

ITIS/ITCS 4180/5180 Mobile Application Development
Homework 01

Date Posted: 01/15/2015 at 11:00pm

Due Date: 01/20/2015 at 11:55pm

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 student in the group is required to submit the assignment on moodle.
3. 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.
4. Please download the support files provided with this assignment and use them when implementing your project.
5. 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.
6. Submission details:
 - a. All the group members should submit the same zip file.
 - b. The file name is very important and should follow the following format:
Group#_HW01.zip
 - c. You should submit the assignment through Moodle: Submit the zip file.
7. **Failure to follow the above instructions will result in point deductions.**

Homework 1 (100 Points)

In this assignment you will develop a simple selection game for Android. The game is a puzzle played on a 5-by-5 grid with 25 square blocks labeled with pictures of different fruits and vegetables. The game indicates to the player a specific fruit/vegetable, and the player's goal is to find all the blocks that display the indicated fruit/vegetable. As each correct fruit is selected, all remaining blocks shuffle. This is a single player game.

Important App Requirements:

1. The required Android Virtual Device (AVD) should have **minimum SDK version set to 14 and target SDK at least 19**. 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.

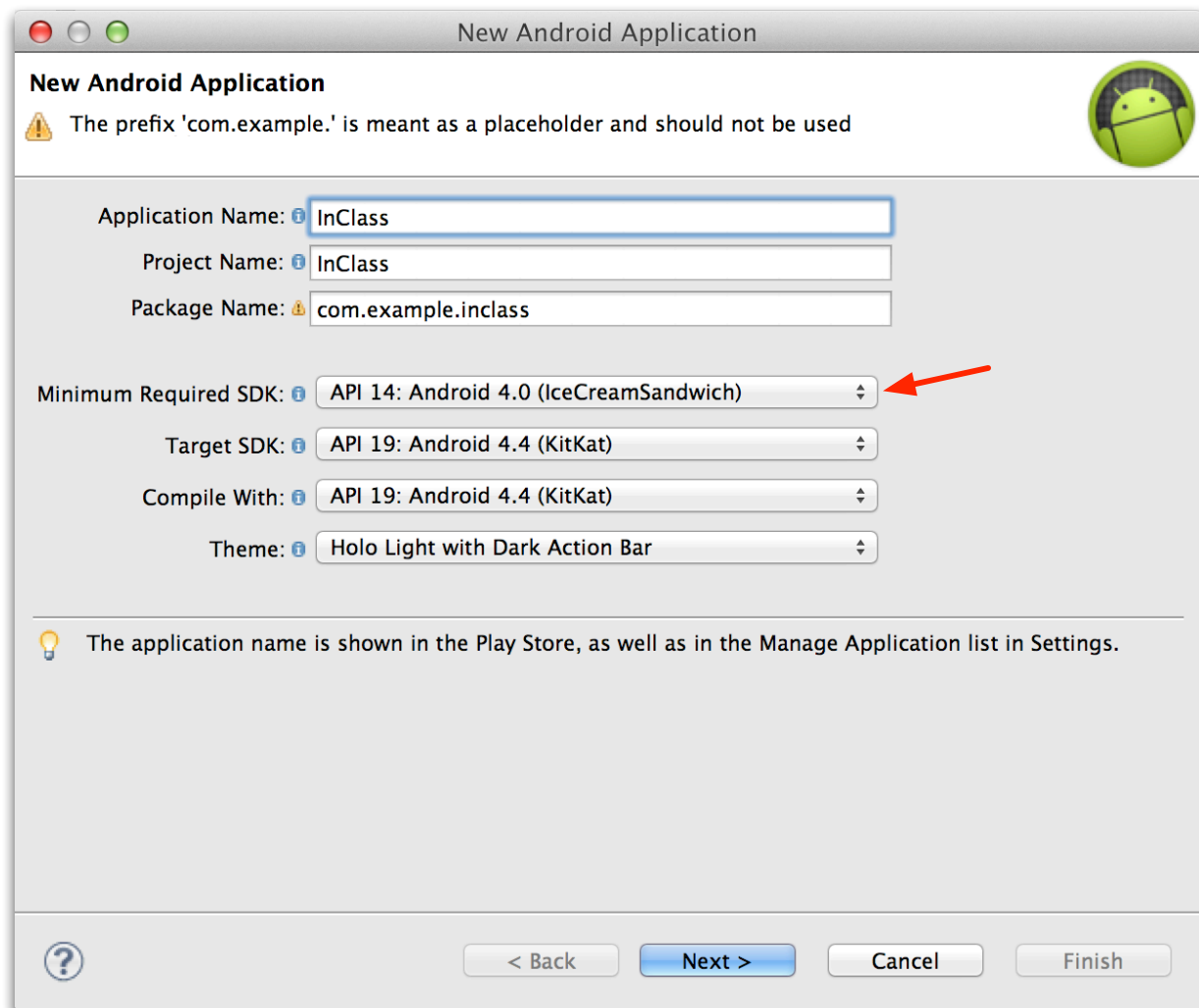


Fig 1. Choosing Minimum Required SDK to 14

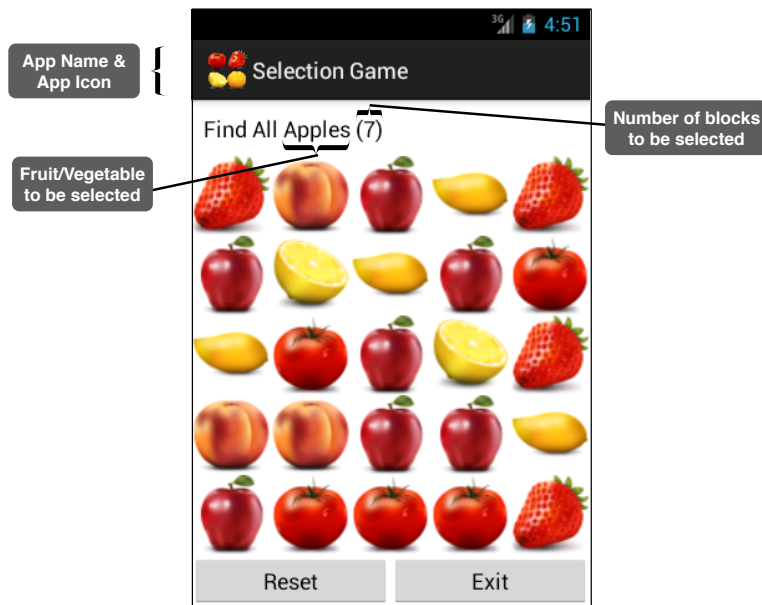


Figure 2, Application User Interface

The interface should be created to match the user interface (UI) presented in Figure 2. You will be using layout files, strings.xml, and drawable files 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. Your application should have an application launcher icon, please select your launcher icon to represent your app. Set the application title to "Selection Game".
2. The string values used for the text labels, and button labels should be read from the strings.xml file and should not be hardwired in the layout file. Use the provided fruit and vegetable images¹.
3. **Game board initialization:**
 - a. *Selecting the focus image:* randomly select one of the provided 6 images to be focus image that the user will be asked to find.
 - b. *Deciding on the number of times the focus image is repeated:* randomly select a random number N in the range [1,8], display the focus image N times.
 - c. *Deciding on which images to include:* the remaining 25-N positions should be filled by randomly selecting from the remaining images not including the focus image.
 - d. *Deciding on the order of images:* the selected 25 images should be randomly placed on the 5x5 game board.
 - e. The name of the focus image's fruit/vegetable should be indicated at top of the game layout. The number of focused images to be selected should be displayed beside the name of the focus image. See Figure 2.
4. When the player clicks on a focus image, it's alpha value should be reduced to indicate it is selected. Then decrement the number of focus images to be selected, reflect that on the displayed count, and again rearrange the remaining images (excluding the already selected focus images) so they are randomly placed on the

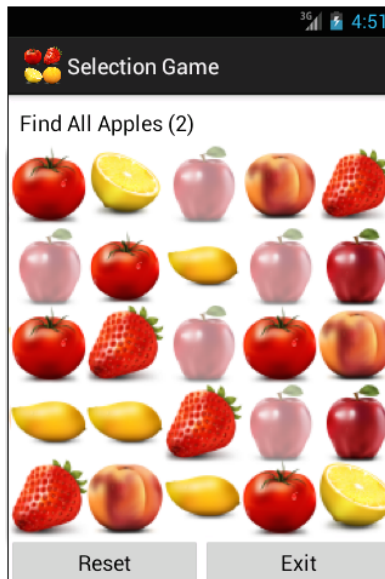
¹ These images were provided by <http://artbees.deviantart.com>

board. See Figure 3(b).

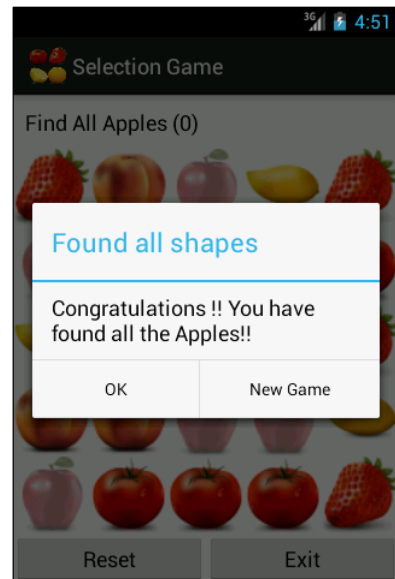
5. Tapping on a previously selected focus image should have no effect on the game or on the images, but tapping non-focus image should display an alert message indicating the current game has ended, with the option to exit or reset.
6. When the player selects all the focus images show an alert indicating that the user has found all the focus images. Your alert message should indicate the name of the focus image fruit/vegetable. See Figure 3(c).
 - a. Clicking the “OK” button, should dismiss the alert.
 - b. Clicking the “New Game” button, should dismiss the alert and create a new game board by reinitializing the game.
7. When the “Reset” button is clicked a new game board should be created by reinitializing the game.
8. The application should be destroyed if the “Exit” button is clicked.



(a) Game window



(b) Icons selected



(c) Congratulation Alert

Figure 3, Application Screens