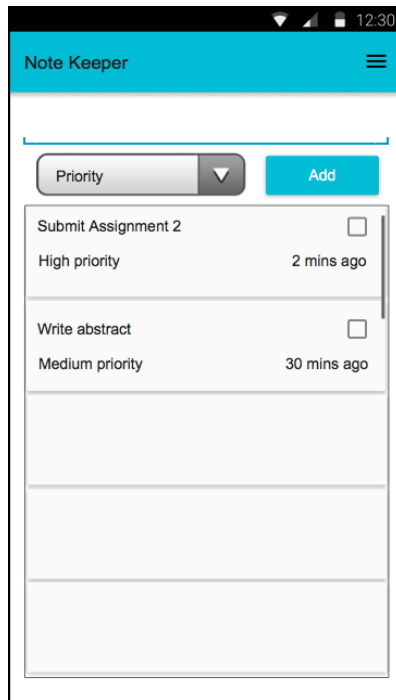# ITIS/ITCS 4180/5180 Mobile Application Development
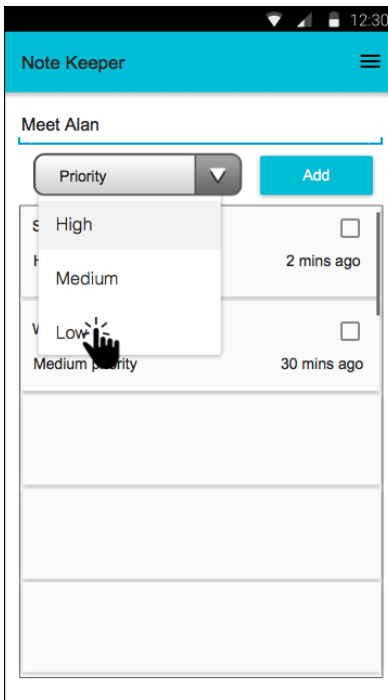## Final Exam

Basic Instructions:

1. This is the Final Exam, which will count for 15% of the total course grade.
2. In every file submitted you MUST place the following comments:
   a. Your Full Name. **Do not Edit/Remove any of the comments generated by the IDE. Just add new lines. If Edited/Removed, you will get a zero.**
3. This is an individual effort. Each student is responsible for her/his own assignment and its submission.
4. Once you have picked up the exam, you may not discuss it in any way with anyone until the exam period is over.
5. During the exam, you are allowed to use the course videos, slides, and your code from previous home works and in class assignments. You are NOT allowed to use code provided by other students or from other sources.
6. Answer all the exam parts, all the parts are required.
7. Please download the support files provided with the Final and use them when implementing your project.
8. Your assignment will be graded for functional requirements and efficiency of your submitted solution. You will loose points if your code is not efficient, does unnecessary processing or blocks the UI thread.
9. Export your Android project and create a zip file which includes all the project folder and any required libraries. The file name is very important and should follow the following format: **800#_Final.zip.** Submit the exported file using the provided canvas submission link.
10. **Failure to do the above instructions will result in loss of points.**
11. **Any violation of the rules regarding consultation with others will not be tolerated and will result disciplinary action and failing the course.**
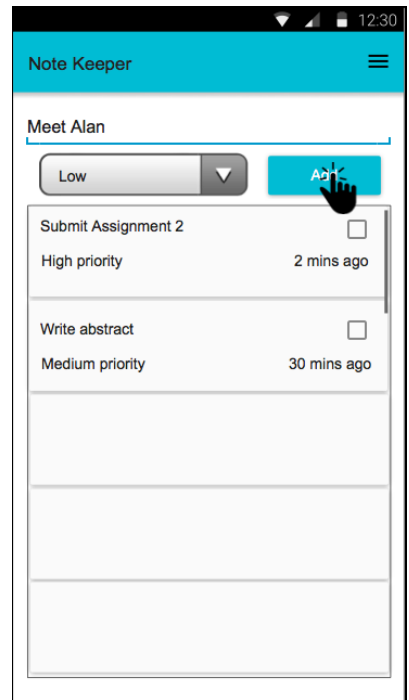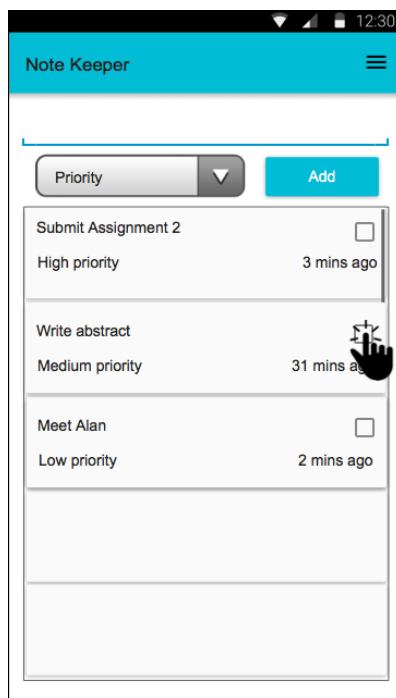
Final Exam (100 points)

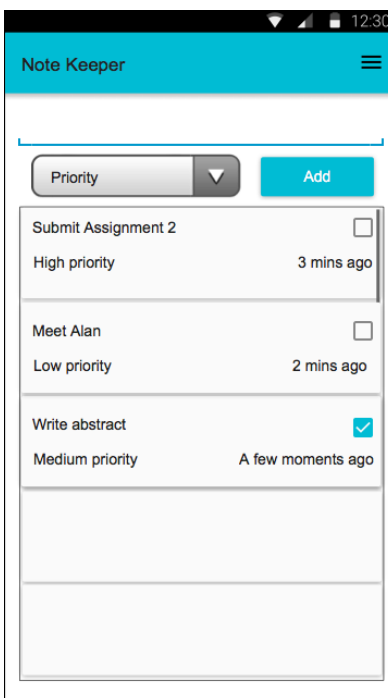(a) Main Activity, Tasks sorted by Priority
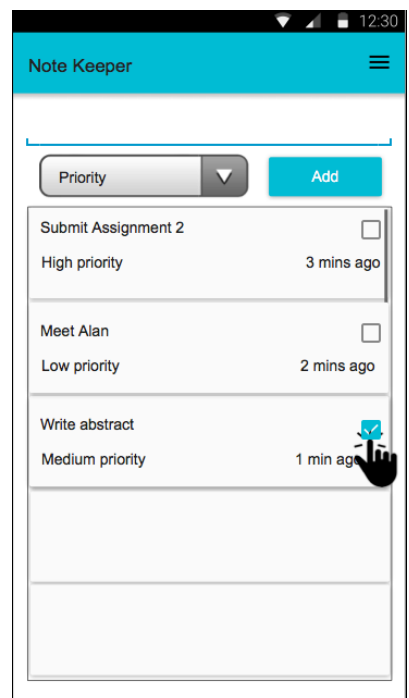

(b) Priorities for Notes

(c) Add Note for a task to do
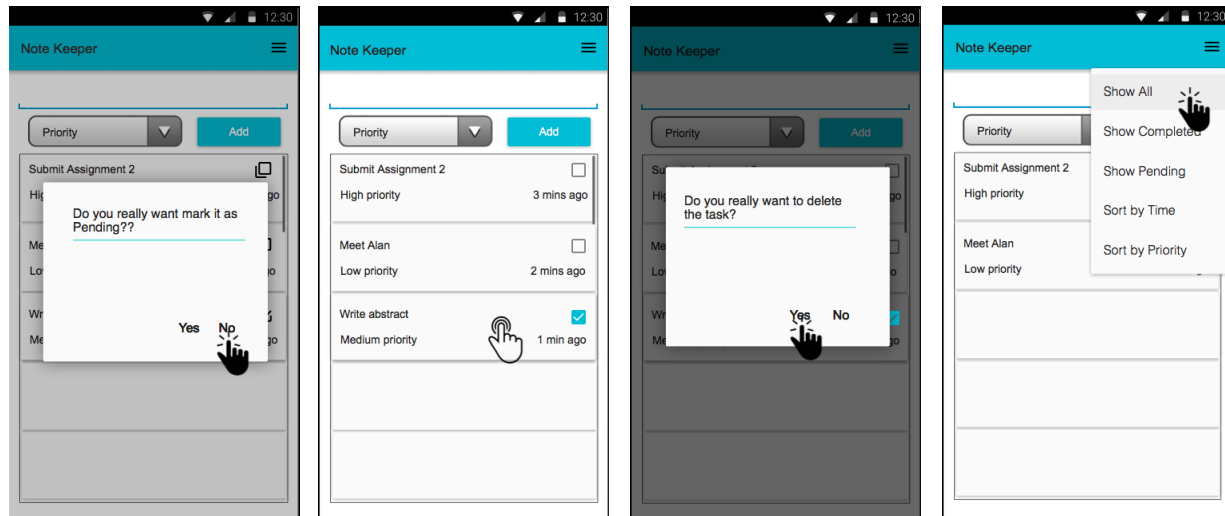

(d) Mark task as Complete

(e) Completed tasks will be displayed below the pending tasks

(f) Try to unmark a Completed task to Pending task

(g) Alert Dialog	(h) Long Click to delete a Completed task.	(i) Alert Dialog	(j) Menu options

Figure 1: Note Keeper App

In this assignment you will be developing a "Note Keeper" application, where you can add notes, set their priorities, mark them as Complete, Delete the completed tasks and if you mistakenly mark one task as Complete, you can unmark it as still Pending. You will keep all the notes and their status in Firebase. Please follow the instructions below:

1. This app includes one activity. On the top there should be an Input EditText field.
2. Below that, there should be one drop down menu for priority selection. and an Add button, see Figure 1(a).
3. Next, there should be a list having all the Pending and Completed tasks. There will be two parts of the list. At the top, it should display all the pending tasks, and below that all the completed tasks. By default, sort the list by Priority, see instruction 14.
4. In each element in the list, there are four things that should be displayed:
    1. Task note.
    2. Checkbox for marking the task as completed.
    3. Priority.
    4. Time the note was posted.
5. In Firebase, you should store id, note, priority, update_time, and status. Check the documentation provided at **https://firebase.google.com/docs/android/setup** to store and retrieve the objects from Firebase.
6. To add a new note, a user should write the note into the EditText, set the priority from the dropdown menu, and finally click on the Add button. Clicking on the Add button should store the Note object in Realm including unique id, text for the note, priority, time and the **status (pending or, completed).**
7. You should display all the items in the database in the list, see Figures 1(b, c, d and e).

8. The user should be able to mark a task as Completed, see Figure 1(f). It should pop up an alert dialog to confirm, see Figure 1(g). It needs to update the database accordingly to mark its status as completed, and also update the time.
9. A user can delete the task. Long press on an item should ask if the item should be deleted or not, see Figure 1 (h, i). If clicked on Yes, the record should be deleted from database and it should disappear from the list.
10. **Menu buttons:** there are five buttons in the menu at the Action Bar: Show All, Show Completed, Show Pending, Sort by Priority, and Sort by Time, see Figure 1(j).
11. Show All: Clicking on Show All button should display the whole list of tasks, including both, Pending or Completed. Pending tasks will be at the top followed by the Completed tasks.
12. Show Completed: Clicking on Show Completed should display only the Completed tasks.
13. Show Pending: Clicking on Show Pending should display only the Pending tasks.
14. Sort by Priority: First display the list of Pending tasks, then below that display the list of completed tasks sorted by Priority. High priority tasks will be displayed on top.
15. Sort by Time: This is the alternate sorting order. Same as the previous one, but, sort by time. In this case, the most recently updated task will come first.

Rubrics:

Criteria	Points
Graphical User Interface	10
Firebase Setup	15
Add Note: Store to Firebase + Actions	12.5
Mark as Completed: Update in Firebase + Actions	12.5
Delete Note: Firebase + Actions	12.5
Show Completed and Show Pending (Logic & ListView/RecyclerView)	12.5
Sort by Time and Priority (Logic & ListView/RecyclerView)	12.5
Confirmation Alert Dialog (Complete, Pending and Delete)	12.5
Total	100

Good Luck!