

Georgia State University

CSc 4320/6320 Operating Systems

Spring 2018

Project 2

Goals:

Get familiar with the low-level functionality in Android System. Examples of low-level features include Process management, File management, etc.

Requirements:

Develop an Android Application, which should use at least one type of OS-related functionality. **An OS-related functionality is something related to the Android OS or some type of system call.** For example, you can develop a process manager to monitor the processes in the system. Some OS-related or system call APIs can be found at the following two links:

- The android.os package: <http://developer.android.com/reference/android/os/package-summary.html>
- Android system calls: <https://developer.android.com/reference/android/system/Os.html>

By default, the project should be finished individually. However, teamwork is also allowed if your proposed project has enough complexity. You must justify the teamwork and obtain approval from the instructor in advance.

Project Topic Selection:

Below is a list of topics that meet the project requirement. You may choose or tweak one of these topics as your project. However, it is expected that a diverse topic of projects will be proposed. If there are too many projects working on the same topic, only a limited number of those projects will be approved in a First-Come-First-Served way.

- Process manager
 - List current process (like the result of command *ps* in Ubuntu)
 - Kill processes
- File manager
 - List files and/or folders
 - Open/close/save files
- Text file process
 - Conversion between lowercase and uppercase

- Add line index
- Search keywords

Note that your application can also be a typical user application, such as video player and music player. The only requirement is your code should use some low-level OS-related system calls or API. For example, in your music downloader, you can implement the data communication between a server and a client using Socket Communication. Then your music application meets the project requirement.

Another suggestion to help your brainstorm is to go through the above links about Android system calls and OS package and to see if there is some APIs that you may utilize to achieve a goal in your application. Then you can include those API use cases into your application. This also meets the project requirement.

How to Start

Follow the tutorial provided in class and develop a simple HelloWorld App. Then install the App in an Android Device or Emulator.

Project Components and Important Deadlines:

3/23/2018: Project Topic Proposal (10%)

Write a proposal of your topic and upload it to iCollege. The proposal should include:

- A brief description of the features in your App
- The OS-level functionality and/or specific APIs you plan to use
- If applicable, justification of teamwork.

The project topic will be posted on iCollege. If your topic is not approved, you will be informed in a few days after the submission.

4/20/2018: Project Presentation & Demo (45%)

Prepare a 5-minute presentation & demo for your project during the class time. See the separate document for requirement and guideline.

4/27/2018: Project Report (45%)

Write a final project report and upload it with the source code to iCollege. See the separate document for requirement and guideline.

Grading

For all three components of the project, the following will be evaluated.

- Project quality (completeness, robustness)
- Workload/Complexity
- OS-related low-level functionality
- Presentation quality