14 December, 2021

EAST WEST UNIVERSITY
Department of Computer Science and Engineering
B.Sc. in Computer Science and Engineering Program
Mid Term II (Makeup) Examination, Summer 2021 Semester

Course:	**CSE 489 Mobile Application Development, Section-1**
Instructor:	**Md Mostofa Kamal Rasel, Assistant Professor, Department of CSE**
Full Marks:	**40 (20 will be counted for final grading)**
Time:	**1 Hour and 20 Minutes**

Notes:
- C2 (Understanding): Constructing meaning from different types of functions be they written or graphic messages or activities
- C3 (Applying): Carrying out or using a procedure through executing, or implementing.
- There are **5** (**FIVE**) questions, answer ALL of them. Mark of each question are mentioned at the right margin

---

1. We know that a broadcast receiver can be registered statically or dynamically. Now, answer the following questions based on your understanding of the registering of android *broadcast receivers*: [CO2, C2, C3 Marks: 6+1+1+2]

   a) **When** do we register a broadcast receiver either statically or dynamically? Precisely **discuss** the usage of each broadcast receiver type with **example**.
   b) **Can** we register both types of receivers in the same android application?
   c) **Does** an application need to register for receiving system broadcasts?
   d) Suppose that you are developing a turn-based mobile application (i.e. Chess), where every player has to take her/his turn within two minutes. However, the ongoing game can be encountered by different system events such as incoming calls, alarms, SMS, and email. **How** can you ensure that every player will get exactly two minutes to take the turn?

2. Android provides different mechanism to store large data using shared preference, SQLite, remote database, and XML or CSV or flat (text) file in internal/external storage. Suppose that you have a large amount of structured and semi-structured data to store persistently. [CO2, C2, C3 Marks:1+2+5]

   a) **Which** storage method will you select?
   b) **Why** do you think that your selected method is the most efficient to store large amount of data?
   c) Briefly **explain** an application scenario where you can apply your selected method to store large amount of structured and semi-structured data.

3. Suppose that an android application for the sellers of an e-commerce system displays different images such as the logo and icon for the app, seller's photo, brand logo, icons for item categories and icons of the items. Note that these photos can either be static or dynamically be changed over the time. The application has a feature of seller's registration and login as well. After registering and login successfully, a seller can add their product information directly from the application. Based on the above scenario, answer the following questions: [CO2, C2, C3 Marks: 3+5]

   a) **Which** methods will you prefer to use for storing the different kind of images and data?
   b) **Why** did you prefer a method over others to use each kind of images and data? (Note: discuss briefly and precisely)

4. Applications in the mobile device sometimes become unresponsive. As a student of the computer science and engineering, you know the reasons of such behavior of the applications. Based on your experience and knowledge, answer the following questions: [CO2, C2, C3 Marks: 3+4]

   a) **What** are the reasons of being an application unresponsive?
   b) **Discuss** precisely some solutions that must be considered while developing any android application for avoiding such unresponsive behavior.

5. Suppose that you have used facbook at 07:00 AM, chrome to browse daily star newspaper at 08:00 AM, checked the upcoming events in the event management application at 10:00 AM, and briefly checked facebook again at 10:05 AM. Now, you are playing a mobile game while listening a music and downloading a class lecture. Based on the aforementioned scenario, answer the following questions: [CO2, C2, C3 Marks: 3+1+3]

   a) **How** can you enforce the android system to free the allocated memory immediately once you have completed using an application?
   b) **Will** the android system terminate the download operation if the size of the lecture note is too large to fit in the available free memory? **How** the android system will try to keep the downloading alive? (Note: list the used applications in a sequence of their forced killing by android system and mention the reasons)