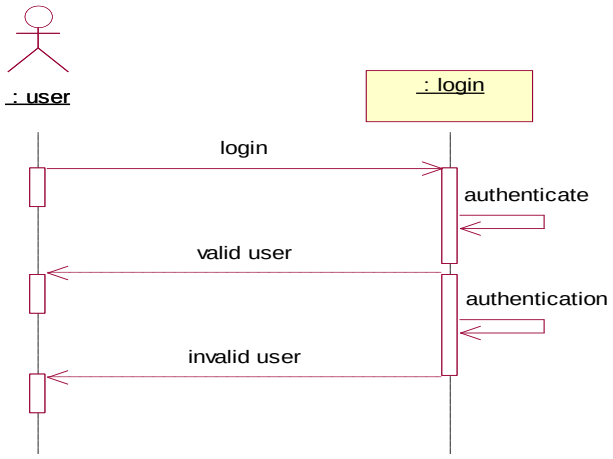
SEQUENCE DIAGRAM

OVERALL CLASS DIAGRAM

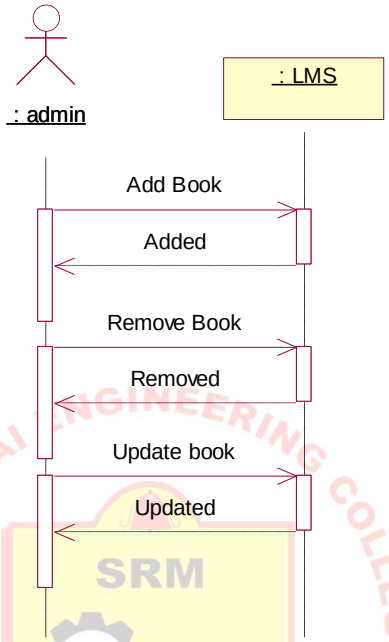


INDIVIDUAL SEQUENCE DIAGRAM:

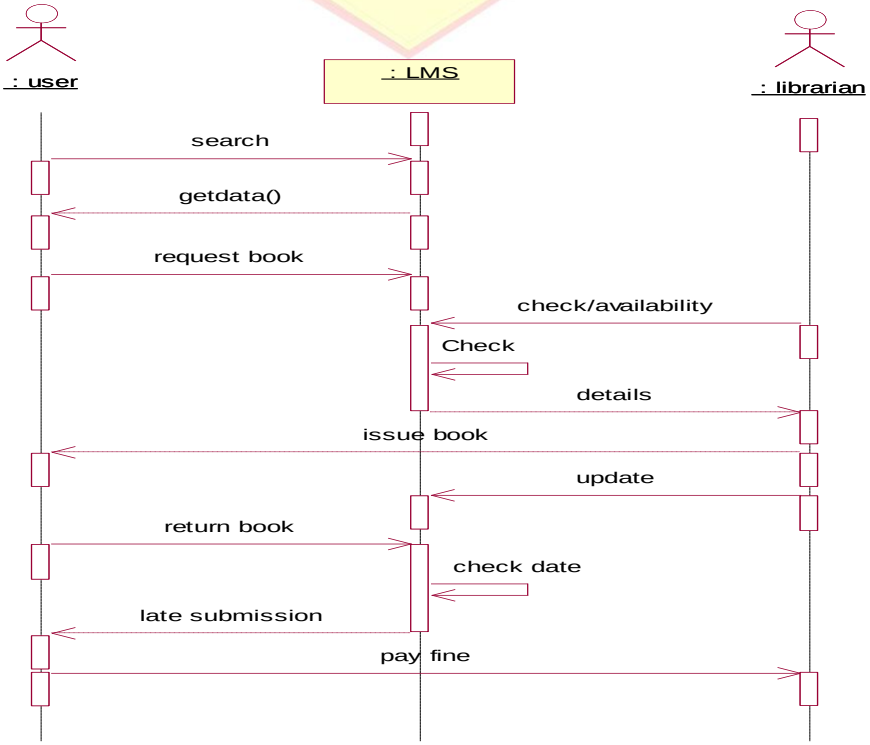
Login:



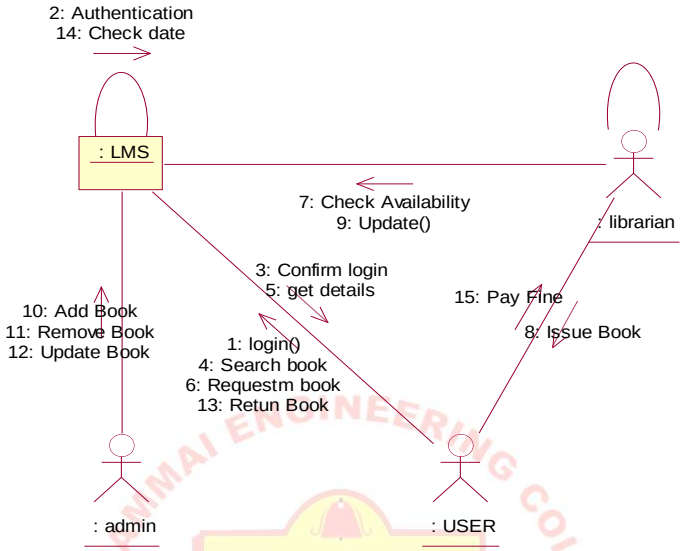
Maintain/manage:



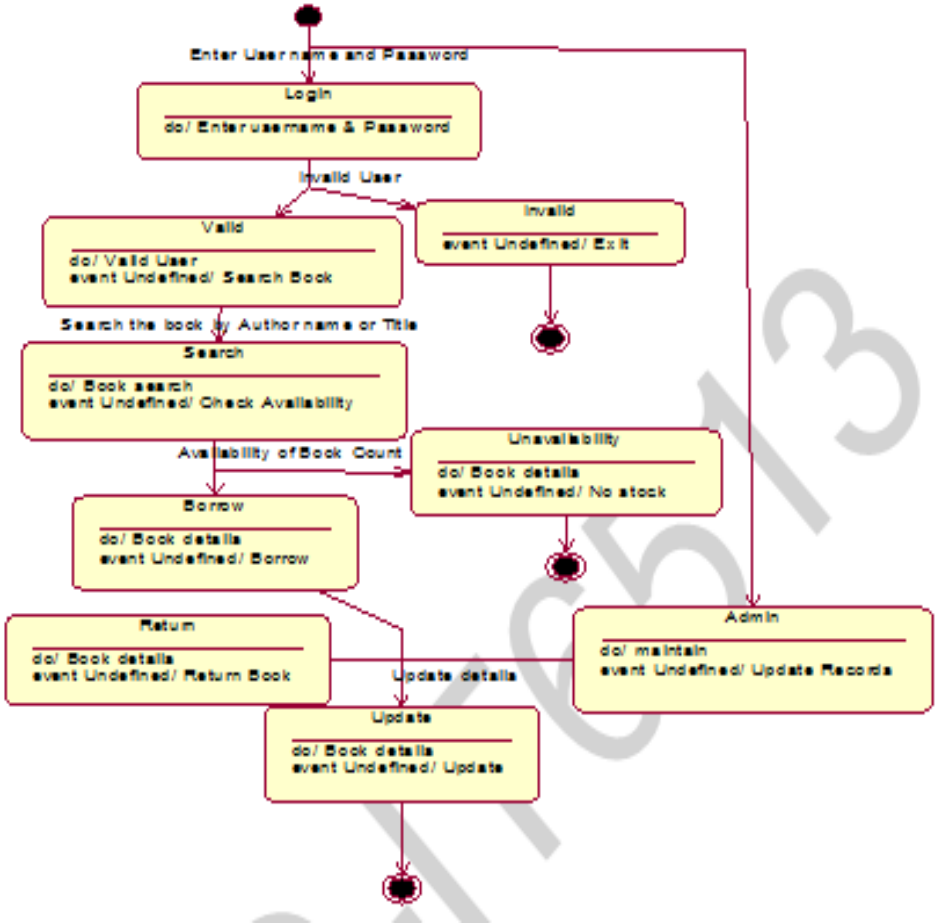
Transaction:



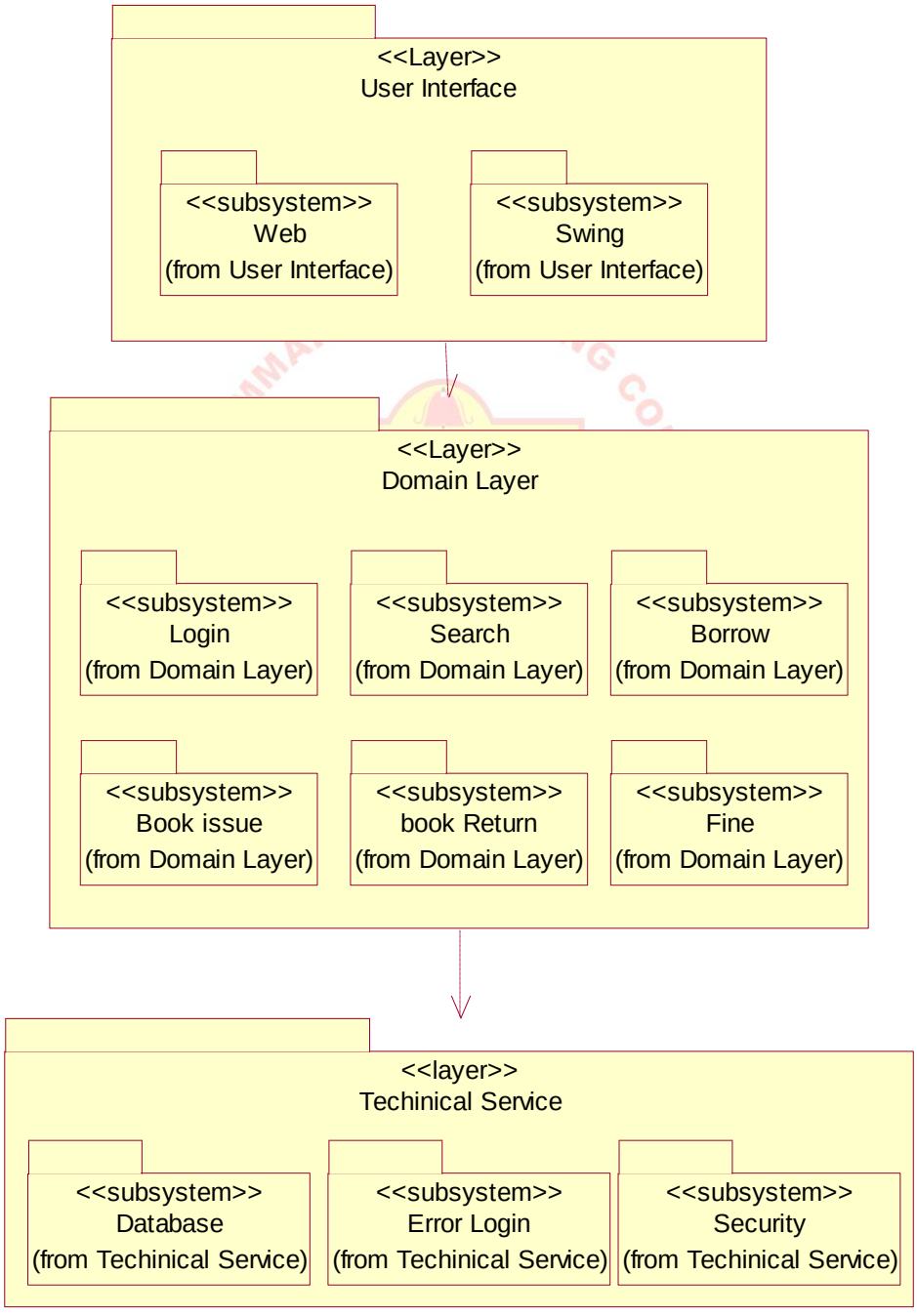
COLLABORATION DIAGRAM



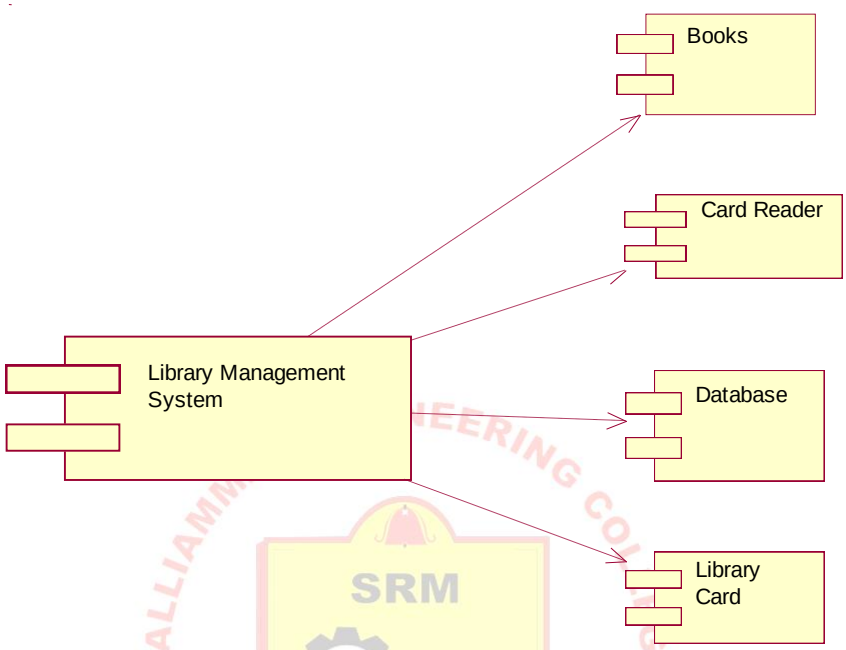
STATE CHART DIAGRAM



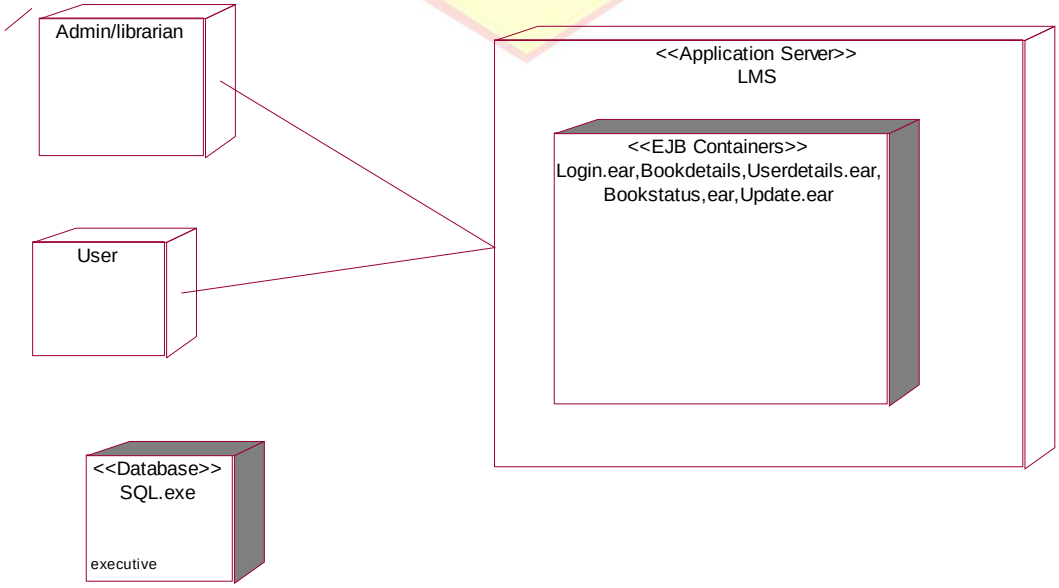
PACKAGE DIAGRAM



COMPONENT DIAGRAM



DEPLOYMENT DIAGRAM



RESULT:

Thus the project to develop a Library Management System is done successfully.

Ex.No:15 **STUDENT INFORMATION SYSTEM**

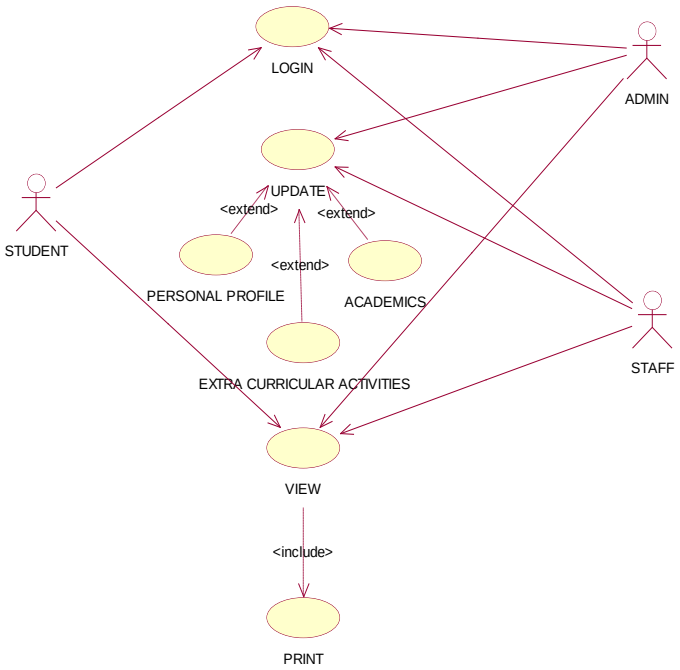
AIM:

To identify the problem and to identify the project scope, objectives and infrastructure for student information system

PROBLEM STATEMENT:

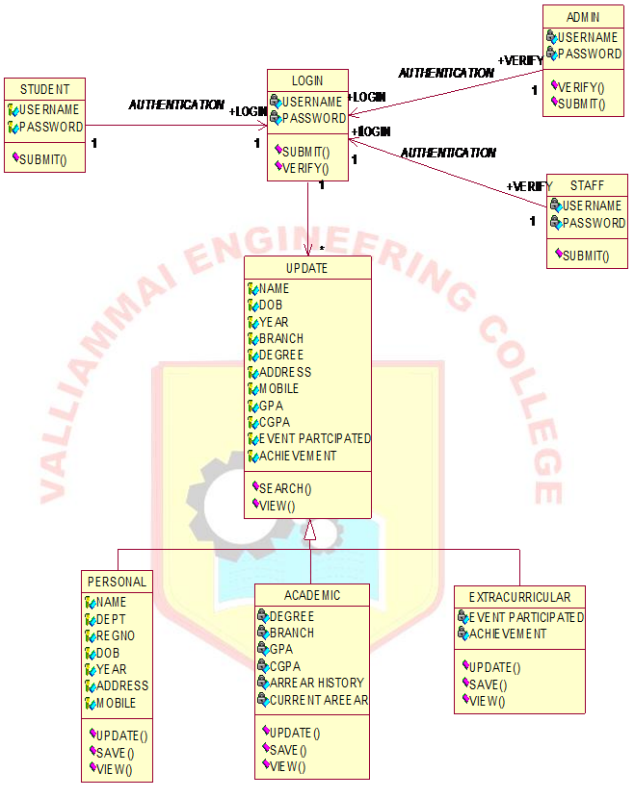
The main aim of the system is to improve the efficiency of maintaining student information and to overcome the discrepancies involved in handling large volume of paper scripts.at the beginning the details of all the students are collected. Initial stage of the system begins with the login of the administrator. Administrator is the authorized person who can afford to add, remove or edit student information. Administrator feeds the details of the student in the system. The details of the student contain name, roll no, D.O.B., address, department,caste, attendancemark percentage, extracurricular,other qualification,parent details.After getting necessary information of the system the administrator can log out. Students can view their mark and attendance, curricular information by logging into the system with their username password. After viewing their student details can sign out from the system.

USE CASE DIAGRAM



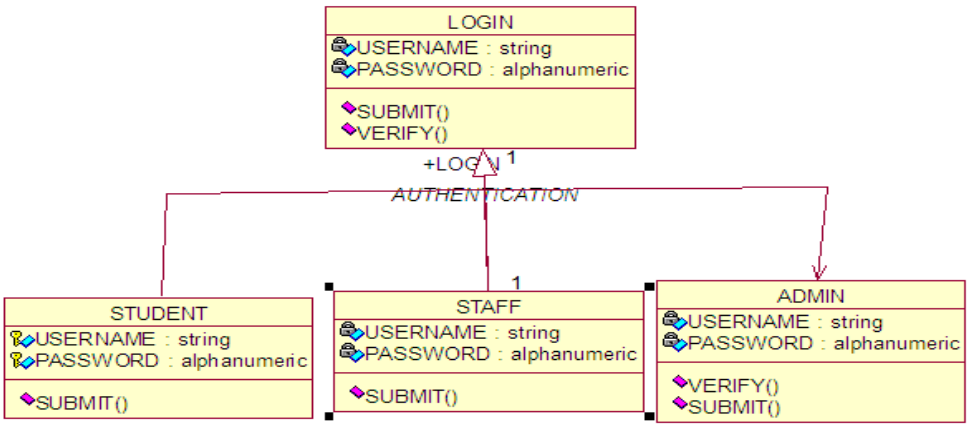
CLASS DIAGRAM

OVERALL CLASS DIAGRAM:

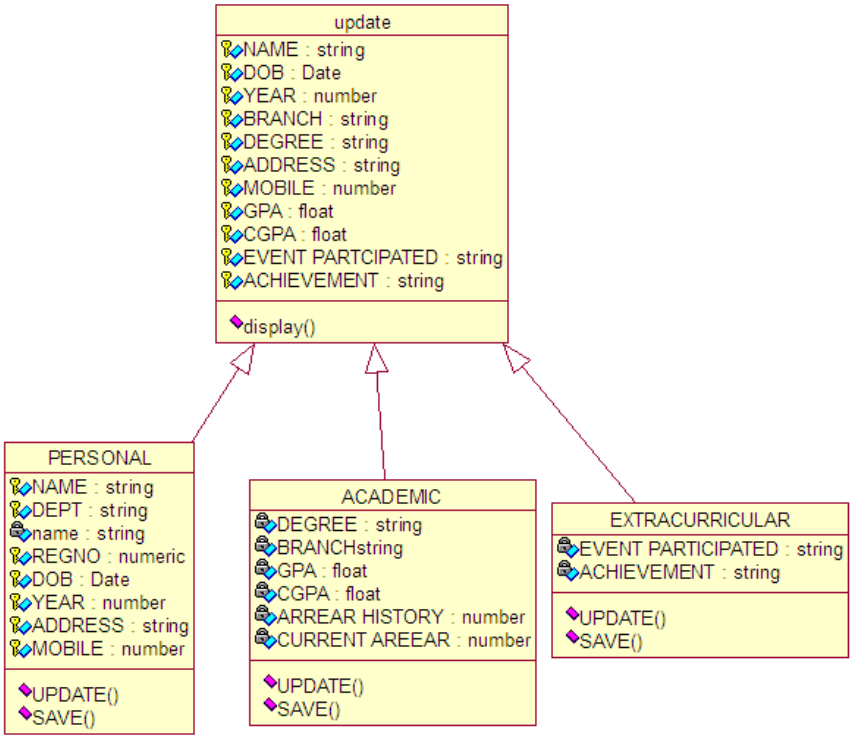


INDIVIDUAL CLASS DIAGRAM

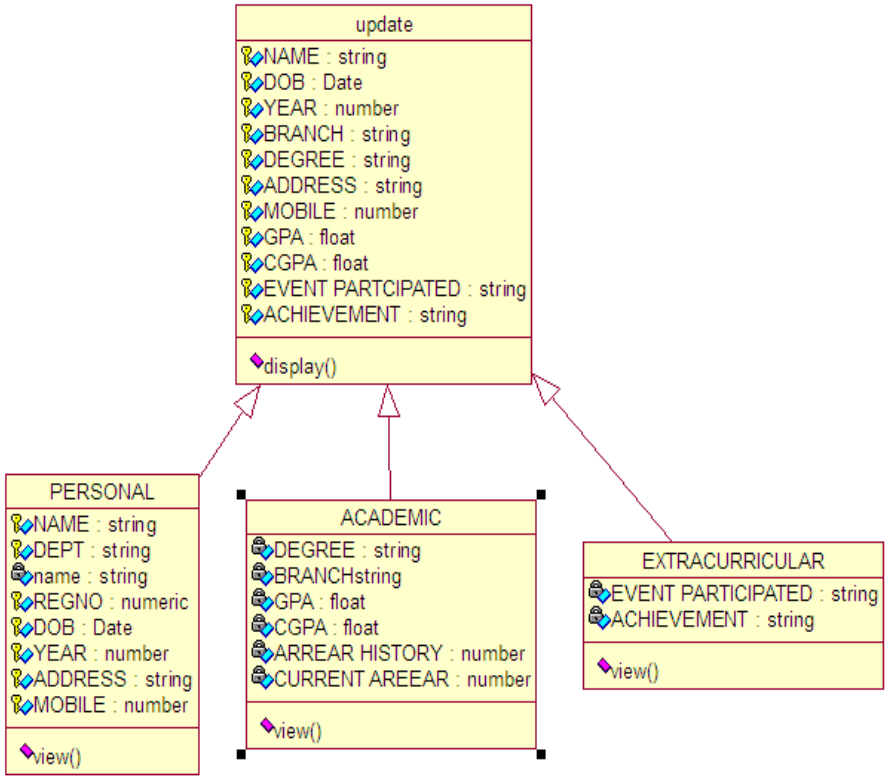
login:



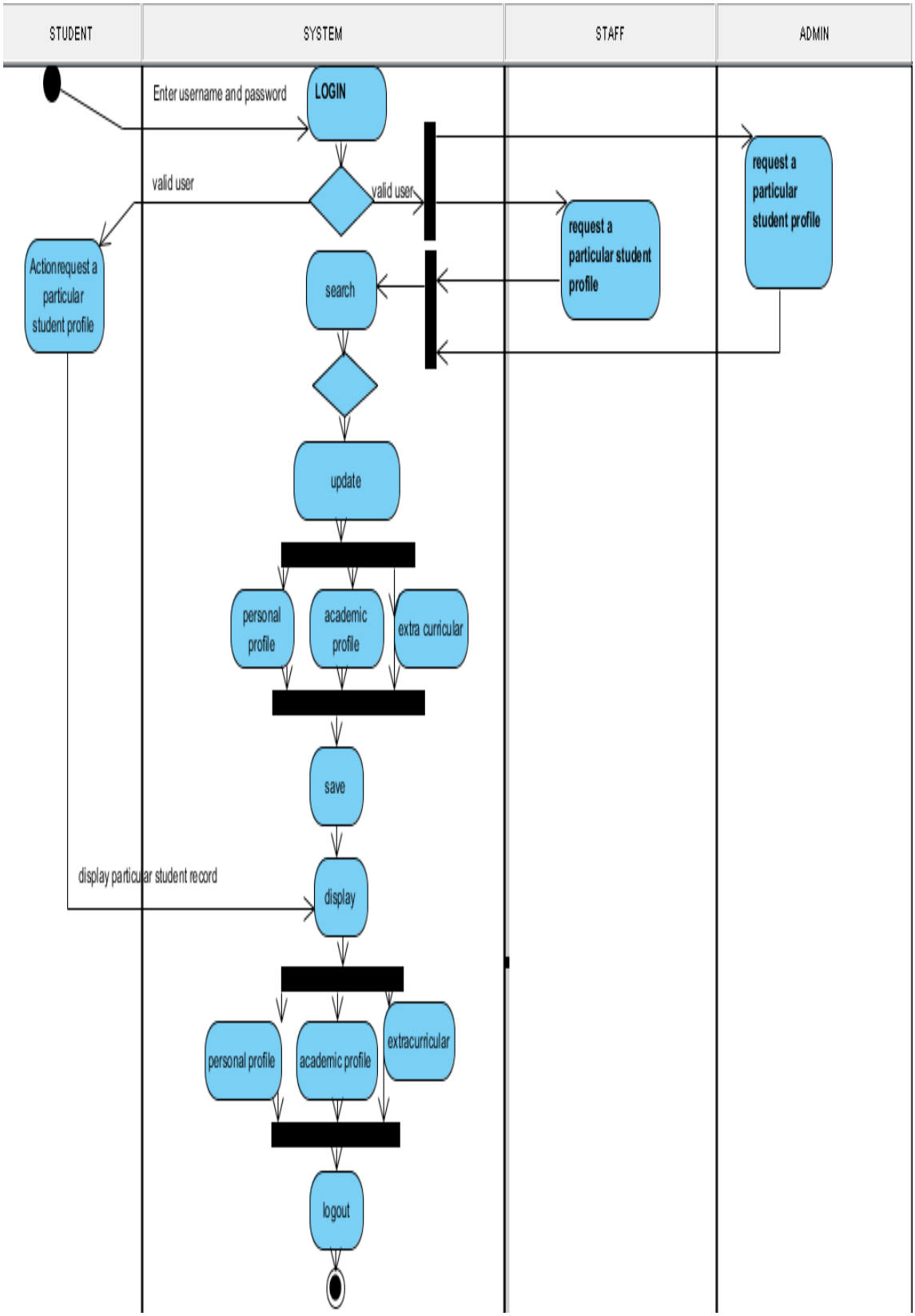
update:


update
NAME : string
DOB : Date
YEAR : number
BRANCH : string
DEGREE : string
ADDRESS : string
MOBILE : number
GPA : float
CGPA : float
EVENT PARTCIPATED : string
ACHIEVEMENT : string
display()
PERSONAL
NAME : string
DEPT : string
name : string
REGNO : numeric
DOB : Date
YEAR : number
ADDRESS : string
MOBILE : number
UPDATE()
SAVE()
ACADEMIC
DEGREE : string
BRANCHstring
GPA : float
CGPA : float
ARREAR HISTORY : number
CURRENT AREEAR : number
UPDATE()
SAVE()
EXTRACURRICULAR
EVENT PARTICIPATED : string
ACHIEVEMENT : string
UPDATE()
SAVE()

View:


update
NAME : string
DOB : Date
YEAR : number
BRANCH : string
DEGREE : string
ADDRESS : string
MOBILE : number
GPA : float
CGPA : float
EVENT PARTCIPATED : string
ACHIEVEMENT : string
display()
PERSONAL
NAME : string
DEPT : string
name : string
REGNO : numeric
DOB : Date
YEAR : number
ADDRESS : string
MOBILE : number
view()
ACADEMIC
DEGREE : string
BRANCHstring
GPA : float
CGPA : float
ARREAR HISTORY : number
CURRENT AREEAR : number
view()
EXTRACURRICULAR
EVENT PARTICIPATED : string
ACHIEVEMENT : string
view()

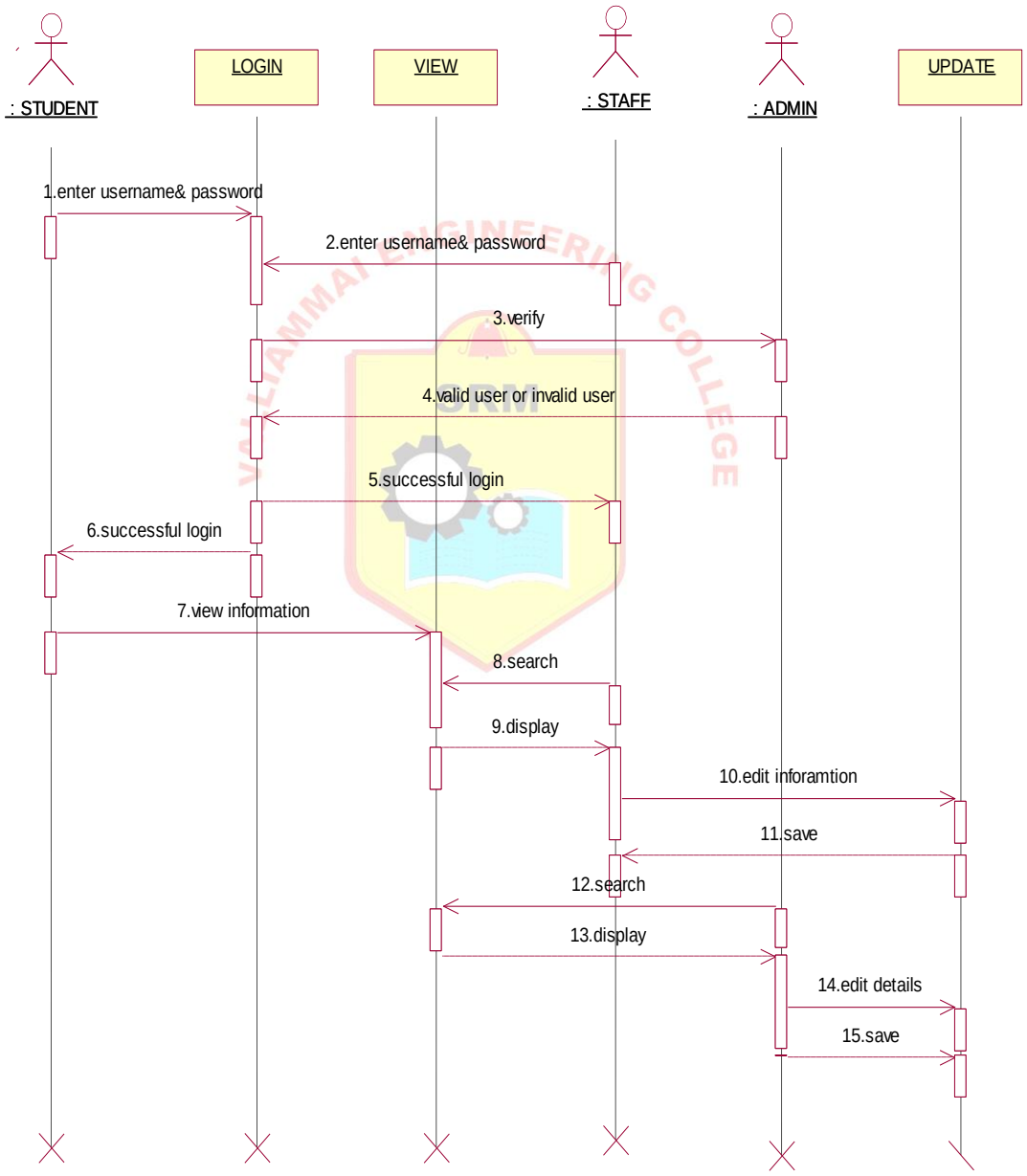
ACTIVITY DIAGRAM



INTERACTION DIAGRAM

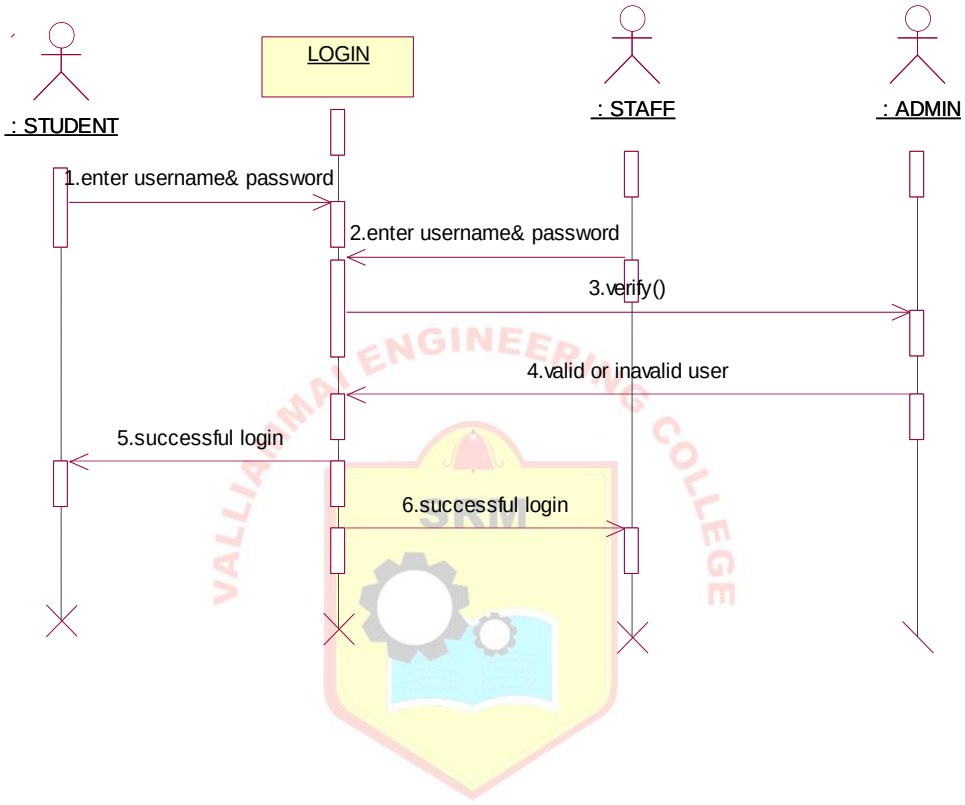
SEQUENCE DIAGRAM

OVERALL:

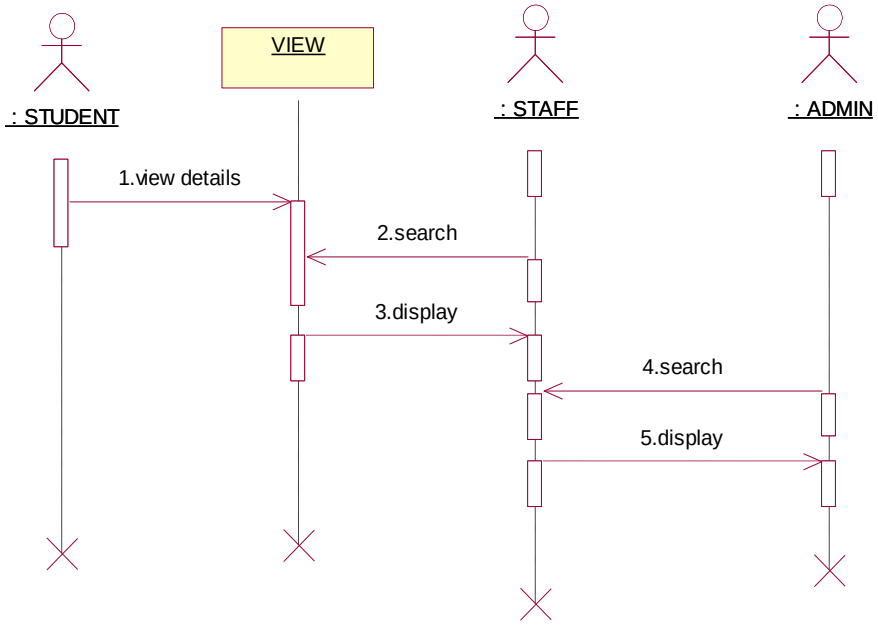


INDIVIDUAL SEQUENCE DIAGRAM:

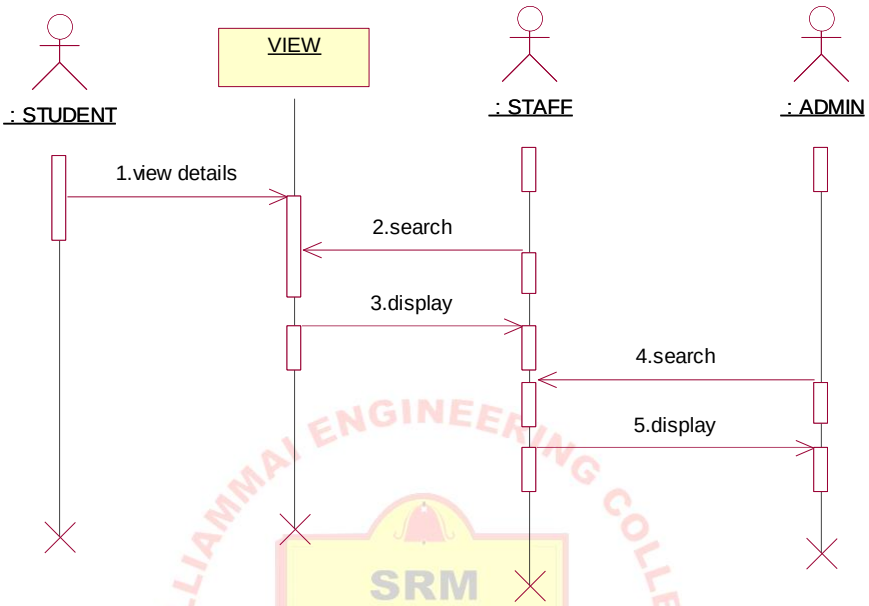
LOGIN



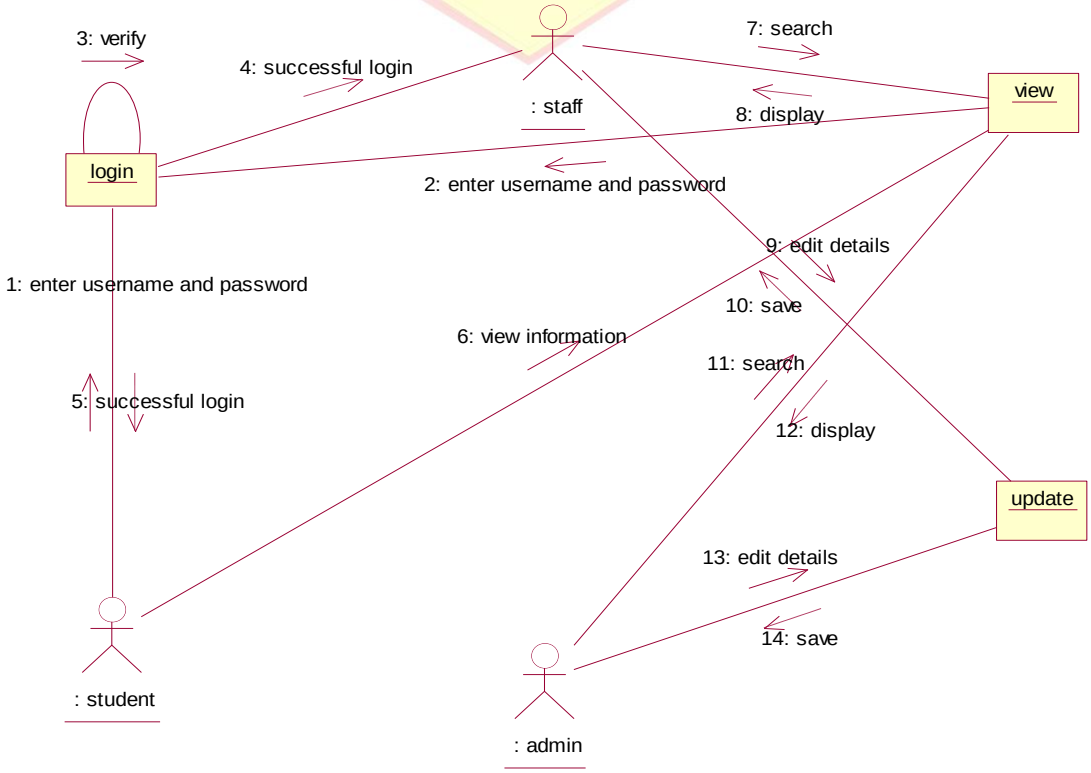
VIEW:



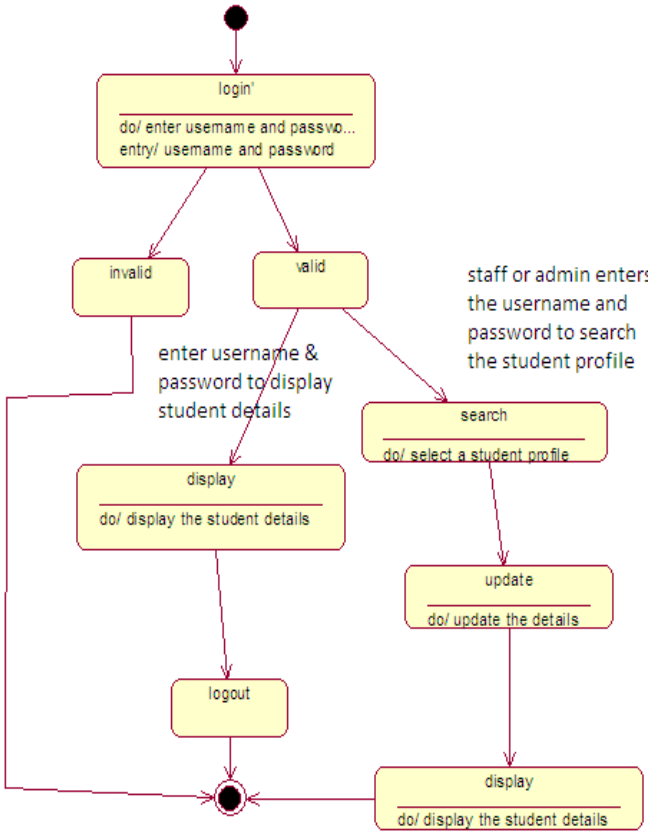
UPDATE:



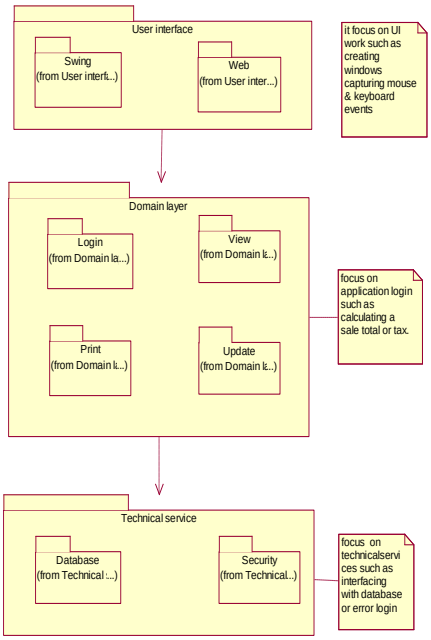
COLLABORATION DIAGRAM



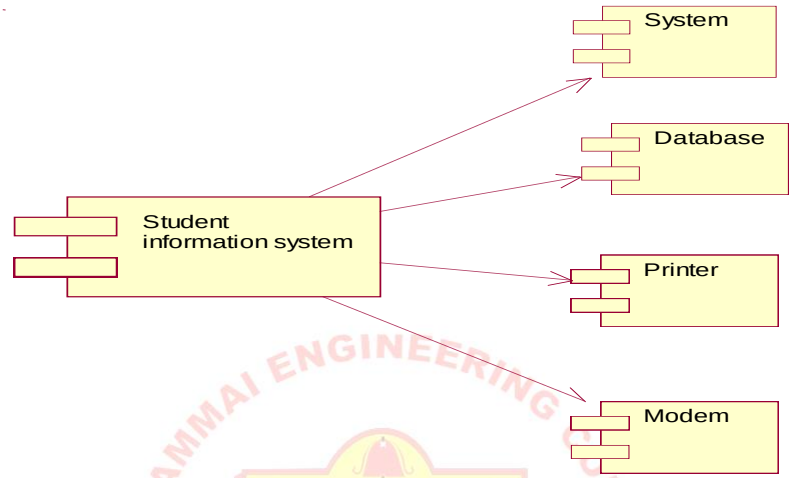
STATE CHART DIAGRAM



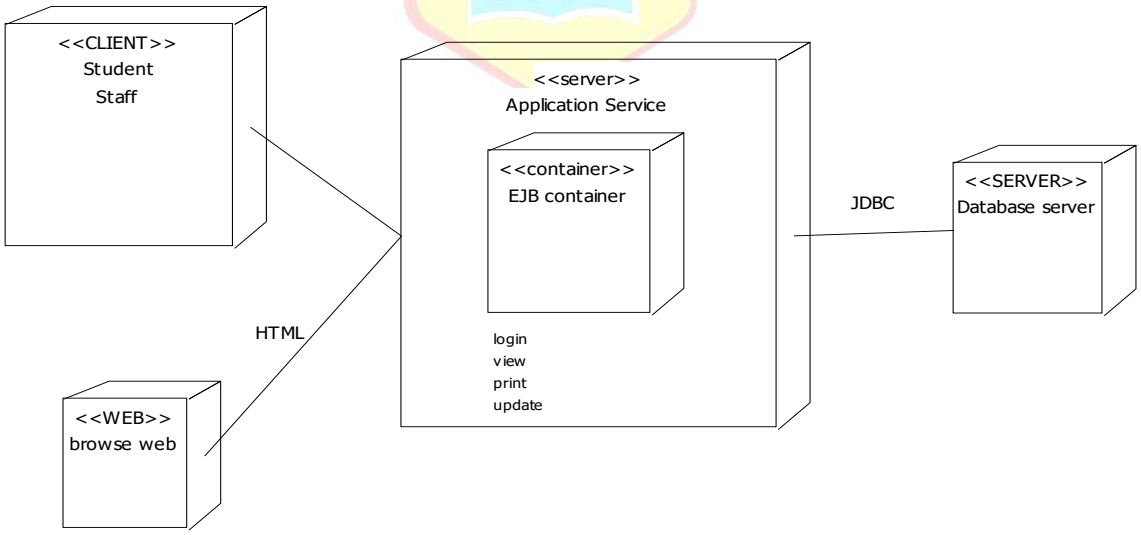
PACKAGE DIAGRAM



COMPONENT DIAGRAM



DEPLOYMENT DIAGRAM



RESULT:

Thus the project to develop a Student Information System is done successfully.

Ex.No:16 **ATM SYSTEMS**

AIM:

To develop automated teller Machine **(ATM)** which is used to provide money everywhere by adding addition feature to it.

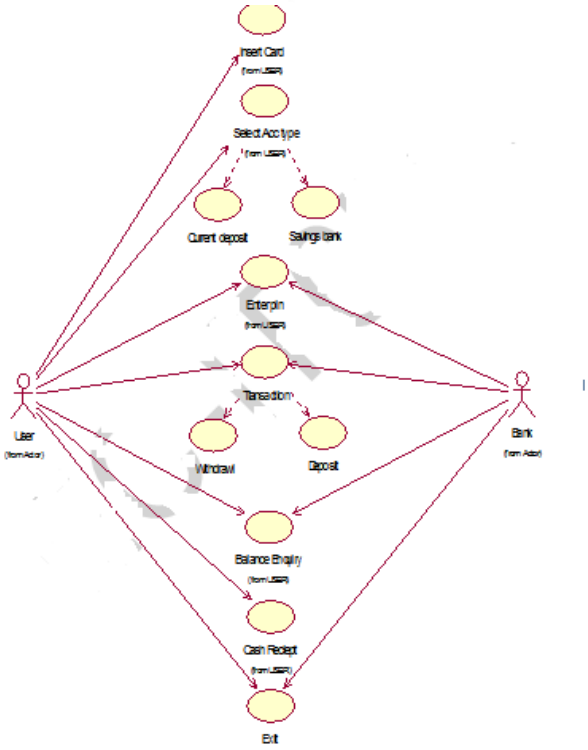
PROBLEM STATEMENT:

The main objective of our project is to implement voice feature in all ATM machines, which will reduce the user's time to withdraw money.

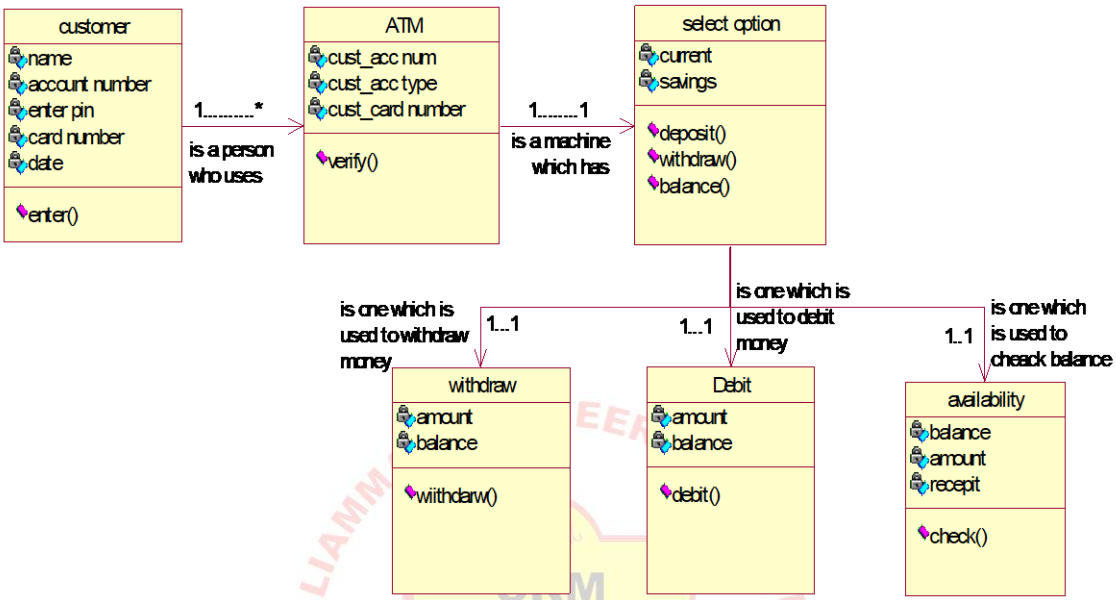
- Design and develop the ATM system to monitor the system usage so that, we add additional features to ATM called Voice recognition.
- It allows user to operate ATM by speaking to it.
- Speech is also a very natural way to interact and it is not necessary to select all option by hands.
- This voice recognition allows user to withdraw money in short span of time.
- In older days, we used to go to banks to withdraw money, but using ATM we can get money from anywhere and anytime.

The main scope of our project is to include Additional feature in ATM machine, which is voice recognition, which is used to select the options through voice of user. Thus, through Voice Recognition, it reduces customer's effective time and blind people can also easily handle and even physically disabled persons can also use ATM machine through Voice Recognition.

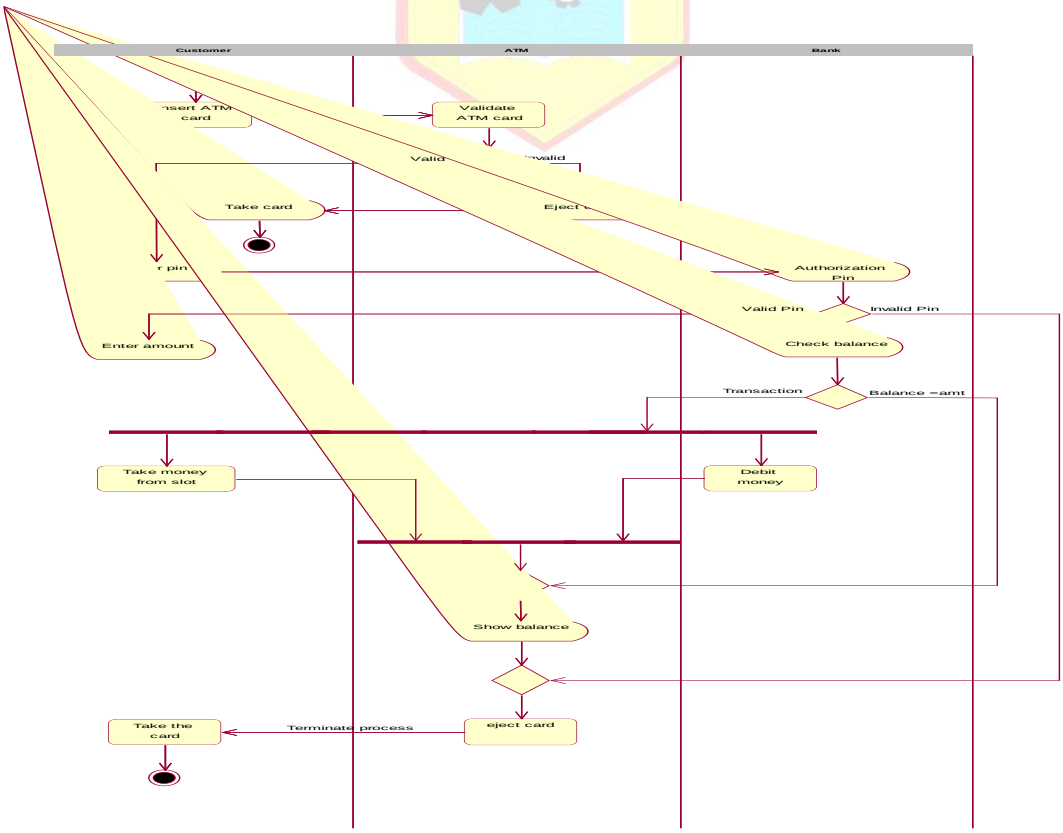
USE CASE DIAGRAM



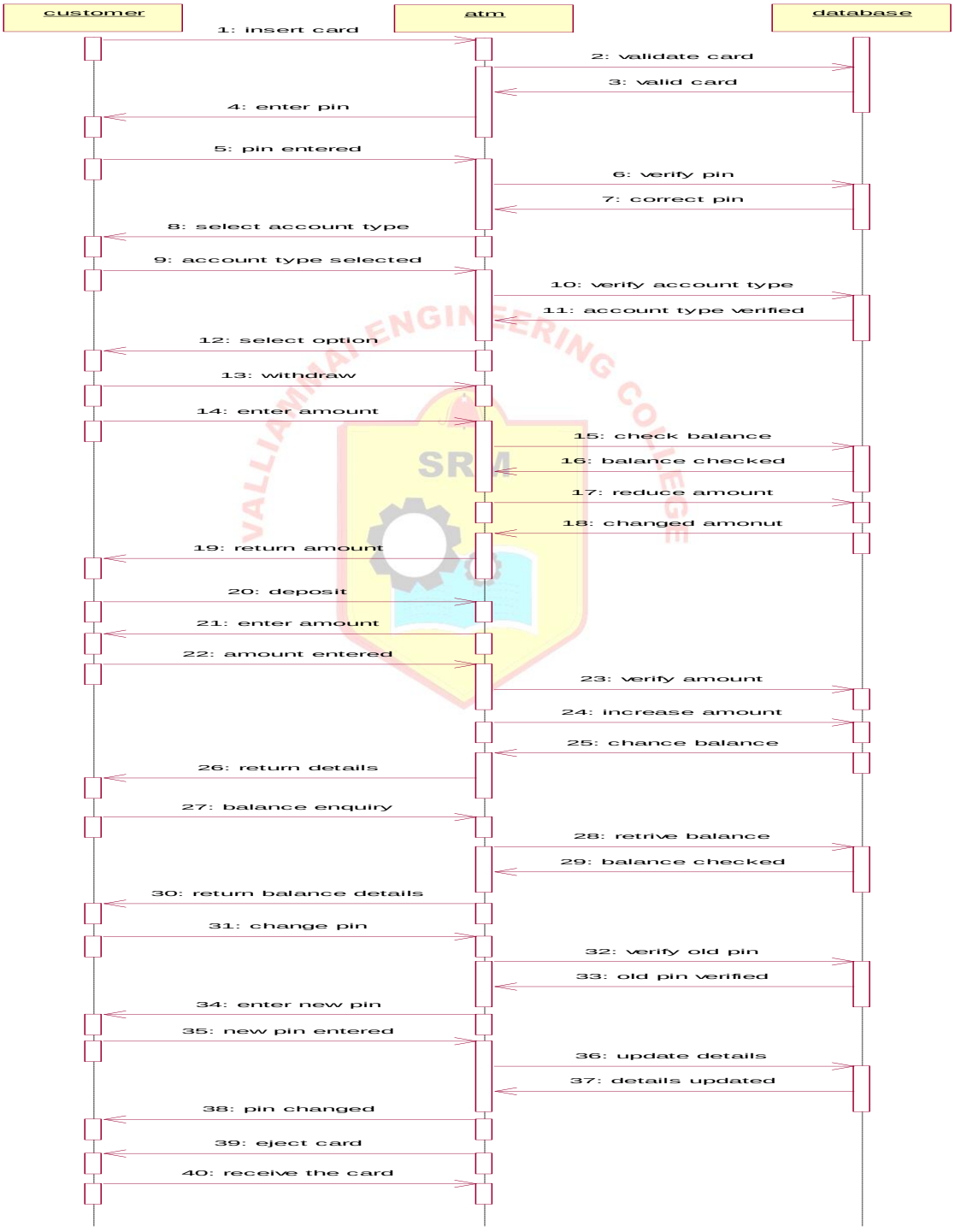
CLASS DIAGRAM



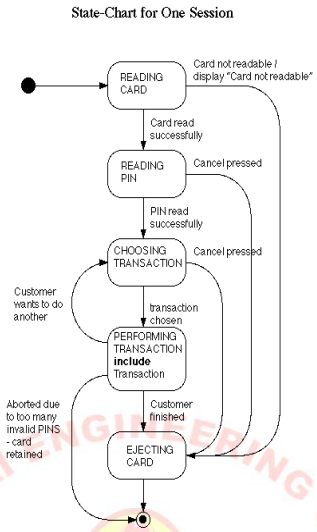
ACTIVITY DIAGRAM



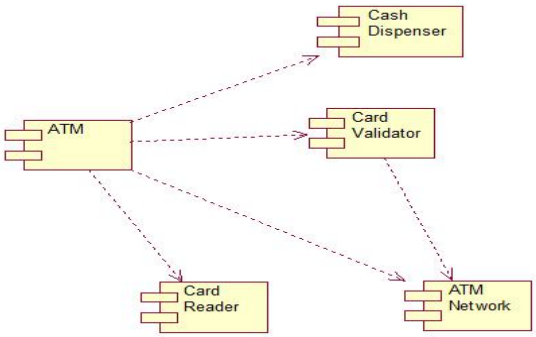
SEQUENCE DIAGRAM



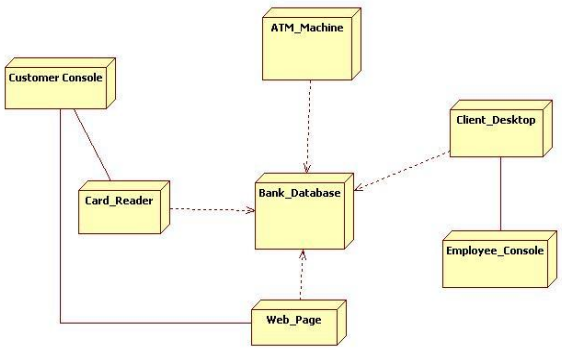
STATECHART DIAGRAM



COMPONENT DIAGRAM



DEPLOYMENT DIAGRAM



RESULT:

Thus the project to develop an ATM using Rational Rose is done successfully.

ADDITIONAL VIVA – VOCE QUESTIONS

1. The method of design encompassing the process of object oriented decomposition and a notation for depicting both logical and physical and as well as static and dynamic models of the system under design is knownas:
   A. Object- OrientedProgramming
   B. Object- OrientedDesign
   C. Object- OrientedAnalysis
   D. None of thementioned

2. The Object Oriented Modeling for building systems takes the ———— as the basis.
   A. Class
   B. Object
   C. Model
   D. Modules

3. What is the programming style of the object oriented conceptualmodel?
   A. Invariant relationships
   B. Algorithms
   C. Classes andobjects
   D. Goals, often expressed in a predicatecalculus.

4. Abstraction isclassifiedinto types
   A. 4
   B. 3
   C. 2
   D. 1

5. Which of the following views represents the interaction of the user with the software but tells nothing about the internal working of the software?
   A. Use case diagram
   B. Activity diagram
   C. Class diagram
   D. All of the above

6. What are the notations for the Use case Diagrams?
   A. Use case
   B. Actor
   C. Prototype
   D. Use case and Actor

7. Which among the following can be heuristic for Use case diagram?
   A. The product can be made actor
   B. Never name actors with noun phrases
   C. Name Use cases with verb phrases
   D. All of the mentioned

8. Which of the following are the valid relationships in Use Case Diagrams
   A. Generalization
   B. Include
   C. Extend
   D. All of the mentioned

9. Which of the following UML diagrams has a static view?
   A. Collaboration
   B. Use case
   C. State chart
   D. Activity

10. The essential characteristics of an object that distinguish it from all other kinds of objects and thus provide crisply defined conceptual boundaries, relative to the perspective of the viewer is called
   A. Encapsulation
   B. Modularity
   C. Hierarchy
   D. Abstraction

11. Which is a model static data structure?
   A. Object diagrams
   B. Class diagrams
   C. Activity diagrams
   D. Interaction diagrams

12. Where the class diagrams are not convenient?
   A. simple interactions model
   B. the vocabulary of a system model
   C. simple collaborations model
   D. logical database schema model

13. An association may be
   A. unary
   B. binary
   C. ternary or n-ary
   D. All of the above

14. Which of the following specifies how many instances of one class may relate to a single instance of an associated class?
   A. Multiplicity
   B. Association
   C. Degree
   D. None of the above

15. The attribute(s) is/are associated with the association is called
   A. Link attribute

B. Derived attribute
C. Multi-valued attribute
D. None

16. Which of the following is a name that uniquely identifies one end of an association?
A. Label name of the link
B. Role name
C. Link attribute name
D. None

17. The role name is a
A. Derived attribute
B. Link attribute
C. Attribute
D. All of the above

18. Which of the following is the "part-whole" or "a-part-of" relationship in which objects representing the component of something are associated with an object representing the entire assembly?
A. Generalization
B. Specialization
C. Aggregation
D. None

19. Aggregations are drawn like associations, using a small hollow ———— indicating the assembly end of the relationship.
A. Diamond
B. Box
C. Circle
D. Triangle

20. Inheritance is a ———- relationship between two classes.
A. "is-a"
B. Part of
C. Both a and b
D. None

21. Which things are dynamic parts of UML models?
A. Structural things
B. Behavioral things
C. Grouping things
D. Annotational things

22. Interaction Diagram is a combined term for
A. Sequence Diagram + Collaboration Diagram
B. Activity Diagram + State Chart Diagram
C. Deployment Diagram + Collaboration Diagram

D. None of the mentioned

23. If you are working on real-time process control applications or systems that involve concurrent processing, you would use a
   A. Activity diagram
   B. Sequence diagram
   C. State chart diagram
   D. Object diagram

24. Forward Engineering is possible for an Activity Diagram especially if the context of the diagram is _____
   A. an operation
   B. a workflow
   C. a class
   D. a use case

25. Realization of a use case is specified by _____
   A. a collaboration
   B. a component
   C. a node
   D. an activity

26. Which of these is correct?
   A. Artifacts instances and types have same names
   B. Artifact names and instances are underlines
   C. All of the mentioned
   D. None of the mentioned

27. What refers to the value associated with a specific attribute of an object and to any actions or side?
   A. Object
   B. State
   C. Interface
   D. None of the mentioned

28. How many diagrams are here in Unified Modelling Language?
   A. six
   B. seven
   C. eight
   D. nine

29. Which of the following determines the state diagram?
   A. The UML notation for specifying finite automata is the state diagram
   B. In state diagrams, states are represented by rounded rectangles
   C. Both A and B
   D. None of the mentioned

30. Which of the statements state the name compartment?
A. The first compartment is the name compartment
B. It contains the state name; State names are optional and may be path names
C. The name compartment can never be omitted
D. The first compartment is the name compartment, It contains the state name; State names are optional and may be path names

31. _____ provides guidance for assigning responsibilities to classes and to a limited extent, determining the classes that will be in a design in an object oriented system.

A. GRASP
B. IPR
C. DBMS
D. SOA

32. GRASP defines _____ basic object oriented design principles or basic building blocks in design

A. 3
B. 5
C. 8
D. 9

33. The basic object oriented design principles of GRASP include

A. Information expert
B. Controller
C. Indirection
D. All of the above

34. In object oriented design, a _____ is a named description of a problem and solutions that can be applied to new contexts. It has given a category of problem, guide the assignment of responsibilities to objects.

A. Design pattern
B. Pattern
C. Both (a) and (b)
D. None of the above

35. In software engineering, _____ is a general repeatable solution to a commonly occurring problem in software design. It is not a finished that can be transformed directly into code.

A. Design pattern
B. Pattern
C. Both (a) and (b)
D. Either (a) or (b)

36. The UML defines a _____ as “a contract or obligation of a classifier”. They are related to the obligations of an object in terms of its behavior.

    A. Responsibility
    B. Pattern
    C. Object
    D. Interconnection

37. Doing responsibilities of ab object include:

    A. Doing something itself
    B. Initiating action in other objects
    C. Controlling and coordinating activities in other objects
    D. All of the above

38. Knowing responsibilities of an object include

    A. Private encapsulated data
    B. Related data
    C. Things it can derive or calculate
    D. All of the above

39. Why are patterns important?

    A. Capture expert design knowledge
    B. Capture design accessible to both novices and other experts
    C. Both (a) and (b)
    D. None of the above

40. What benefits does pattern provide?

    A. Novice designers can benefit from learning solution patterns that experts use, without needing design experience
    B. Expert designers can benefit from studying patterns too: they can broaden their repertoire of patterns and deepen their understanding of the patterns they already know
    C. Both (a) and (b)
    D. None of the above

41. _____ is the process of finding out where something went wrong and correcting the code to eliminate the errors or bugs that cause unexpected results.

    A. Debugging
    B. Coding
    C. Documentation
    D. Review

42. _____ result from incorrectly constructed code, such as an incorrectly typed keyword or some necessary punctuation omitted.

A. Logical error
B. Language/Syntax error
C. Runtime error
D. None of the above

43. _____ occur and are detected as the program is running, when a statement attempts an operation that is impossible to carry out.

A. Syntax error
B. Logical error
C. Runtime error
D. All of the above

44. _____ occur when code doesn't perform the way you intended. The code might be syntactically valid and run without performing any invalid operations and yet produce incorrect results.

A. Logic errors
B. Syntax errors
C. Both (a) and (b)
D. None of the above

45. Quality assurance testing consists of

A. Error based testing
B. Scenario based testing
C. Both (a) and (b)
D. Either (a) or (b)

46. _____ technique search a given class's method for particular clues of interests, then describe how these clues should be tested.

A. Error based testing
B. Scenario based testing
C. Unit testing
D. Sanity testing

47. _____ concentrates on what the user does, not what the product does.

A. Scenario-based testing
B. Usage based testing
C. Error based testing
D. Either (a) or (b)

48. The extent of testing a system is controlled by

    A. Risks involved
    B. Limitations on resources
    C. Deadlines
    D. All of the above

49. The concept of the _____ is used to represent a system whose inside workings are not available for inspection.

    A. White box testing
    B. Black box testing
    C. Grey box testing
    D. Beta testing

50. _____ assumes that the specific logic is important and must be tested to guarantee the system's proper functioning.

    A. Black box testing
    B. White box testing
    C. Sanity testing
    D. Integration testing