Assignment – Build a Mobile App

Deliverables		Due Time
Proposal	Electronic submission	**5:00pm, 28/09/2019 (Monday, Week 06)**
Final	Electronic submission	**5:00pm, 06/11/2019 (Friday, Week 10)**
	Project Presentation & Demo	**5:00pm, 09/11/2019 (Monday, Week 11)**

INTRODUCTION

This assignment is worth **40%** of the total assessment of this course, including **10%** for the proposal (Part 1) and **30%** for the final (Part 2).

This is a **group** assignment and each group should have **FIVE** members. If you hope to form a group with more or less members, you should first consult with the course coordinator in written form. Each group member must contribute to the assignment equally and the members will be awarded the same marks. Under certain circumstances, adjustment of marks may happen to group members at the discretion of the course coordinator.

TASK

You are required to design and implement a mobile application (e.g., Productivity, Communication, Entertainment, Education, Finance, Health, Utilities, and Game) for one of the two major mobile platforms: Android and iOS. The final app should be physically deployed/installed in a mobile device.

You are required to pick an application (or a problem) and design a mobile app solution for the application/problem. The proposed app should satisfy the following **minimum feature set**:
• Graphical user interface (GUI) to effectively interact with the user.
• At least one form of data communication using either Cellular, WiFi, Bluetooth, etc.
• At least one technique to save network bandwidth usage, computation resource usage or device battery usage.
• At least one method to secure the communication or data storage.

This assignment should be completed in two phases, Proposal Phase and Final Phase. You are highly encouraged to conduct thorough research and come up with a solid plan in the proposal phase, though the final app is not necessary the same as that of the proposal. **You are encouraged to discuss with the course coordinator about your idea before the submission**.

PROPOSAL PHASE [10 marks]

In the proposal, you need to articulate the following components, but not limited to:
1. App: background, related work, significance, requirements, and etc;
2. Solution: explain how you are going to implement your solution describing the proposed workflow of the app and technical approaches that are required to implement the solution.
3. Plan: the implementation schedule, workload distribution among the group, how to develop collaboratively; and
4. Potential setbacks: identified risks, threats and proposed solutions;
5. References

Note that it is **NOT necessary** to follow the above headings in your proposal. You could imagine that the purpose of the proposal is **to convince readers of your dream project and explain how you plan to achieve it**. A good proposal should also provide sufficient information on at least the following aspects: What is the problem that your app will solve? Why does the problem matter (e.g., motivation and significance)? What is the solution? How will the solution be implemented (which should be clear for others to implement)?

You need to provide references to resources you have consulted and what guidelines you have applied to prepare your proposal. You are strongly encouraged to obtain some guidance on proposal writing from a wide range of resources (e.g. books, articles, and websites).

The proposal must **NOT** exceed **TWELVE** pages including references (single space and font size 12 for body text).

Submission
- Only one submission is required from each group.
- For the electronic submission of Proposal, the file should be submitted via Canvas. The proposal file must be of **Adobe Acrobat Portable Document Format (*.pdf)** format. No other file format is accepted.

Marking Scheme for Proposal
1. (3 marks) Application: creativity, challenge, and novelty of the application domain.
2. (4 marks) Solutions: workflow and technical approach.
3. (1 mark) Plan: clarity of the individual tasks.
4. (1 mark) Potential setbacks: identification of potential setbacks.
5. (1 mark) Overall proposal writing.

FINAL PHASE [30 marks]

You are required to implement the app and demo the app through a physical mobile device. The final delivery includes the following components.

Final Report [7 marks]

Final report can contain the following sections, but not limited to:

1) Introduction to the app: succinctly describe the problem and the app.
2) Validation of the app: for each item in the minimum feature set, provide an experimental validation that you have managed to successfully implement the proposed techniques. For examples,
   a. Results of a user study to reflect the effectiveness of the GUI.
   b. Experimental validation of the effectiveness of the optimization techniques (bandwidth/computation/energy saving mechanisms).
3) Challenges and setbacks: explain whether you were able to achieve goals proposed at the proposal phase. If not, explain reasons for taking different paths.
4) Next steps: identify what is missing from your current implementation and explain how to plan to take your app to the next level.
5) References
6) Appendix: documentation and manual.

The purpose of the final report is to "sell" your application. A good report provides sufficient information on at least the following aspects: What is the problem that your app will solve? How is the solution implemented? How does the app work? How efficient it is? What's beyond the current version of the app?

You also need to write a documentation/manual as an Appendix to the final report to guide a potential user on how to set up the working environment of your application and re-compile and re-deploy your app to a mobile device.

If you use any third-party resources (e.g., libraries, tools, and media assets), you need to mention it in your report and presentation.

The final report must be of Adobe Acrobat Portable Document Format (*.pdf) format. No other file format is accepted. The final report must **NOT** exceed **TWELVE** pages including references (single space and font size 12 for body text).

Video [3 marks]

The introduction video must be compatible with the VLC media player and .mp4 file format is preferred. The video should not be longer than 3 minutes.

Presentation [2 marks]

The project presentation is to pitch your app. Each group has maximally **3 minutes** to present the assignment using the presentation material submitted. The presentation will be generally starting at the lecture time (i.e. 5:00pm) from Group 1 in the weekly lecture room. You should be familiar with the presenting via Zoom. The presentation will be marked in terms of clarity, attitude/confidence, presentation skills and content.

Demo [3 marks]

Each group has maximally **2 minutes** after the presentation to demonstrate the key features of the app. The app should be installed on a mobile device. Successful demonstration of the key features of the app, and the readiness to distribute will be evaluated.

It is your responsibility to arrange all technical requirements to successfully demonstrate the key features, e.g. internet access, multiple mobile devices in case of a collaborative app, other supporting devices such as wearables, access to cloud services, etc. prior to the presentation time slot.

Source code of the app [5 marks]

Export of the project development environment as a zip file and an APK file (or a suitable method/format to install the developed app on a mobile device) should be submitted. Successful installation of the app on a real device, testing of key features of the app, challenges and effort in coding will be evaluated.

Submission

- Only one submission is required from each group and all submissions should be submitted via Canvas.
- Final report in PDF format.
- Project video. It is your responsibility to make sure that the video can be played successfully.
- Presentation slides.
- APK file (or a method to install the developed app on a mobile device) for the app.
- Zip of all project source code files. Make sure that file sizes are not excessively large, e.g. follow the file size limit: introduction video file is about 100MB, and the zip file is about 200MB. It is your responsibility to ensure that 1) your zip file can be accessed and unzipped successfully, 2) your programs can be compiled and run successfully,

Marking Scheme for Final

1. (10 marks) The app: Novelty of the problem, creativity of the solution, challenges in developing the solution and the amount of effort in developing the solution will be evaluated by a panel of judges. **All deliverables will be considered in this evaluation including the in-class presentation and demo.**
2. (2 marks) Presentation.
3. (3 marks) Demo.
4. (5 marks) Source code of the app.
5. (7 marks) Final report.
6. (3 marks) Project video.

PLAGIARISM is where you use the work of another person and present it as your own. This is **STRICTLY PROHIBITED. Text-based similarity detecting software (e.g., Turnitin) will be used for all text-based written assignments and source codes. It is your responsibility to understand the Academic Honesty policies of the University of Sydney and the School of Information Technologies**.