

ITIS/ITCS 4180/5180 Mobile Application Development
In Class Assignment 2

Basic Instructions:

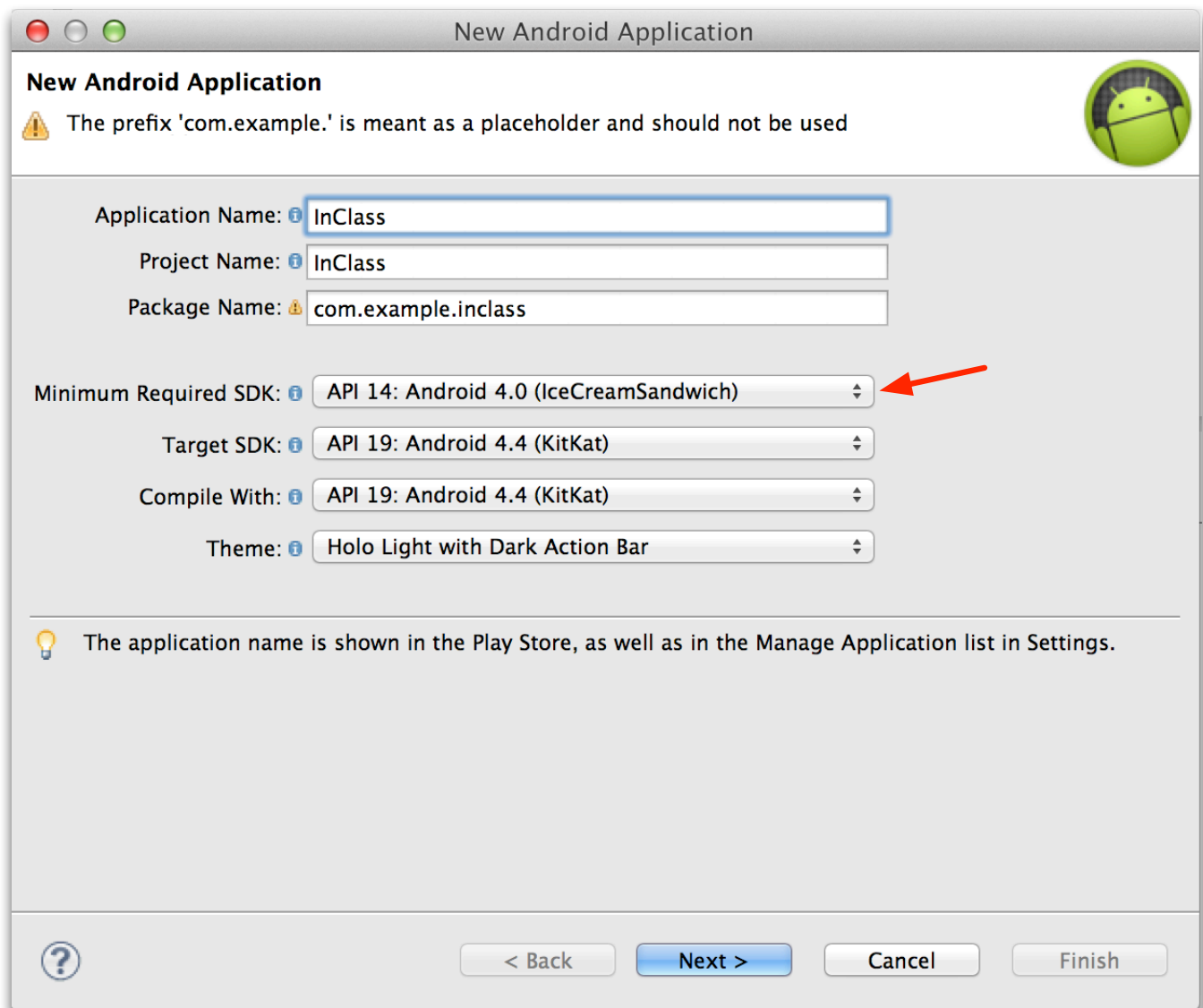
1. In every file submitted you **MUST** place the following comments:
 - a. Assignment #.
 - b. File Name.
 - c. Full name of all students in your group.
2. Each group should submit only one assignment. Only the group leader is supposed to submit the assignment on behalf of all the other group members.
3. Please download the support files provided with this assignment and use them when implementing your project.
4. Export your Android project as follows:
 - a. From eclipse, choose "*Export...*" from the File menu.
 - b. From the Export window, choose *General* then *File System*. Click *Next*.
 - c. Make sure that your Android project for this assignment is selected. Make sure that all of its subfolders are also selected.
 - d. Choose the location you want to save the exported project directory to. For example, your *Desktop* or *Documents* folder.
 - e. When exporting make sure you select *Create directory structure for files*.
 - f. Click Finish, and then go to the directory you exported the project to. Make sure the exported directory contains all necessary files, such as the .java and resource files.
5. Submission details:
 - a. When you submit the assignment, compress your exported Android project into a single zip file. The format of compressed file name is InClassAssignment#.zip
 - b. You should submit the assignment through Moodle: Submit the zip file.
- 6. Failure to follow the above instructions will result in point deductions.**

In Class Assignment 2 (100 Points)

In this assignment you will build your first Android application. You will get familiar with common Android components and how to interact with them. You will build a single activity simple calculator application.

Important App Requirements:

1. The required Android Virtual Device (AVD) should have **minimum SDK version set to 14 and target SDK at least 17**. The app should display correctly on 3.2" QVGA (ADP2) (320x480: mdpi). Your assignment will not be graded if it does not meet these requirements, and you will not be granted any points on your submission.



The screenshot shows the 'New Android Application' dialog box. The title bar says 'New Android Application'. Below the title bar, there's a warning icon and text: 'The prefix 'com.example.' is meant as a placeholder and should not be used'. The main area contains several fields and dropdowns:

- Application Name: InClass
- Project Name: InClass
- Package Name: com.example.inclass
- Minimum Required SDK: API 14: Android 4.0 (IceCreamSandwich) (indicated by a red arrow)
- Target SDK: API 19: Android 4.4 (KitKat)
- Compile With: API 19: Android 4.4 (KitKat)
- Theme: Holo Light with Dark Action Bar

At the bottom, there's a lightbulb icon and text: 'The application name is shown in the Play Store, as well as in the Manage Application list in Settings.' The bottom bar contains a question mark icon, a '< Back' button, a 'Next >' button (highlighted in blue), a 'Cancel' button, and a 'Finish' button.

Fig 1. Choosing Minimum Required SDK to 14

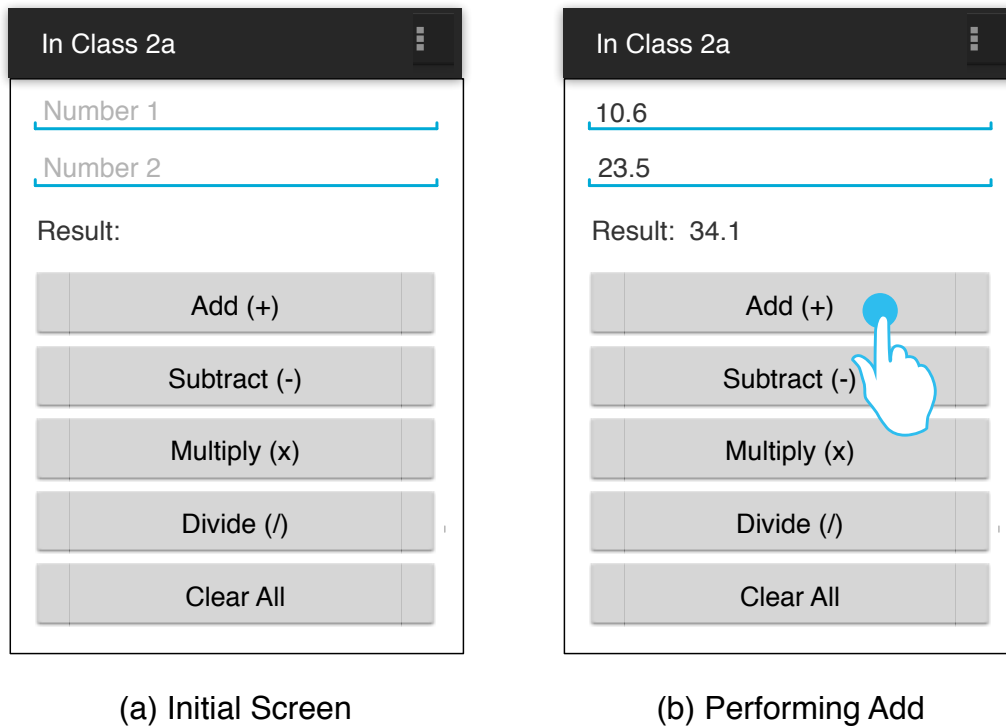
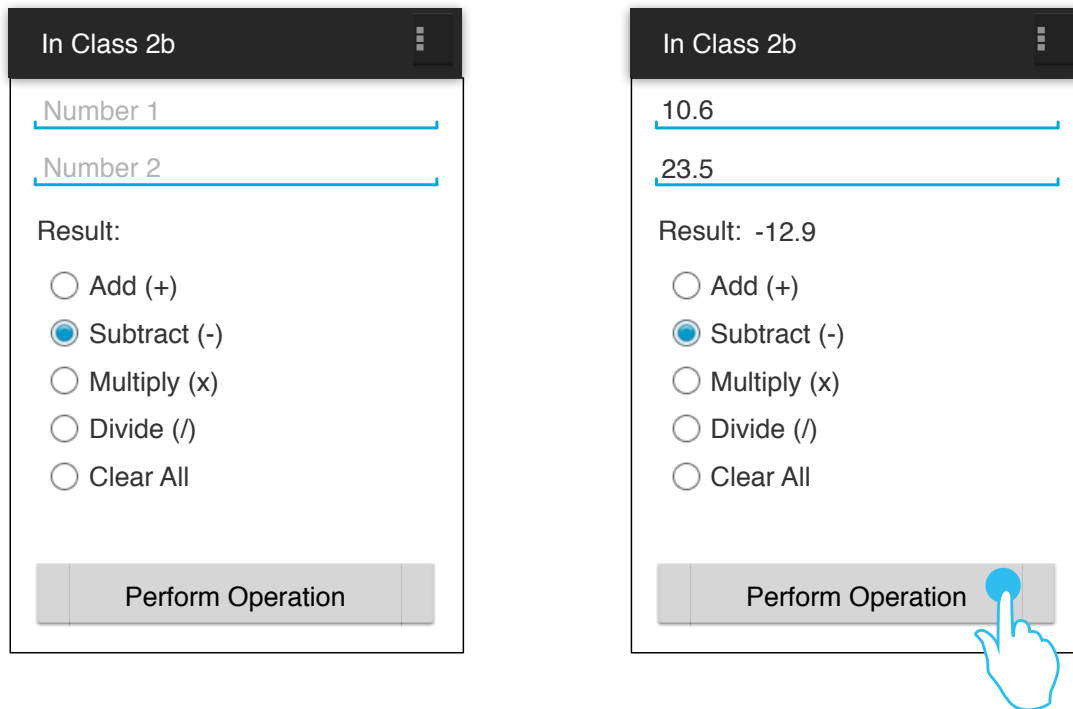


Figure 1, Application User Interface (Part 1)

Part 1 (50 Points): Using Buttons

The interface should be created to match the user interface (UI) presented in Figure 1(a). You will be using layout files, and strings.xml to create the user interface. The layout XML file can be modified through the raw xml, or through the GUI tools provided within eclipse. To build the UI, please follow the following tasks:

1. Create a new android project called "In Class 2a".
2. The string values used for the button labels should be read from the strings.xml file and should not be hardcoded in the layout file.
3. This is a simple calculator for basic operations (+, -, x, and /) for two inputs. Each button will perform the logic of the corresponding operation and display the result in the Result textView. Note that:
 - a. Add operation: $\text{Result} = \text{Number1} + \text{Number 2}$
 - b. Subtract operation: $\text{Result} = \text{Number1} - \text{Number 2}$
 - c. Multiply operation: $\text{Result} = \text{Number1} * \text{Number 2}$
 - d. Divide operation: $\text{Result} = \text{Number1} / \text{Number 2}$
4. Your code should check for special cases such as when there are no numbers entered, invalid numbers and divide by zero. In such special cases display a Toast message indicating the error.
5. ClearAll: should clear the entered numbers and the result (set them to "").



(a) Initial Screen

Figure 2, Application User Interface (Part 2)

Part 2 (50 Points): Using Radio Buttons

The interface should be created to match the user interface (UI) presented in Figure 2(a). You will be using layout files, and strings.xml to create the user interface. The layout XML file can be modified through the raw xml, or through the GUI tools provided within eclipse. To build the UI, please follow the following tasks:

1. Create a new android project called "In Class 2b".
2. The string values used for the button labels should be read from the strings.xml file and should not be hardcoded in the layout file.
3. This is also a simple calculator doing the same operations in Part 1 but using Radio Buttons instead of Buttons. You are asked to properly use Radio Group and Radio Buttons to check which operation is being selected and perform it accordingly when the user clicks the "Perform Operation" button.
4. Use the "hint" attribute to set the "Number 1" and "Number 2" grayed out hint.
5. Your code should check for special cases such as when there are no numbers entered or divide by zero. In such special cases display a Toast message indicating the error.
6. ClearAll option: should clear the entered numbers and the result (set them to "").