SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur – 603 203

DEPARTMENT OF COMPUTER APPLICATIONS

QUESTION BANK

II SEMESTER

MC4262 – CLOUD COMPUTING AND MOBILE APPLICATION DEVELOPMENT

Regulation – 2024

Academic Year 2024-2025 (Even Semester)

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SUBJECT : **MC4262-Cloud Computing and Mobile Application Development**

YEAR/SEM : II/I

UNIT I INTRODUCTION TO CLOUD COMPUTING
Introduction– Evolution–Characteristics -Elasticity in Cloud – On-demand Provisioning – NIST Reference Architecture –Architectural Design Challenges – Cloud Deployment Models –Cloud Service Models- Benefits of Cloud Computing – Overview of Cloud Standards.

PART – A

Q. No	Questions	CO's	BT Level	Competence
1	Define Cloud Computing.	CO1	BTL1	Remembering
2	Name the essential characteristics of cloud computing.	CO1	BTL1	Understanding
3	What are the advantages of cloud computing?	CO1	BTL2	Understanding
4	Highlight the importance of the term "cloud computing".	CO1	BTL1	Remembering
5	Identify any two advantages of distributed computing.	CO1	BTL2	Understanding
6	Bring out the differences between private cloud and public cloud.	CO1	BTL2	Understanding
7	What are the key characteristics of Cloud Computing?	CO1	BTL2	Understanding
8	What do you mean by the cloud resource pooling?	CO1	BTL1	Remembering
9	What does elasticity mean in the context of Cloud Computing?	CO1	BTL2	Understanding
10	Mention the difference between elasticity and scalability in cloud computing.	CO1	BTL2	Understanding
11	How is On Demand provisioning of resources applied in cloud computing?	CO1	BTL2	Understanding
12	List the properties of Cloud Computing.	CO1	BTL1	Remembering
13	State the differences between PaaS and SaaS.	CO1	BTL2	Understanding
14	Differentiate cloud consumer and cloud provider	CO1	BTL2	Understanding
15	Mention the major actors involved in NIST reference model.	CO1	BTL2	Understanding
16	What is service orchestration?	CO1	BTL1	Remembering
17	What is the role of cloud auditor in cloud?	CO1	BTL2	Understanding
18	List the types of Cloud	CO1	BTL1	Remembering
19	Define IaaS.	CO1	BTL1	Remembering
20	What is on-demand provisioning in Cloud Computing?	CO1	BTL1	Remembering
21	What are the three primary Cloud deployment models?	CO1	BTL1	Remembering
22	What are the three main service models of Cloud Computing?	CO1	BTL1	Remembering
23	What role does a Cloud Broker play in the NIST Cloud Computing Reference Architecture?	CO1	BTL1	Remembering
24	Why is security a major concern in Cloud Computing?	CO1	BTL2	Understanding

PART – B

Q. No	Questions	Marks		BT Level	Competence
1	Explain about cloud components with neat diagram. Write in detail about hardware evolution in computer generations.	8 8	CO1	BTL4	Analyzing
2	Explain in detail about Internet Software Evolution.	16	CO1	BTL4	Analyzing
3	i) Illustrate the cloud architecture in detail.	8	CO1	BTL3	Applying

	ii) Describe the architecture of a cluster with suitable illustrations.	**8**			
4	Explain about evolution of cloud computing in detail.	**16**	**CO1**	**BTL4**	**Analyzing**
5	Explain in detail about the trends towards Cloud Computing.	**16**	**CO1**	**BTL3**	**Applying**
6	Give the importance of cloud computing and elaborate the different types of services offered by it.	**16**	**CO1**	**BTL4**	**Analyzing**
7	Explain in detail about characteristics of Cloud.	**16**	**CO1**	**BTL4**	**Analyzing**
8	Explain the cloud deployment models and give a detailed note about them.	**16**	**CO1**	**BTL4**	**Analyzing**
9	Discuss about the Layered Cloud Architecture Design.	**16**	**CO1**	**BTL4**	**Analyzing**
10	Discuss the features of Software as a Service and explain in detail about SaaS with example.	**16**	**CO1**	**BTL4**	**Analyzing**
11	Compare and Contrast: Public, Private and Hybrid clouds.	**16**	**CO1**	**BTL4**	**Analyzing**
12	Explain in detail the various challenges faced while designing Architecture.	**16**	**CO1**	**BTL3**	**Applying**
13	Evaluate and contrast the merits and demerit of Cloud deployment models: public, private, hybrid.	**16**	**CO1**	**BTL4**	**Analyzing**
14	How would you analyze the performance impact of using different Cloud service models (IaaS, PaaS, SaaS) for a large-scale application?	**16**	**CO1**	**BTL4**	**Analyzing**
15	Illustrate in detail the NIST Cloud Computing Reference Architecture.	**16**	**CO1**	**BTL3**	**Applying**
16	Explain in detail about cloud deployment model.	**16**	**CO1**	**BTL4**	**Analyzing**
17	Explain in detail about cloud service models	**16**	**CO1**	**BTL4**	**Analyzing**

	UNIT II CLOUD ENABLING TECHNOLOGIES				
	Basics of Virtualization – Full and Para Virtualization– Implementation Levels of Virtualization – Tools and Mechanisms – Virtualization of CPU – Memory – I/O Devices – Desktop Virtualization – Server Virtualization – Application and Database Virtualization with Multitenancy – Virtual Desktop Infrastructure – Docker Containers.				
	PART – A				
Q. No	**Questions**	**CO's**	**BT Level**	**Competence**	
1	What is Virtualization?	**CO2**	**BTL1**	**Remembering**	
2	What is Full Virtualization?	**CO2**	**BTL1**	**Remembering**	
3	What is Para Virtualization?	**CO2**	**BTL1**	**Remembering**	
4	List the primary levels of virtualization	**CO2**	**BTL1**	**Remembering**	
5	What is a Virtual Machine (VM)?	**CO2**	**BTL1**	**Remembering**	
6	What is the role of a Hypervisor in Virtualization?	**CO2**	**BTL1**	**Remembering**	
7	What are Docker Containers?	**CO2**	**BTL1**	**Remembering**	
8	What is the difference between Desktop Virtualization and Server Virtualization?	**CO2**	**BTL1**	**Remembering**	
9	What is Memory Virtualization?	**CO2**	**BTL1**	**Remembering**	
10	What is I/O Device Virtualization?	**CO2**	**BTL1**	**Remembering**	
11	What is Multitenancy in Virtualization?	**CO2**	**BTL1**	**Remembering**	
12	What is Virtual Desktop Infrastructure (VDI)?	**CO2**	**BTL1**	**Remembering**	
13	How does Virtual Desktop Infrastructure (VDI) support remote work?	**CO2**	**BTL2**	**Understanding**	
14	How does Full Virtualization differ from Para Virtualization?	**CO2**	**BTL2**	**Understanding**	
15	Explain the role of a hypervisor in virtualization.	**CO2**	**BTL2**	**Understanding**	

16	What are the benefits of server virtualization?	CO2	BTL2	Understanding
17	Why is CPU Virtualization necessary?	CO2	BTL2	Understanding
18	How does memory virtualization improve resource utilization?	CO2	BTL2	Understanding
19	What is the difference between Desktop Virtualization and Application Virtualization?	CO2	BTL2	Understanding
20	What is the function of the Virtual Machine Monitor (VMM)?	CO2	BTL2	Understanding
21	What is the primary advantage of using Docker containers over traditional virtual machines?	CO2	BTL2	Understanding
22	What are the challenges associated with I/O Device Virtualization?	CO2	BTL2	Understanding
23	How does Multitenancy benefit cloud environments?	CO2	BTL2	Understanding
24	Why is application virtualization beneficial for enterprises?	CO2	BTL2	Understanding

PART – B				
Q. No	Questions	Marks	CO's	BT Level	Competence
1	Design a Virtualization solution for a company that wants to host multiple virtual desktops for remote workers.	16	CO2	BTL3	Applying
2	Describe in detail about characteristics of virtualized environments.	16	CO2	BTL3	Applying
3	How would you implement CPU and Memory Virtualization for a cloud environment?	16	CO2	BTL3	Applying
4	Design a server virtualization setup for a data center to optimize resource utilization and ensure high availability.	16	CO2	BTL3	Applying
5	How would you apply multitenancy in an application virtualization solution for a SaaS provider?	16	CO2	BTL3	Applying
6	Explain how Docker containers can be used for application deployment in a micro services architecture.	16	CO2	BTL3	Applying
7	What is virtualization? Describe about para and full virtualization architectures. Compare and contrast them.	16	CO2	BTL3	Applying
8	Summarize the virtualization for data center automation.	16	CO2	BTL3	Applying
9	i) Summarize the support of middleware and library for virtualization. ii) Explain the layered architecture of SOA for web services.	16	CO2	BTL3	Applying
10	Explain Virtualization at various implementation levels.	16	CO2	BTL4	Analyzing
11	i) Illustrate in detail about the compiler support for para virtualization architecture. ii) Examine in detail about hardware support for virtualization and CPU virtualization.	8 8	CO2	BTL4	Analyzing
12	Explain in detail about virtualization tools and mechanism.	16	CO2	BTL4	Analyzing
13	Illustrate the migration steps and performance effects involved in live VM.	16	CO2	BTL4	Analyzing
14	Analyze in detail about the implementation level of virtualization.	16	CO2	BTL4	Analyzing
15	i) List the advantages and disadvantages of OS extension in virtualization. ii) Identify the support of virtualization Linux platform.	8 8	CO2	BTL4	Analyzing
16	What is the difference between recovery time objective and recovery point objective? How do they	16	CO2	BTL4	Analyzing

	depend on each other? Justify your answer with appropriate examples.				
17	i) Point out the importance of memory virtualization. ii) Explain virtualization of I/O devices with an example.	**8** **8**	**CO2**	**BTL4**	**Analyzing**

UNIT III   CLOUD SOFTWARE AND COMPUTING PLATFORMS

Google App Engine (GAE) – Programming Environment for GAE – Google Cloud Platform – AWS– OpenStack – VMWARE

PART – A

Q. No	Questions	CO's	BT Level	Competence
1	What is Google App Engine (GAE)?	**CO3**	**BTL1**	**Remembering**
2	What are the main components of Google Cloud Platform (GCP)?	**CO3**	**BTL1**	**Remembering**
3	What does AWS stand for?	**CO3**	**BTL1**	**Remembering**
4	What is VMware?	**CO3**	**BTL1**	**Remembering**
5	What is OpenStack?	**CO3**	**BTL1**	**Remembering**
6	What is a key feature of Google App Engine?	**CO3**	**BTL1**	**Remembering**
7	What programming languages does Google App Engine support?	**CO3**	**BTL1**	**Remembering**
8	What is the purpose of Amazon EC2 in AWS?	**CO3**	**BTL1**	**Remembering**
9	What is a virtual machine in VMware?	**CO3**	**BTL1**	**Remembering**
10	What is the role of OpenStack's Nova component?	**CO3**	**BTL1**	**Remembering**
11	What service in AWS is used for object storage?	**CO3**	**BTL1**	**Remembering**
12	What is the primary purpose of Google Cloud Platform?	**CO3**	**BTL1**	**Remembering**
13	How does Google App Engine handle scaling for applications?	**CO3**	**BTL2**	**Understanding**
14	What is the difference between Google App Engine and Amazon EC2?	**CO3**	**BTL2**	**Understanding**
15	How does AWS provide high availability and fault tolerance?	**CO3**	**BTL2**	**Understanding**
16	What is the purpose of Kubernetes Engine in Google Cloud?	**CO3**	**BTL2**	**Understanding**
17	What is the role of Amazon RDS in AWS?	**CO3**	**BTL2**	**Understanding**
18	What are the benefits of using OpenStack for private cloud deployment?	**CO3**	**BTL2**	**Understanding**
19	How does VMware's vSphere help in data center management?	**CO3**	**BTL2**	**Understanding**
20	What are the security features provided by Google Cloud Platform?	**CO3**	**BTL2**	**Understanding**
21	How does Google App Engine support version control?	**CO3**	**BTL2**	**Understanding**
22	How does AWS Elastic Load Balancer (ELB) distribute traffic?	**CO3**	**BTL2**	**Understanding**
23	What are the primary benefits of using VMware for virtualization?	**CO3**	**BTL2**	**Understanding**
24	How does OpenStack handle network virtualization?	**CO3**	**BTL2**	**Understanding**

PART – B

1	Design a scalable web application using Google App Engine that can automatically handle increased traffic during peak times.	**16**	**CO3**	**BTL3**	**Applying**
2	Design a hybrid cloud architecture integrating Google Cloud Platform and AWS to store sensitive data on AWS and run compute workloads on GCP.	**16**	**CO3**	**BTL3**	**Applying**
3	Create a simple website hosted on AWS using EC2, and configure auto-scaling to handle varying levels of user traffic.	**16**	**CO3**	**BTL3**	**Applying**
4	Implement a virtualized environment for an enterprise using VMware vSphere, including VM provisioning and resource management.	**16**	**CO3**	**BTL3**	**Applying**
5	Explain how you would migrate an application from a traditional data center to Google Cloud Platform using Compute Engine.	**16**	**CO3**	**BTL3**	**Applying**

6	Set up a multi-tier architecture in OpenStack that includes compute, storage, and networking components.	**16**	**CO3**	**BTL3**	**Applying**
7	Deploy a Docker-based application using AWS ECS (Elastic Container Service) and integrate it with other AWS services	**16**	**CO3**	**BTL3**	**Applying**
8	Develop an application in Google App Engine with integrated Cloud Data store to manage user data and deploy it to GAE.	**16**	**CO3**	**BTL3**	**Applying**
9	Configure high availability for an application running on VMware's vSphere environment.	**16**	**CO3**	**BTL3**	**Applying**
10	Analyze the advantages and disadvantages of using Google Cloud Platform over AWS for a data-intensive application.	**16**	**CO3**	**BTL4**	**Analyzing**
11	Evaluate the role of OpenStack in building private clouds and its suitability for enterprises with specific compliance requirements.	**16**	**CO3**	**BTL4**	**Analyzing**
12	Assess the scalability and performance of VMware virtualization in large enterprise environments compared to cloud services like AWS or GCP.	**16**	**CO3**	**BTL4**	**Analyzing**
13	Analyze the security implications of using Google Cloud Platform and AWS in terms of data encryption, identity management, and regulatory compliance.	**16**	**CO3**	**BTL4**	**Analyzing**
14	Evaluate the pros and cons of using Docker containers versus virtual machines in cloud environments like AWS and Google Cloud Platform.	**16**	**CO3**	**BTL4**	**Analyzing**
15	Compare and contrast the cloud offerings of AWS, GCP, and VMware in terms of pricing models, service diversity, and customer support.	**16**	**CO3**	**BTL4**	**Analyzing**
16	Analyze the benefits and challenges of implementing multi-cloud strategies using AWS and Google Cloud Platform.	**16**	**CO3**	**BTL4**	**Analyzing**
17	Examine how Google App Engine's automatic scaling affects the cost and resource management of applications deployed on it.	**16**	**CO3**	**BTL4**	**Analyzing**

UNIT IV   APPLICATION DESIGN

Mobile Memory Management – Design Patterns for Limited Memory – Work Flow for Application Development – Techniques for Composing Applications – Dynamic Linking – Plug-ins and Rule of Thumb for Using DLLs – Concurrency and Resource Management

PART – A

Q. No	Questions	CO's	BT Level	Competence
1	What is Mobile Memory Management?	**CO4**	**BTL1**	**Remembering**
2	What are Design Patterns for Limited Memory?	**CO4**	**BTL1**	**Remembering**
3	What is Dynamic Linking?	**CO4**	**BTL1**	**Remembering**
4	What are Plug-ins?	**CO4**	**BTL1**	**Remembering**
5	What is a DLL (Dynamic Link Library)?	**CO4**	**BTL1**	**Remembering**
6	What is the Concurrency in Software Development?	**CO4**	**BTL1**	**Remembering**
7	What is Resource Management?	**CO4**	**BTL1**	**Remembering**
8	What is a Rule of Thumb for Using DLLs?	**CO4**	**BTL1**	**Remembering**
9	What is Workflow for Application Development?	**CO4**	**BTL1**	**Remembering**
10	What are the Techniques for Composing Applications?	**CO4**	**BTL1**	**Remembering**
11	Why is Mobile Memory Management crucial for mobile applications?	**CO4**	**BTL1**	**Remembering**
12	What is the purpose of dynamic linking in memory management?	**CO4**	**BTL1**	**Remembering**

13	How do design patterns for limited memory help in mobile applications?	CO4	BTL2	Understanding
14	What is the importance of plug-ins in mobile application development?	CO4	BTL2	Understanding
15	How does dynamic linking reduce memory usage in mobile applications?	CO4	BTL2	Understanding
16	What is the relationship between concurrency and resource management in mobile applications?	CO4	BTL2	Understanding
17	What are the challenges associated with memory management on mobile devices?	CO4	BTL2	Understanding
18	How can resource management be optimized in mobile applications?	CO4	BTL2	Understanding
19	What is the role of dynamic linking in reducing the size of an application?	CO4	BTL2	Understanding
20	What is the significance of a workflow for application development?	CO4	BTL2	Understanding
21	How can plug-ins be used to enhance mobile applications?	CO4	BTL2	Understanding
22	How do design patterns improve the efficiency of memory management on mobile devices?	CO4	BTL2	Understanding
23	Why is concurrency an important consideration in mobile application development?	CO4	BTL2	Understanding
24	What are the benefits of using DLLs in application development?	CO4	BTL2	Understanding
PART – B				
1	Design a mobile application that efficiently handles memory usage for limited-resource devices.	16	CO4	BTL3	Applying
2	Develop an application workflow that incorporates dynamic linking to reduce application size and improve performance.	16	CO4	BTL3	Applying
3	Implement plug-ins in a mobile application to add social media integration without modifying the core functionality.	16	CO4	BTL3	Applying
4	Create a memory-efficient mobile app using the flyweight design pattern to manage multiple UI components.	16	CO4	BTL3	Applying
5	Design a solution that allows mobile applications to manage concurrency while minimizing resource contention.	16	CO4	BTL3	Applying
6	Design a rule of thumb for using DLLs in a mobile application to improve resource management and reduce memory usage.	16	CO4	BTL3	Applying
7	Design a workflow for developing a mobile application with limited memory that includes dynamic linking and plug-ins.	16	CO4	BTL3	Applying
8	Develop a method for handling dynamic linking and plug-ins in an application while ensuring proper memory management.	16	CO4	BTL3	Applying
9	Develop a strategy for managing resource allocation in a mobile app that performs multiple tasks simultaneously	16	CO4	BTL3	Applying
10	Analyze the impact of mobile memory management techniques on the performance and battery life of a mobile application.	16	CO4	BTL4	Analyzing
11	Evaluate the advantages and disadvantages of using dynamic linking and plug-ins in mobile applications from a resource management perspective.	16	CO4	BTL4	Analyzing

12	Assess the trade-offs between using plug-ins and integrating core functionalities directly into the mobile application.	**16**	**CO4**	**BTL4**	**Analyzing**
13	Analyze how concurrency and resource management can be balanced to ensure optimal performance in mobile applications.	**16**	**CO4**	**BTL4**	**Analyzing**
14	Evaluate the effectiveness of memory management patterns like singleton, flyweight, and object pooling in mobile applications with limited memory.	**16**	**CO4**	**BTL4**	**Analyzing**
15	Analyze the challenges in managing dynamic linking and DLLs in mobile applications that require frequent updates.	**16**	**CO4**	**BTL4**	**Analyzing**
16	Evaluate the potential performance improvements gained from applying memory management techniques and using design patterns in mobile app development.	**16**	**CO4**	**BTL4**	**Analyzing**
17	Examine the impact of poor concurrency and resource management practices on the overall user experience in mobile applications.	**16**	**CO4**	**BTL4**	**Analyzing**

UNIT V APPLICATION DEVELOPMENT

Android Application Architecture – Event Based Programming – iOS Platform -Event Handling and Graphics Services – Layer Animation – Location Based Services – Resilient Programming Practices – Packaging and Deployment – Security and Hacking.

PART – A

Q. No	Questions	CO's	BT Level	Competence
1	What is Android Application Architecture?	**CO5**	**BTL1**	**Remembering**
2	What is Event-Based Programming?	**CO5**	**BTL1**	**Remembering**
3	What is the iOS platform?	**CO5**	**BTL1**	**Remembering**
4	What is Event Handling in mobile applications?	**CO5**	**BTL1**	**Remembering**
5	What is Layer Animation in mobile app development?	**CO5**	**BTL1**	**Remembering**
6	What is the role of Location-Based Services in mobile apps?	**CO5**	**BTL1**	**Remembering**
7	What are Resilient Programming Practices?	**CO5**	**BTL1**	**Remembering**
8	What is the purpose of Packaging and Deployment in mobile applications?	**CO5**	**BTL1**	**Remembering**
9	What are Security and Hacking concerns in mobile applications?	**CO5**	**BTL1**	**Remembering**
10	What is the significance of Event-Based Programming in mobile apps?	**CO5**	**BTL1**	**Remembering**
11	What is the role of Graphics Services in iOS?	**CO5**	**BTL1**	**Remembering**
12	What is the difference between Android and iOS platforms?	**CO5**	**BTL1**	**Remembering**
13	How does Android Application Architecture ensure modularity in app development?	**CO5**	**BTL2**	**Understanding**
14	How Event-Based Programming helps in building interactive applications?	**CO5**	**BTL2**	**Understanding**
15	What is the role of Graphics Services in creating visual effects on iOS?	**CO5**	**BTL2**	**Understanding**
16	How does Layer Animation enhance the user experience in mobile apps?	**CO5**	**BTL2**	**Understanding**
17	What is the concept of Location-Based Service?	**CO5**	**BTL2**	**Understanding**
18	How do Resilient Programming Practices improve mobile app stability?	**CO5**	**BTL2**	**Understanding**
19	Why is Packaging and Deployment important in mobile app development?	**CO5**	**BTL2**	**Understanding**
20	What are common security practices for mobile applications?	**CO5**	**BTL2**	**Understanding**
21	How does Event Handling in iOS differ from Android?	**CO5**	**BTL2**	**Understanding**
22	Why is it important to address hacking concerns in mobile	**CO5**	**BTL2**	**Understanding**

	applications?				
23	List the importance of Layer Animation in creating responsive UI on Android.		**CO5**	**BTL2**	**Understanding**
24	What are some common challenges in packaging and deploying Android and iOS apps?		**CO5**	**BTL2**	**Understanding**
PART – B					
1	Design an Android application architecture that integrates Location-Based Services and Layer Animation to enhance user experience.	16	**CO5**	**BTL3**	**Applying**
2	Develop an iOS application with event-based programming to track user interactions and animate UI elements based on events.	**16**	**CO5**	**BTL3**	**Applying**
3	Create a resilient Android app that gracefully handles errors and unexpected conditions while ensuring performance and user experience	**16**	**CO5**	**BTL3**	**Applying**
4	Explain how you would implement packaging and deployment for an Android app that uses Location-Based Services and requires high security.	**16**	**CO5**	**BTL3**	**Applying**
5	Design an iOS app that uses Layer Animation for smooth UI transitions and handles multiple events simultaneously.	**16**	**CO5**	**BTL3**	**Applying**
6	Evaluate the best practices for ensuring security in an Android app that deals with sensitive user data.	**16**	**CO5**	**BTL3**	**Applying**
7	Create a resilient iOS application that deals with unreliable network conditions and maintains consistent user experience.	**16**	**CO5**	**BTL3**	**Applying**
8	Design a mobile app architecture that uses event-based programming and supports location tracking and animations.	**16**	**CO5**	**BTL3**	**Applying**
9	Design a security strategy for a mobile app that uses location-based services and sensitive user data.	**16**	**CO5**	**BTL3**	**Applying**
10	Analyze the impact of event-based programming on the performance of mobile applications with complex UIs.	**16**	**CO5**	**BTL4**	**Analyzing**
11	Evaluate the security implications of using Location-Based Services in mobile applications.	**16**	**CO5**	**BTL4**	**Analyzing**
12	Analyze the challenges and solutions for integrating layer animations in mobile apps while maintaining a smooth user experience.	**16**	**CO5**	**BTL4**	**Analyzing**
13	Evaluate the importance of resilient programming practices in maintaining mobile app stability under various conditions.	**16**	**CO5**	**BTL4**	**Analyzing**
14	Analyze the differences between security practices on Android and iOS platforms and their effectiveness in protecting user data.	**16**	**CO5**	**BTL4**	**Analyzing**
15	Assess the advantages and challenges of packaging and deploying mobile applications with high security requirements.	**16**	**CO5**	**BTL4**	**Analyzing**
16	Examine how event handling and concurrency interact in Android applications to ensure a responsive user interface	**16**	**CO5**	**BTL4**	**Analyzing**
17	Analyze the impact of hacking threats on the deployment process of mobile apps, especially concerning sensitive data like user locations.	**16**	**CO5**	**BTL4**	**Analyzing**