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The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Electrical and Computer Engineering

Study Programme	: Bachelor of Technology Honours in Engineering
Name of the Examination	: Final Examination
Course Code and Title	**: EEX3269 Introduction to mobile application development**
Academic Year	: 2019/20
Date	: 2nd August 2020
Time	: 0930-1230hrs
Duration	: **3 hours**

General Instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of **Five (5)** questions in **Three (3)** pages.
3. Answer any **Four (4)** questions only. All questions carry equal marks.
4. Answer for each question should commence from a new page.
5. This is a Closed Book Test **(CBT).**
6. Answers should be in clear hand writing.

Question 01

a. Briefly explain about the frameworks and tools required for developing mobile applications in your own words.
b. How will you convert text into voice in android? Briefly explain with examples.
c. Describe the use of Dalvik Virtual Machine and android Runtime in Android operating systems.
d. i. Name three major cross platforms.
   ii. Briefly describe one of the major cross platform with the features and uses of them.

[25 Marks]

Question 02

Weather SNR is a web service, which delivers weather information (i.e. combination of past weather and weather forecasts) for each requested location in Sri Lanka in a high spatial resolution and a temporal resolution of one hour for up to one year ago and nine days ahead. Available variables are Temperature, Relative Humidity, Rainfall, Pressure and Specific humidity. As a software engineer, you are requested to develop a mobile application (app) for this.

a. Identify the parameters for the weather app.
b. Organize the parameters in a sequence manner and sketch your wireframe for the app.
c. Write an algorithm (pseudo code/java) for the given scenario.
d. Write a small java program to request a weather forecast for a given location.
e. Briefly describe the mobile development tools that can be used for your implementation.

[25 Marks]

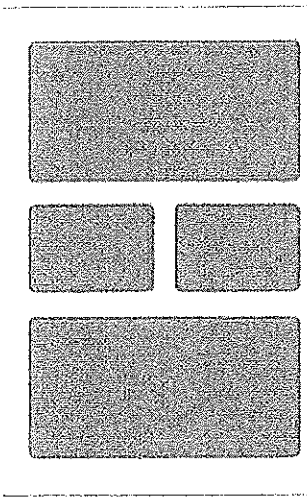
Question 03

a. Briefly explain the sensors and location details that are required to develop the mobile application given in **Question 02**.
b. Identify how the application connects with other devices, with the internet and how the application synchronizes and backup data.
c. List down what techniques you used to optimize memory in the app.
d. How can you change your app to optimize the battery life of the smart device?
e. Describe the significance of SQLite database in Android when comparing it with the SQL.

[25 Marks]

Question 04

a. Observe the following template and write an XML file using relative layout to create the same.

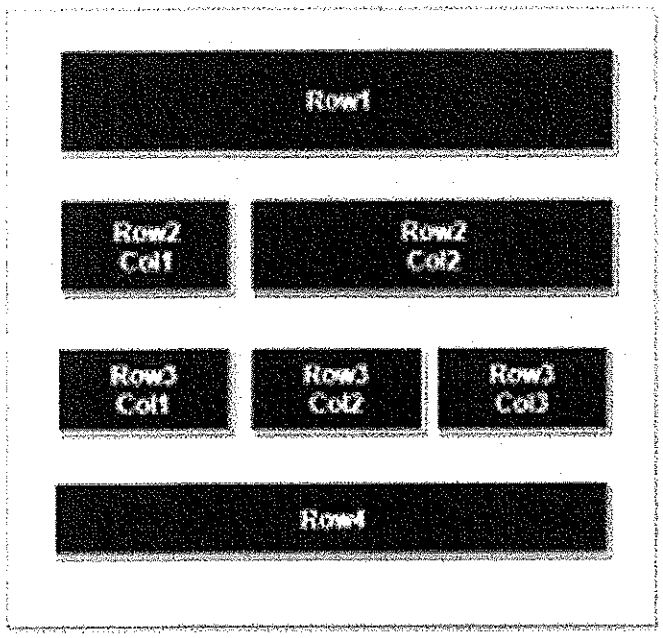


b. Write an XML code to display a circular progress bar.
c. Explain the role of AndroidManifest.xml file in Android application.
d. State the importance of device configuration to maintain device compatibility.
e. Discuss the importance of network security configuration.

[25 Marks]

Question 05

a. Draw and briefly explain android architecture in detail.
b. Differentiate JVM and DVM.
c. Write a program to display the following output using a suitable layout.



d. Explain any four UI Components of Android application.

[25 Marks]