KOLEJ UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF COMPUTING AND INFORMATION TECHNOLOGY

ACADEMIC YEAR 2021/2022

OCTOBER EXAMINATION

**INFORMATION TECHNOLOGY BAIT2073**

**MOBILE APPLICATION DEVELOPMENT**

MONDAY, 4 OCTOBER 2020 TIME: 2.00 PM – 5.00 PM (3 HOURS)

BACHELOR OF COMPUTER SCIENCE (HONOURS) IN SOFTWARE ENGINEERING

BACHELOR OF INFORMATION TECHNOLOGY (HONOURS) IN INFORMATION SECURITY

BACHELOR OF INFORMATION TECHNOLOGY (HONOURS) IN INTERNET TECHNOLOGY

BACHELOR OF INFORMATION TECHNOLOGY (HONOURS) IN SOFTWARE SYSTEMS

DEVELOPMENT

STUDENT’S DECLARATION OF ORIGINALITY

By submitting this online assessment, I declare that this submitted work is free from all forms of plagiarism and for all intents and purposes is my own properly derived work. I understand that I have to bear the consequences if I fail to do so.

Final Online Assessment Submission

Course Code: BAIT2073

Course Title: Mobile Application Development

Signature:

Name of Student: Lim Chan How

Student ID: 20WMR09309

Date: 04/10/2021

| QUESTION NUMBER | FOR EXAMINER’S USE ONLY |
| --- | --- |
| 1 |  |
| 2 |  |
| TOTAL |  |

**Question 1**

| ANSWER | MARKS |
| --- | --- |
| 1. Shared preference  * Shared preference is the saving method which can store and retrieve small amounts of simple data as key and value in string or int data type in an XML file inside the app. In SME Coder, the shared preference can store the general data such as user nickname, login credential and user progress in practical exercises This data can help the user to login into their account in SME Coder.   Data file   * The characteristics of the data file saving method are suitable for storing unstructured files that can only be viewed and not executable in any type such as text, video, audio and image. Since the SME Coder is a mobile app to deliver learning materials in various formats, the short lecture videos, teaching notes and practical exercises can be stored in PDF, document and video format. This data file saving method allows users to easily retrieve and migrate the stored files.   SQLite   * Compared to the data files, SQLite is useful in managing relational objects as SQLite can help in defining relationships between objects. SQLite allows the SME Coder mobile app to store user credentials data ,media files and relational data between the objects. Moreover, the stored data can be uploaded to cloud storage. |  |
| 1. Internal storage is the storage that cannot be removable, always ready for the app access and only can be accessed by the app. The internal storage provides extra security than the external storage since it cannot be accessible by third-party apps. Therefore, SME Coder mobile apps can use the internal storage to store user sensitive data like user specific data which includes login credentials and user details. Beside, internal storage also can store the app’s executable file because the internal storage is always available for the app to access.   For external storage, the storage can or might be removable, expandable and can be accessed by other apps or devices as well. Media files such as short lecture videos, teaching notes and practical exercises can be stored in external storage like micro-SD cards which are expandable and can reduce the burden of the internal storage. Furthermore, the learning materials downloaded and stored in external storage also can be retrieved or accessed on other devices whether they are offline or online. |  |
| 1. i)Yes. While the UI displays the input and output for the users, all database-related operations should be processed in the background thread. This is because running the database-related operations in the main thread can cause the app to freeze and not respond     ii)onPostExecute   * Called after the task is done.   onPreExecute   * Called before the task begins.   . |  |
| 1. i)Frontend to backend relationship. The SME Coder applies as the frontend which provides the UI task, to view, read and write for the user. The SME Centre can act as the backend which provides the database-related operations to access the data from the server.     ii)Mix and bang server type would be suitable for the SME Centre. This is because the server is scalable and only pays for the functions or services that are needed. Moreover, the mix and bang server type can be customized by own with enhanced security and better quality of the server. |  |

**Question 2**

| ANSWER | MARKS |
| --- | --- |
| 1. i)Location strategy that is suitable for the implementation of SME Coder is WiFi or cell tower because it can be used indoors or outdoors with low accuracy as the app will only need to to know the user current area of the country because it is only accessible in Malaysia. Besides, the WiFi or cell tower will use less power consumption because of the low accuracy and no need to get the exact location. Next, the frequency of the location needed is low because there is no need to keep updating the current location of the user. This also helps the power consumption drain less than using GPS. Lastly, high latency of location is acceptable as the SME Coder is not using the location data for real-time usage. In this case, SME Coder can get the location data from other apps such as Facebook or Google without getting the location on its own.     ii)Background location is suitable in SME Coder. This is because the shared location is constant, visibility is not visible to others and there is no persistent notification. SME Coder will only need to know the area where the user is located to access the app because the SME Coder can only be available in Malaysia. |  |
| 1. Microphone & camera  * Voice sensors in the phone can let the user record their sounds and voices. For the camera, this allows users to capture or record the video or photo. With these two combinations of the microphone and camera, SME Coder can allow users to record the lecture videos and upload.   Biometric   * Fingerprint sensor to get biometric information of the user to login to their account. This can act as a second layer of security on top of pins and passwords. Moreover, fingerprint authentication can speed up the process and eliminate the need for the user to remember their password every time they log in.   Gesture motion   * Motion sensors with sonar technology can let the user perform simple tasks such as proceed or back to the page without touching the phone. Users may swipe their hands to left or right to proceed next or backward of the task. |  |
| 1. The best distribution channel to use is Marketplace. Google Play Store or Apple Store can restrict the download region which is SME Coder only available in Malaysia. |  |
| 1. No. This is because nowadays most Malaysian people can afford a mid-range mobile phone with exclusive features. The entry-level market does not stand as much as the mid-range phone. |  |
| 1. SME Coder can go for a freemium monetization model. The freemium app is totally free to use for the basic functions only. Users can access basic features including short lecture videos, teaching notes and practical exercises. If users want to access a more advanced course, they need to pay for it. |  |