ITIS/ITCS 4180 Mobile Application Development
Homework 3
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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. 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 and create a zip file which includes all the project folder and any required libraries.
6. Submission details:
    a. Only a single group member is required to submit on Canvas for each group.
    b. The file name is very important and should follow the following format: **Group#_HW03.zip**
    c. You should submit the assignment through Canvas: Submit the zip file.
7. **Failure to follow the above instructions will result in point deductions.**
8. **The required Android Virtual Device (AVD) should have minimum SDK version set to 20 and target SDK at 25.**

Homework 03 (100 Points)

In this assignment you will develop a Trivia quiz. Trivia questions will be downloaded as an text file from a remote server. You will get familiar with parsing text files and generating the proper user interface for showing each parsed question. This project is composed of three Activities, which include: **Main**, **Trivia**, and **Stats** Activities.
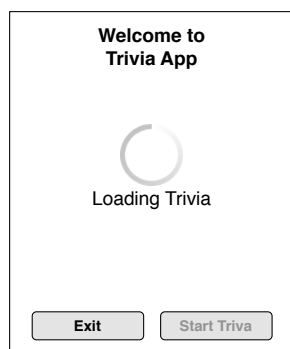
Part 1: Main Activity (40 points)

The **Main** activity is responsible for the loading of the trivia contents (questions and answers) included in the web service located at the below address: http://dev.theappsdr.com/apis/trivia_json/trivia_text.php. The content of web service includes information about each of the trivia question and answers, each line includes the trivia question, trivia photo, answer choices, and the index of the correct answer. For example one of the lines could contain:

```
14;The capital of Italy is?;http://dev.theappsdr.com/apis/trivia_json/photos/
rome.png;Venice;Florence;Milan;Rome;3
```
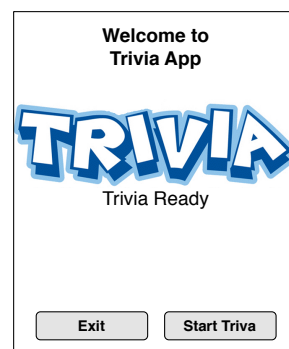
Note that the contents of each line are separated by ";", also note that the number of answers is variable, the index of the correct answer is a 0 based index, in the above example the correct answer index is 3 which is "Rome". Note that the image url could be missing in that case the line will be returned as follows:

```
14;The capital of Italy is?;;Venice;Florence;Milan;Rome;3
```

All the parsing and HTTP connections should be performed by a worker thread or an AsyncTask and should not be performed by the main thread. When a question is parsed from the api returned value, it should be mapped to a **Question** object. Your **Question** class must implement the Serializable interface (or you can use Parcelable interface). You should keep track of all questions in a List, as you will use them to show the questions to the user later on. **All the AsyncTasks should be implemented as a separate class and should not be an inner class to any activity.**

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Welcome to Trivia App ◯ Loading Trivia Exit Start Triva	**Welcome to Trivia App** TRIVIA Trivia Ready Exit Start Triva
1(a) While Loading and Parsing	1(b) After Loading and Parsing

The below figure above the wireframe of the **Main** activity. Note that when the activity is created it should retrieve and parse the trivia questions. The activity progress should be presented as shown in Figure 1(a). Note that the "Start Trivia" button is disabled while the loading and parsing are being performed. Figure 1(b) shows the activity after the

loading and parsing are completed. Note that the "Start Trivia" button is enabled. The parsing should generate a list of questions. Clicking the "Start Trivia" button should start the **Trivia** activity. Clicking the "Exit" button should exit the application.
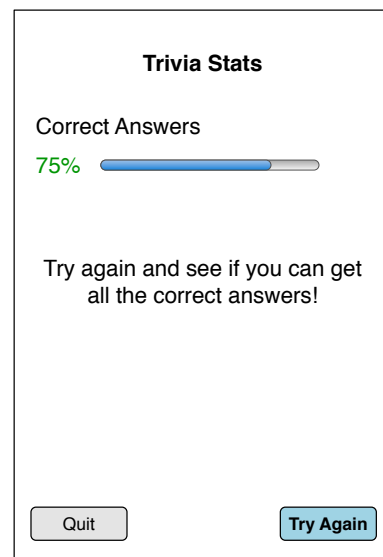
Part 2: Trivia Activity (50 points)
When the **Trivia** activity is instantiated by the **Main** activity it will receive a list of the trivia questions. Figures 2(a) and 2(b), show the wireframe of the Trivia activity. The activity shows the question number, a countdown timer, a question text, and the set of answer options. The Trivia activity shows an image if one exists for the current question. 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. 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. While the question image is still loading you should display an activity progress indicating the image is loading, as indicated in Figure 2(a). **All the AsyncTasks should be implemented as a separate class and should not be an inner class to any activity.**
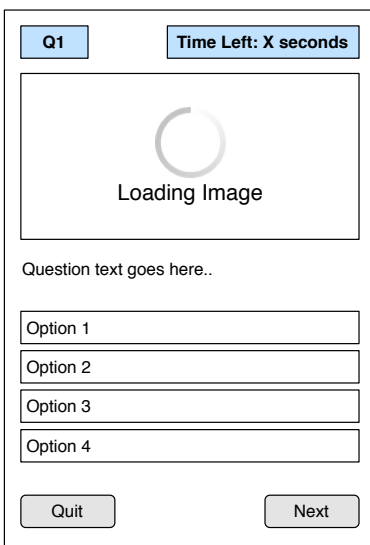
2(a) Trivia Activity (Image Loading)	2(b) Trivia Activity (Loaded Image)	2(c) Stats Activity

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. Then you should update the **Trivia** activity to display the next question. Do not use a separate activity for each question, but instead update the layout of the **Trivia** activity to show the new question. The choices could be displayed using a RadioGroup. 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.

The countdown timer should start once the user starts the first question. If the countdown timer reaches 0 before user answers all the questions, it should be assumed that the remaining questions were answered incorrectly, then the user should be sent directly to the "Stats" activity. If the user manages to answer all the questions within the allotted time (2 minutes), then upon clicking next the user should be sent to **Stats** activity.

Part 3: Stats Activity (10 points)
Figure 2(c) shows the wireframe for the Stats activity. This activity shows the user the percentage correctly answered trivia questions. Clicking the "Quit" button should send the user to the **Main** activity. Clicking the "Try Again" button should send the user back to the **Trivia** activity and should redisplay the first trivia question to enable the user to retry the trivia from the first question.