Institute of Vocational Education
Department of Information and Communications Technology
HDSE (IT114105)
ITP4501 Programming Techniques for Mobile Systems
Summer Semester 2015-2016
Assignment

Submission Guidelines

- This is an individual assignment.
- The submission deadline of the assignment to is **11:55pm, 10 July 2016 (Sunday).**
- You need to submit all program sources (in a single zip file) to the Moodle website http://moodle.vtc.edu.hk assignment dropbox before the deadline. You are advised to upload your work at a time reasonably earlier than the cut-off date and time. Moodle allows multiple submissions, however, only the latest copy will be retained. You will receive **NO MARKS for LATE SUBMISSION**.
- You are also required to give a demonstration. 40% of total marks will be deducted if demonstration is not done.
- If you do **NOT** meet 70% attendance requirement of IVE Higher Diploma Programme, your mark in this assignment will be **ZERO**!

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1 Aims and Objectives

- To gain experience in mobile application UI and program design.
- To gain practical skill of Android application development.
- To understand the constraints and limitation of mobile application and the ways to overcome them.
- To obtain knowledge on connecting the mobile device to the internet services and building a multi-tier distributed system.

2 Introduction

In this assignment, you are required to develop an Android Application to play a Mathematic Game by downloading the questions from a server and then request player to solve them. This app will also record the result and corresponding time required to complete a game and use charts to show the history records.

3 Functional Requirements

Listed below are the basic requirements of your application. You need to refer to the Local Database section for the database schema.

1. An activity which contain a button “Start”. When a user touches this button, your app will download ten mathematics questions from a server and then ask user to answer them one by one.

2. Once a user answer a question, your app will show user's answer is correct or wrong.

3. When a user finishes to answer all questions, your app will show the time spent on them.

4. A database which contains two tables. One table stores the questions and your corresponding answers. Another table stores the date and time you play a game and corresponding duration to complete a game. (You are required to build and initialise the database on Android mobile phone.)

5. Two activities (one for QuestionsLog, one for GamesLog) properly show the data stored in the local database.

6. Get questions from the remote server and store it to the local database.

7. Display a bar chart to show the result on different games (how many answers are correct on each game).

Note: You are encouraged to design and implement extra features. 10% of the total mark will be allocated on such additional functions. Refer to section 7 Marking Guidelines for more details.

4 Local Database

The database scheme described here is an extremely simple one. Many fields are intended not to be included in order to reduce the complexity of this assignment. You are free to add columns and tables to the database to fit for your own needs.

QuestionsLog (question**No**, question, answer, yourAnswer)

GamesLog (**gameNo**, playDate, playTime, duration, correctCount)

5 Questions JSON Server

You can obtain the questions from the server (http://itdmoodle.hung0530.com/ptms/questions_ws.php) and the data returned is in JSON format.

The sample JSON string returned is shown below:

{ "Questions": [{ "question": "44 / 4", "answer": 11 }, { "question": "39 * 9", "answer": 351 }, { "question": "57 * 8", "answer": 456 }, { "question": "92 * 2", "answer": 184 }, { "question": "82 / 41", "answer": 2 }, { "question": "41 - 31", "answer": 10 }, { "question": "27 + 11", "answer": 38 }, { "question": "9 + 6", "answer": 15 }, { "question": "23 + 92", "answer": 115 }, { "question": "26 * 3", "answer": 78 }] }

Note: The JSON string returned is not formatted. You may use the online JSON formatter tool such as http://json.parser.online.fr/ or http://jsonformatter.curiousconcept.com/ to read it.

6 Additional Constraints

- The UI of the mobile application must be produced with Android widgets such as TextView, CheckBox, and Spinner etc. Web-based UI is **NOT** allowed.

- The statistical charts must be produced using Android built-in graphics API such as drawRect() and drawText(). Using any other external drawing packages or libraries is **NOT** allowed.

7 Marking Guidelines

You project will be assessed according to the items below.

- Database initialisation
- Level of completion
- Correctness
- UI design
- Program design and implementation
- Program style and comments

10% of marks will be allocated to extra features not described in section 3. Each student can develop at most 3 additional functions such as animation effect or sound effect on the Android device or any other relevant and useful functions.

40% of total marks **will be deducted** if demonstration is not done.

END