ITIS/ITCS 4180/5180 Mobile Application Development
Homework 4
Date Posted: 09/16/2014 at 20:15
Due Date: 09/21/2014 at 23:55

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 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 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 project into a single zip file. The format of compressed file name is HW#.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.**

Homework 4 (100 Points)

In this assignment you will develop “TBBT Quiz”. TBBT is short for The TV Show “The big Bang Theory” - an American sitcom-. The show is primarily centered on five characters living in Pasadena, California: roommates Leonard Hofstadter and Sheldon Cooper, both physicists; Penny, a waitress and aspiring actress who lives across the hall; and Leonard and Sheldon's equally geeky and socially awkward friends and co-workers, mechanical engineer Howard Wolowitz and astrophysicist Raj Koothrappali. The geekiness and intellect of the four guys is contrasted for comic effect with Penny's social skills and common sense.TBBT Quiz is a game aims to test player knowledge about this series characters.

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.**
2. All strings should be read from your strings.xml, all dimensions from dimens.xml, and all images from drawable-ldpi. 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.
3. All image downloading should be performed using Threads (or AsyncTask) and your code should not block the main thread.

Part A: Splash Screen Activity (15 Points)

The first UI the user will see is a splash screen displaying a photo of the show main characters (**`splash_screen.jpg`**). TBBT music will be played meanwhile (**`music.mp3`**). Once the music stops the app should finish the Splash activity and starts the Welcome activity. Music takes 20 seconds to finish, you can either delay starting that next activity 20 secs or you can implement proper event handler in **`MediaPlayer`** class. Figure 1, shows the Splash Screen Activity.

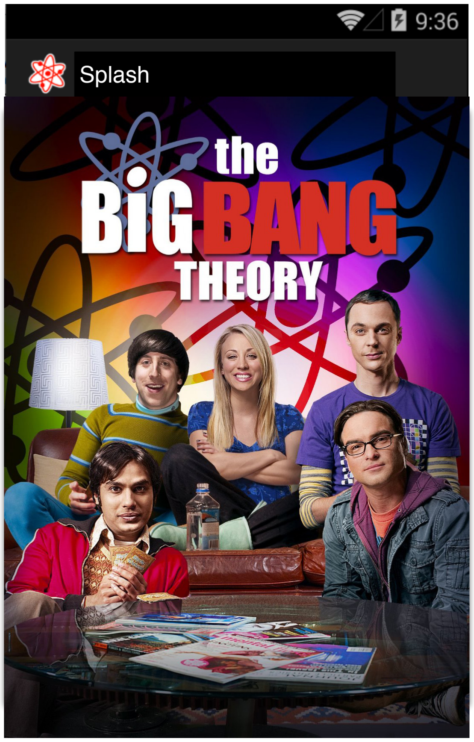
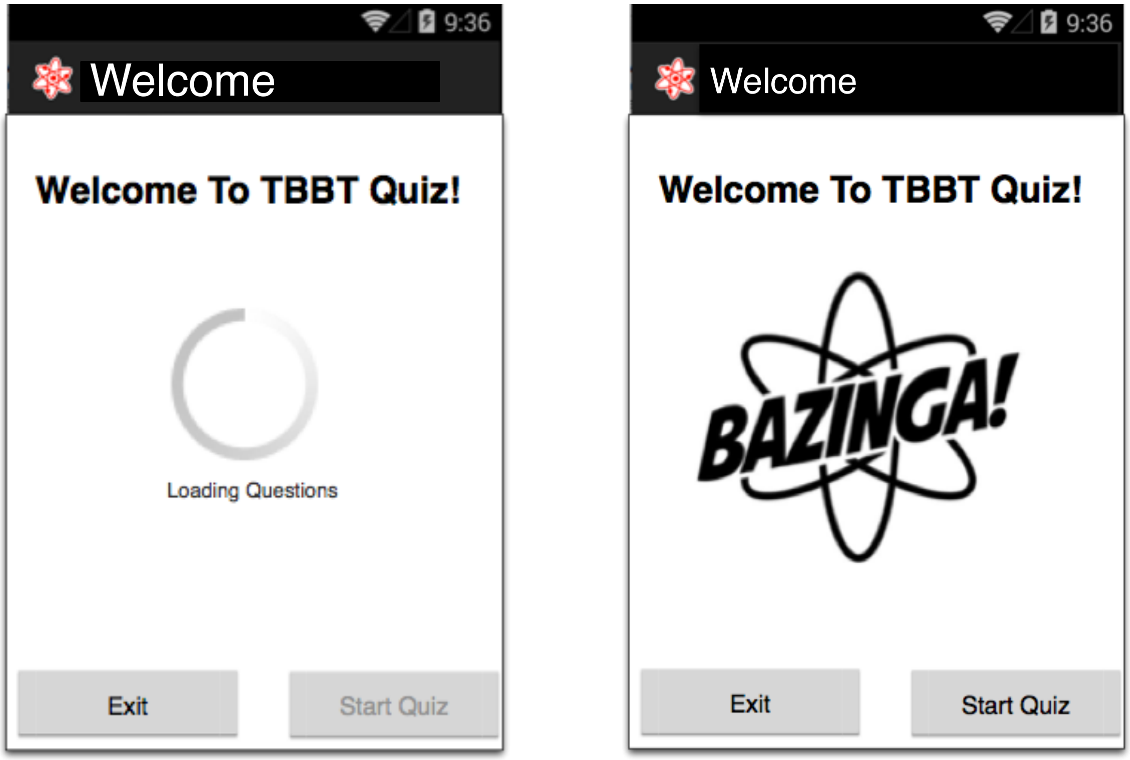


Figure 1, Splash Activity



(a) Downloading the questions

(b) Finished downloading the questions

Figure 2, Welcome Activity

<u>Part B: Loading and Parsing Questions (Welcome Activity) (40 Points)</u>

The questions and answers for this app should be retrieved from the below url: http://dev.theappsdr.com/lectures/trivia/index.php, each question is formatted in a separate line with entries separated by the semicolon ";". An example question is listed below:

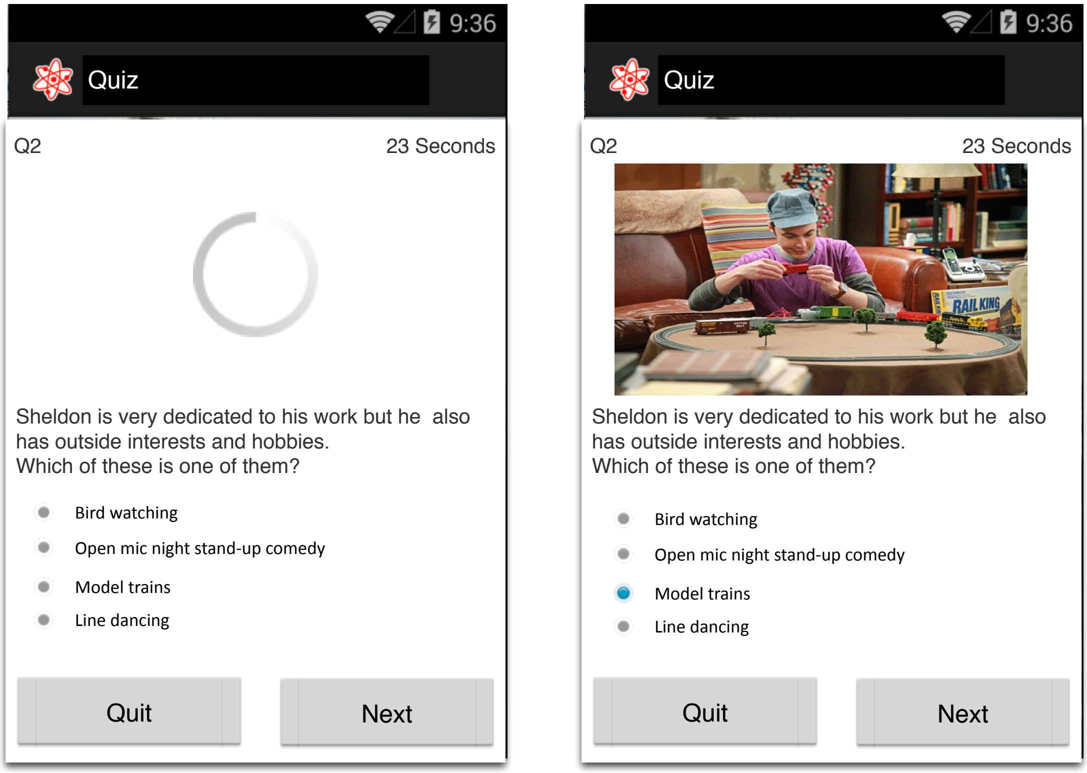
```
Sheldon is very dedicated to his work but he also has outside interests and hobbies. Which of these is one of them?;http://dev.theappsdr.com/lectures/trivia/photos/Q2.jpg;Bird watching;Open mic night stand-up comedy;Model trains;Line dancing;2
```

The question line is divided as follows: the first item is the question, then question image url, then the list of possible answers, and at the end the index of the correct answer to the question. For example, the answer to this question is the answer at index 2, which is `Model  trains`. The index is 0 based, so the first possible answer has index 0. You should note that the number of possible answers can vary, in the above example there are 4 possible answers, but in other questions there might be less or more. Below are the requirements:

1. The **Welcome Activity** should use an AsyncTask or Thread to retrieve the questions and answers at the URL provided above. While the questions are

being retrieved the Welcome Activity should display a progress bar as indicated in Figure 2(a). The “Start Quiz” button should be disabled while the questions are being retrieved.

2. You should create a Question Class that should hold the parsed question, possible answers, url and the correct answer index. The AsyncTask or Thread should return a List of Question objects. Make sure the Question class should implement the Parcelable interface. Do not pre-download any of the images and do not pre-store the images in the Question Class.
3. Figure 2(b) shows the activity after the loading and parsing are completed. The “Start Quiz” button should be enabled, the progress bar should be removed, and the “Bazinga!” image (**`bazinga.jpg`**) should be displayed indicating that app is ready to view quiz questions.
4. Clicking the enabled “Start Quiz” button should start the Quiz Activity.
5. Clicking the “Exit” button should exit the application.



Sheldon is very dedicated to his work but he also has outside interests and hobbies.
Which of these is one of them?

○ Bird watching
○ Open mic night stand-up comedy
○ Model trains
○ Line dancing

(a) While loading the image

Sheldon is very dedicated to his work but he also has outside interests and hobbies.
Which of these is one of them?

○ Bird watching
○ Open mic night stand-up comedy
● Model trains
○ Line dancing

(b) After Loading the image

Figure 3, Quiz Activity Wireframe

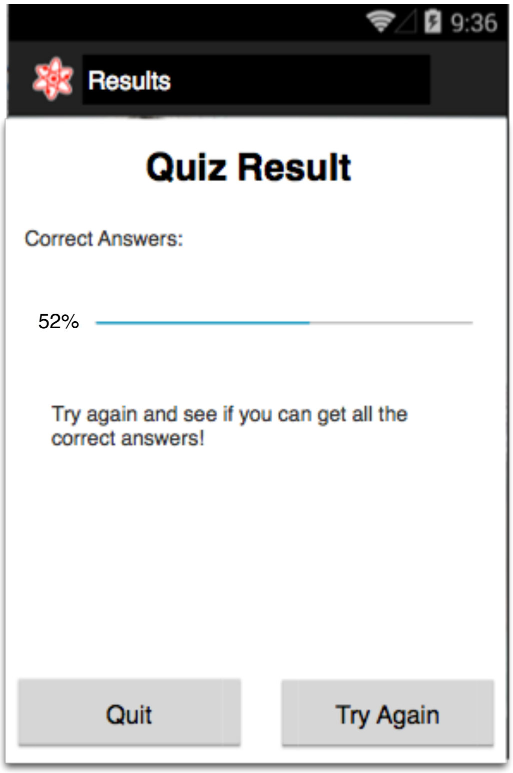
Part C: Quiz Activity (40 Points)

The Quiz activity is started by the Welcome activity and it should receive the list of retrieve questions from the Welcome activity via the intent. Figures 3(a) and 3(b), show the wireframe of the Quiz activity. The activity shows the question number, a countdown timer, a question text, and the set of answer options. The Quiz activity shows the current question’s image. Note that not all question will have a question image, if there is no image, the url entry will be left as “” to indicate no image. You should display, an image to indicate that there was no image found for this question. The number of possible answers is variable, your interface should be able to handle a variable number of answer choices. The requirements are as follows:

1. If the current question has an image, then the image should be downloaded from the specified image url indicated in the question using a separate thread (or AsyncTask) and not using the main thread.
2. Your activity should ensure that the ***downloaded image is displayed only when it’s question is the currently displayed question and not when other questions are displayed***.
3. While the question image is still loading you should display a progress bar indicating the image is loading, as indicated in Figure 3(a).
4. The user should have at most 24 seconds to finish each question. Each question has a count down timer that monitors the start and the end of 24 seconds, if the user does not click “next” button within 24 seconds the activity should display the next question automatically. Users can answer the question or skip to the next one. A skipped question is when the user does not select one of the provided answers and clicks the “next” button. A skipped question should be counted as an incorrect answer.
5. When displaying the next question you should not use a new Question activity instead update the layout of the Quiz activity to display the new question. Note that the number of choices for each question varies, so the views representing the choices should be dynamically generated in your code and should not be statically created in the layout xml.
6. If the user clicks the “Quit” button the activity is finished and the user is sent back to the Welcome activity.
7. When the user answers a question, you should detect whether the selected answer was correct or not, and keep track the number of correctly answered questions.
8. The countdown timer should start once the user starts each question. If the countdown timer reaches 0 before user answers the question, it should be assumed that the question was answered incorrectly, then the user should be sent directly to the next question. (Check the Android’s CountDownTimer class).
9. Upon answering the last question, the Quiz activity should start the Result activity and send it the required information in the intent to display the result.

Part D: Result Activity (5 Points)

Figure 4 shows the wireframe for the Result activity. This activity shows the user the percentage correctly answered quiz questions. Clicking the “Quit” button should send the user to the Welcome activity. Clicking the “Try Again” button should send the user back to the Quiz activity and should redisplay the first quiz question to enable the user to retry the quiz from the first question.



Try again and see if you can get all the correct answers!

Figure 4, Results Activity