The City College of New York
Department of Compute Science
CSc 221: Software Design Laboratory

Programming Project – Phase 1

The course's final project will count towards 25% of your course's grade. The project consists of a small-scale application developed for an Android based smart phone. Your work will start with a short proposal describing the work and features you intend to accomplish. This proposal will count towards 10% of your project's grade. Once your proposal is approved, you can start the next phase which is the actual development of your Android application (phase II). Each student will present their project to the class at the end of the semester.

Students are expected to work on their projects independently. Therefore, each proposal must be unique; if two students submit the same proposal, the first one to submit their proposal will get to work on that project and the other student(s) must pick a different one. To avoid this problem, please write your name and selected project on the Final Project's Google Sheet. You must check this document before you pick a project and must update it with your selection before writing your proposal.

https://docs.google.com/spreadsheets/d/1pOI8iVcDhq4lHALpgVzNXJFee33rnWvO6aEFnqjzZuM/edit?usp=sharing

Notes:

1. **Before you can access the page, you must request access. Make sure you do that now before reading forward.**
2. **Please be courteous and do not overwrite someone else's entry. Editing history has been turned on.**
3. **Once I approve your project, you may start writing the proposal.**
4. **Once your proposal is approved, you may start developing your application.**

Preparation:

In order to develop Android programs, your development workstation must have the Android SDK installed which includes the Android Development Tools (ADT). The download, installation, and setup will require several hours; therefore, it is best to start early. Download Android Studio (includes ADT) from https://developer.android.com/studio.

Once you have setup your development environment, you should spend some time familiarizing yourself with Android studio. Run two or three of the available sample applications using the different Android Virtual Devices (AVD). If you have an Android phone, you may choose to use it instead of AVD. However, be careful with which applications you run as you may inadvertently cause problems on your phone.

Phase 1 Requirements:

For this part of the project you must write a proposal detailing your plans for your final project. The project is small-scale and must be done individually. You may choose to develop the project from scratch or modify one of the example projects available on Android's website (https://developer.android.com/samples).

Either way, please submit a proposal (**maximum 2 pages**) detailing what you plan to do. Include links to the example project, screenshots of any existing work, and a description of the additional features you plan to add. You may create simple sketches to illustrate your planned work.

For instance, a sample calculator application maybe missing functionalities like AC (All Clear) key, SUM (Sum) key, RCL (Recall) keys, … You can propose to add these keys with clearly defined functionality. I expect each of you to propose this level of difficulty, i.e., the level of work completed by average CS/CpE major student within two weeks of architectural study and programming work.

What to submit:

A 2-page document (U.S. letter size) containing these items. The document format and content organization are free.

- **Capabilities:** describe the choice of application and distinct capabilities that serve as significant aids for application users. Note that you must describe what you like to realize, not how you want to program, each of the capabilities you propose. Use plain language and to-the-point explanation.
- **Visual aids:** Develop a set of images or hand drawings to explain how the proposed features look like. Include sample sessions using figures to explain the systems activities such as extra input(s) and resulting response(s). However, do not spend too much time to develop fancy figures and such. Also, do not use sexually-oriented materials.
- **Look and feel:** Describe the definition of the input and output associated to the new capabilities. Definition in cludes type and length or GUI component including color and size. Also, list up all the possible error messages triggered by illegal/wrong operations.
- **Devices' Support:** Include additional information useful for readers to understand your document and implement/test your proposal. For instance, potential choice of AVD(s) is a must as some application seem to only work with a limited variation of AVD(s). Also, citations (usually web-links) to similar implementation are plus.
- **Resources:** Include a description of any data structures, file formats, WiFi, and /or Database requirements for your application. For example, if you are developing an application to sort data, you should discuss how the data is represented in memory (Array, LinkedList …). If your application stores data on the phone, explain how the data will be stored and why (Database, Text, CSV …).