Assignments

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Introduction to Android

Sr. No.

1

SkyTech is a renowned educational training institute in **Leeds**, **London**. The students are trained in Android programming which is an emerging technology in the market. Since, the popularity of Android programming is increasing these days lots of multinational companies are hiring Android developers. One of the MNC company tied up with this institute, hired an Android application developer as a Trainee. The Trainee was asked to perform the following tasks on day 1 when he joined the Company.

1. Make a Power Point presentation on the software requirements for developing an Android application and present it to the Project Manager and Team Lead.

2. Before developing any Android application, he was asked to perform the following tasks:

   - Installation of Eclipse IDE.

   - Installation of JDK and JRE.

   - Installation of Android SDK with ADT–plugin.

3. On completion of the installation of the software requirement, he was asked to develop an application that will display the message 'Welcome to Android Programming'.

Getting Started with Android

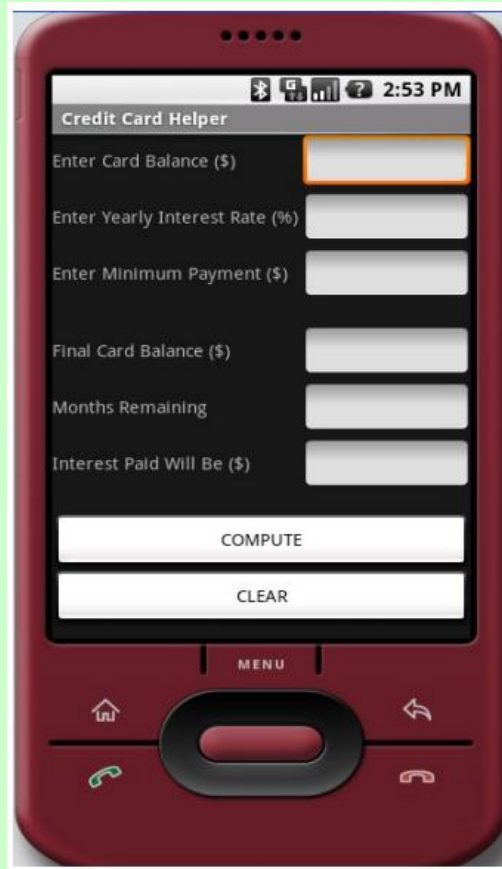| Sr. No.	Assignment Question

1	**Edutech Limited** is a well known computer training institute in **Chicago**, **USA**. With the growing importance of Android programming, a lot of well reputed and world-renowned companies are looking for Android developers. One of the companies has tied up with this institute and wants to recruit some good students to develop applications for the companies. Before recruiting the students, the company wants to conduct a test for the students. The students have to create an application that will perform the following tasks:
	
	1. Display a message 'I love reading books' string in the Emulator.
	2. Modify the above application to display a second line of text on the screen stating the name of their favorite books along with the author's name. Your text may be similar to 'Complete Prose Work of John Milton edited by Don M Woolfe!'.
	
	Hints:
	
	• Add a new string resource to the string.xml resource file.
	
	• Use the layout resource editor to modify `activity_main.xml` (the layout file) and add a second text View control.
	
	• Set the text attribute of the new TextView to your new string resource.
	
	3. Create a plain-text file called `discussion.txt` which will describe each of the following topics in their own words in a sentence or two for each:
	
	    1. Android SDK
	
	    2. ADT
	
	    3. Android Manifest
	
	    4. Android Emulator
	
	    5. Building block of Android Application.

Android User Interface (UI)

Sr. No.	Assignment Question
1	**Pace Wisdom Private** Limited is a well known software development firm specialized in Android programming and is headquartered at **London**, **UK**. They have clients spread across the world. They have more than 200 android developers working on different projects for different clients. They received a new requirement from a well renowned bank asking them to implement the UI for Credit Card application in Android devices.

Assume that you are one of the developers at Pace Wisdom and have to create an UI for credit card application that will help the customers to calculate their credit card debt. The UI of the application should resemble the UI as shown in figure 3.1.

Figure 3.1: **Application UI**

The three main visible UI widgets used in this application are as follows:

- TextView
- EditText
- Button |

There are six TextView and EditText widgets, and two Button widgets. Each TextView widget that is created should be identified by an id that begins with the word **text**. For example, the TextView widget should be named as **textCardBalance**. The EditView widget should be named as **editCardBalance** and so on respectively. The COMPUTE widget is named as **buttonCompute**. As functionalities are added to the application, the id of the widget will play an important role and it will help to improve the readability of the code and make debugging easier.

The user should consider the following points:

1. The first three EditText widgets should allow the user to enter amounts in dollar. If the user presses return or Enter key, the focus should move to the next EditText widget.

2. The last three EditText widgets should not allow the user to enter any value in the widget. These widgets will display the calculated value that will be computed from the users input.

3. Make sure that the UIs are placed inside a ScrollView as all the elements in the UI might not be visible on the screen.
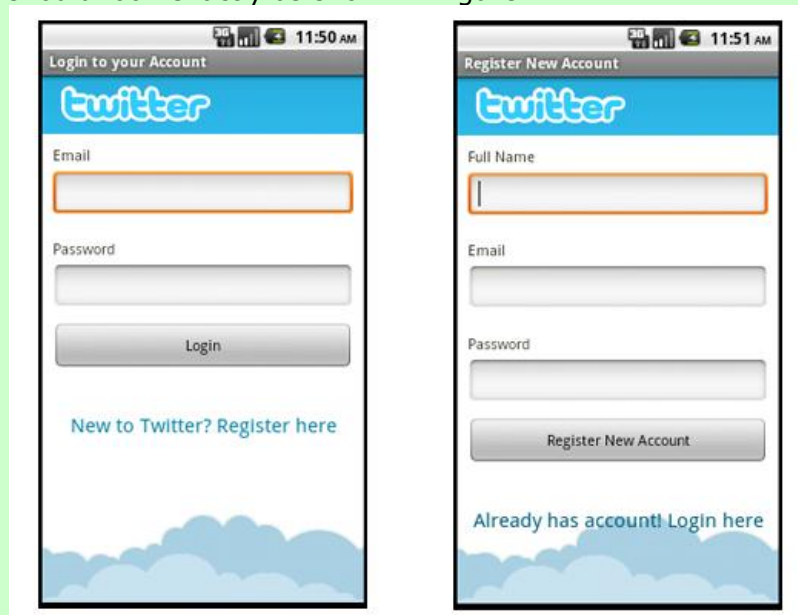
Android System Overview

Sr. No.	Assignment Question
1	**Twitter** is an online social networking service which includes microblogging service. Twitter was created in March 2006 by Jack Dorsey and by July, the social networking site was launched. The service rapidly gained worldwide popularity, with over 500 million registered users as of 2012, generating over 340 million tweets daily and handling over 1.6 billion search queries per day. Since its launch, Twitter is one of the most visited Websites on the Internet. It has also been described as "the SMS of the Internet". Due to some complaint from the user, the team wants to change the screen design and functionality of login and registration page. Assume that you are one of the developers at **Twitter** and have to create an UI for login and registration page that will help twitter to authentic the user. The application UI should look exactly as shown in figure 4.1.

Figure 4.1: **Login and Registration Page**

Note: The information of the user will be stored in the SharedPreference. Once the user logins it will validate the data from the SharedPreference. If it exists, then a welcome page will be displayed, otherwise it will redirect the user to registration page.

Design another screen where the administrator will be aware of the total number of registered users.

More UI Elements

Sr. No.	Assignment Question
1	**Lovely Prince University** has organized a seminar where they will be presenting their new research facility available on Biometric. More than 200 delegates are arriving from different universities across the world to join this seminar. Board of Directors of the University has decided to develop an application in android where the delegates who will attend the seminar can register along with their background information. Assume that Lovely Prince University has hired you as a junior android developer. You have to create an UI for registration that will help to keep record of the people who will join the seminar. The flow of your application will be as specified: 1. Once the application is executed a splash screen will be displayed for three second which will show the logo of Lovely Prince University. 2. After 3 seconds it will automatically display the registration page where the user will enter the following details: • Name • Email Address • Phone Number • Address • University Belonging to 3. At the bottom of the registration page there will be two buttons: • **Submit**: This will store the data in the Shared Preference. • **Show**: This will display the information of all the registered candidate in a ListView.

Media Handling

Sr. No.	Assignment Question
1	

ZunMedia is a brand of digital media products and services. Its products include software such as portable media players and digital media player. The services offered by **ZunMedia** are music subscription service, music and video streaming services for the Xbox 360 game console, and desktop sync software for Android Phone.

Assume that you are one of the developers at **ZunMedia** and have been asked to create a Media Player application for Android mobile devices. The application has the User Interface (UI) as shown in figure 6.1 and must be incorporated with the functionalities of a Media Player.

Figure 6.1: **Media Player Application**

Following are the key aspects that must be included in the application:

- The look and feel of the developed application should be similar to the UI as shown in figure 6.1.

- The user should be able to rewind and forward a song on the click of button.

- The volume can be controlled using the Progress bar control.

- The image displayed in the application should change with every song.

- Total and remaining time is displayed on the left and right side of the screen as shown in figure 6.1.

- The application contains a playlist button under the displayed image. Whenever the user presses the playlist button, all the names of the songs are displayed in the **ListView** control.

  Hint: A new layout can be created to display the **ListView** control.

- When the user clicks an item in the **ListView** control, then the application must navigate to the selected song and play it.

Data Handling in Android

Sr. No.	Assignment Question
1	**Extrain Services** is a training firm located in **Chicago**, **Illinois**. The firm provides software trainings to corporate employees in various technologies. A new batch of junior software developers has joined for the training of Android development. At the end of each session, the instructor assigns assignments on the topics conducted in the training. Assume that you are one of the participants in the training and in this session the instructor has discussed about internal and external data storage in Android. To gain confidence on the topic learnt, the instructor has assigned you some assignments that are as follows: 1. Create a Login application that uses **Preferences** for storing data in the Android. The application will contain user interface controls, such as textfields and a button to accept values from the user. The accepted values are stored automatically by Android and are displayed as a Toast message on the button click. **Hint**: Use XML resource file to work with the preferences. 2. Create a Notepad application which will allow a user to create and manage files on the Android device storage. The application contains a Menu control with menus, such as New, Open, Save, Close, and Exit. When the user clicks **New** menu, application creates a new file on the device and allows the user to enter data in the Edittext control. The **Save** menu will save content from the Edittext control in the newly created file. The **Open** menu will display contents from the existing file and allows the user to edit it. The **Close** menu will close the currently opened file with the saved or unsaved data. Finally, the **Exit** menu closes the main application. 3. Create a Student database application that will maintain records of students based on their class and section. The application should have a user interface to accept data from the user and store it in the backend SQLite database. Also, the application should be able to perform other database operations, such as update, delete, and display on the Student records.

Using Google Map API

Sr. No.	Assignment Question
1	**Acrodea** is one of the IT service providers situated in **Japan.** It provides solutions to integrate the existing Android and iPhone applications with the new APIs. One of the project Analyst at Acrodea has received a client requirement to develop an Android application that is integrated with a Map. The application details are as follows: 1. The application needs to be developed and installed on the Android mobile devices. It will track location of the device and will display an alert message showing the name of the current location. Further, the application will continue tracing location of the device. **Hint**: You can use the Google Map API to track the latitude and longitude for the particular location. 2. Modify the application to display a marker which indicates the current location on the map. Further, you can also customize the default marker by changing its color and image.

Services, Broadcast Receivers, and Intent Filters

Sr. No.	Assignment Question
1	**Pace Wisdom** Limited is a well known android developing application firm in **Andorra**, **Europe**. They have clients spread across the world and have more than 100 android developers working on different projects for different clients. The management at Pace Wisdom has got a new requirement from one of its client to make a '**Reminder application'** for the Android devices. You as a developer have been assigned the task of developing the application with the following requirements: 1. The application will display a '+' icon on the screen on initialization. 2. When the user clicks '**+**' icon, a new page is displayed that allows users to schedule the task. The user can enter the task name and allocate timing for it. The user can also set the start and end date for the new task or may select **All Days** option, if task needs to be performed every day. For example, the user can create a new task named '**Take Medicine**' and timing set to 9.00pm. So, every day he/she will receive a notification at 9.00'o clock to take the medicine. The user interface must allow the user to add, delete, and modify the task at any point of time. **Hint**: You have to use Activity, Services, and Broadcast Receiver to perform the task.

Bluetooth, Network, Wi-Fi, and Sensors

Sr. No.	Assignment Question
1	**Elvis Communication** is one of the IT service providers situated in **New Jersey**, **USA**. The firm has many clients spread across different parts of the country. The firm is renowned for developing applications for Android and iPhone devices. Elvis Communication helps its customers by providing solutions related to communication and security on these devices. The project analyst at Elvis Communication has received some queries from its client to incorporate certain features in their existing Android application. You as one of the developers in the project team have been asked to handle the client requirements that are as follows: 1. Develop a simple Bluetooth chat application for the Android devices which will help the nearby Bluetooth connected paired devices to chat. 2. Develop an Android application which prompts the user for enabling the Wi-Fi on the device. This helps users to start the network between two devices.

SMS and Telephony

Sr. No.	Assignment Question
1	**Micro Vision** is one of the IT service providers situated in **Texas**, **US**. The firm has many large and small customers located in the different parts of the country that develop applications for Android and iPhone devices. Micro Vision helps its customers by providing solutions related to communication and security on these devices. The project analyst at Micro Vision has received some queries from its client to incorporate certain features in their existing Android application. You as one of the developers in the project team have been asked to handle the client requirements that are as follows: 1. The application contains a ListView control. When the application is installed on the Android device, the ListView control is populated with the phone contact numbers. 2. When the user clicks any contact number displayed in the ListView control, it opens up a new layout containing the user interface for sending messages. The user must be able to send a message to the particular number which he/she has selected in the Listview control.

Development of Android Market

Sr. No.	Assignment Question
1	**Aldigo is** one of the popular Android-based device providers situated in **Chicago**, **Illinois**. It is a hub for buying mobile phones, apps, and games based on Android. The management of Aldigo has decided to conduct a seminar that will increase the awareness among its customers for the apps and games developed for Android platform. As the head of the sales team, you have been asked to prepare documents and presentations for the seminar. The details are as follows: 1. Survey the Android market and gather information on the different versions of Android adopted by the vendors of the mobile devices. 2. Create a detail report on the latest apps and games launched for the Android platform. 3. Create a document that elaborates the procedure to launch the new apps in the Android market.

--- End of Assignments ---