Android Lab

Experiment 1 (Basic Intro & Installation)

1. Read about android
   a) What is android?
   b) History and Versions of android
   c) Architecture of android
   d) API levels
   e) Activities in android
   f) Life cycle of an activity
2. Install android studio
3. Create your first studio project and build a simple empty activity Application in android studio.
4. Learn how to test or build your app
   a) By building apk and installing it any android device
   b) Using USB debugging technique
   c) Using virtual device in android studio

Experiment 2 (Hello World)

1. Build your first simple Hello world application using android studio.
2. Build Hello world application using Toast in android studio.
3. Build an application that contains a TextView with value “Hello world”.
4. Create your own values in string.xml
1. Add background to textView created in above ques 3
   a) Using hexadecimal value in xml layout
   b) Using color.xml values
2. Add margins to TextView in ques3
   a) Using hexadecimal value in xml layout
   b) Using dimens.xml values

Experiment 3 (Layouts & UI Control Components)

1. Try Linear Layout that contain 4 buttons as UI Components with following attribute properties set –
Layout :
android: divider , android : orientation , android: layout_width , android:layout_height
Button :
android: layout_width , android:layout_height , android: inputType , android:marginTop , android :text

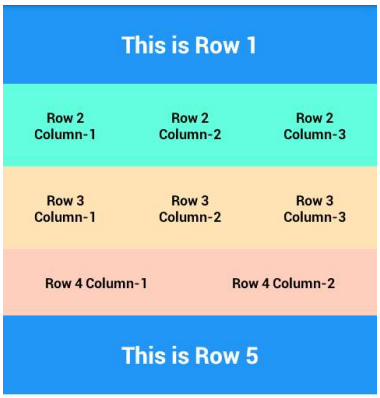
2. Using Relative Layout Design a form that inputs first name , last name , Gender(using radioButton) and Date of Birth (Using Date Picker) with following attribute properties set –

Layout :
android: layout_alignParentRight , android : layout_alignParentLeft, android: layout_alignParentBottom, android: layout_alignParentTop

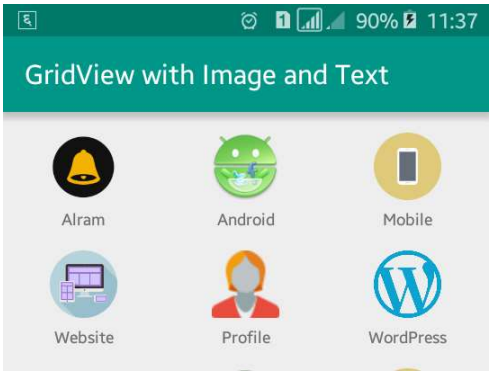
RadioButton :
android: layout_width , android:layout_height , android: text , android:checked , android :textSize, android :textColor

EditText:
android: layout_width , android:layout_height , android: editable , android:text , android:background

3. Try Table Layout and design following using EditText



4. Design Following using Grid Layout and use ImageView and TextView UI Controls for its designing



5. Create a Login page for Online Shopping using any learned Layouts
   - **a.** Create TextView for the title
   - **b.** Add two EditText for username and password
   - **c.** Add Login button
   - **d.** Create checkbox

e. Create Radio button

Experiment 4 (Activity Lifecycle)

1. Create an application to show the lifecycle of an activity
2. Include the following functions: -
    - **a.** onCreate
    - **b.** onStart
    - **c.** onResume
    - **d.** onPause
    - **e.** OnStop
    - **f.** OnRestart
    - **g.** OnDestroy
3. Use Toast and logcat to show when each function gets called

Experiment 5 (Event Creation)

1. Create a calculator App with buttons for each operation
2. Create an Tailor App that will take in various paramters like :
   Name, PhoneNo , Address, Height(in metres) (EditText)
   Gender (RadioButton Group)

   Size (L/XL/XXL) (using Spinner)

   And Calculate the price on Submit Button for the order based upon the following stats

L	Male Female	Rs. 300 per metre Rs. 500 / metre
XL	Male Female	Rs. 400 per metre Rs. 700 / metre
XXL	Male Female	Rs. 500 per metre Rs. 900 / metre

For Example
Height = 2m and Size = L then price = 2* 300

3. Dice Roller : On Button click Application will display any random number between 1 to 6

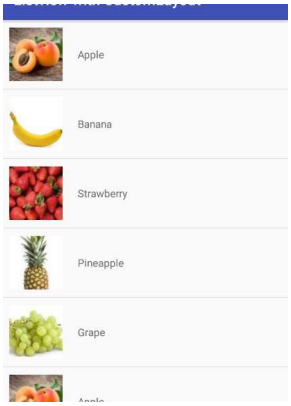
Note : For each of the above app, use:

a. **OnClick** method
b. **Delegation Event Model** (Android Event Handlers)

Experiment 6 (ListView)

1. Create an application that lists the states of India using ListView
2. Create an application that lists the various android Versions till date .

3. Design a Custom ListView as follows:



4. Design a ListView that will display each country name and its currency along with the flags as shown in figure below :

Note : Add entries in the ListView using:

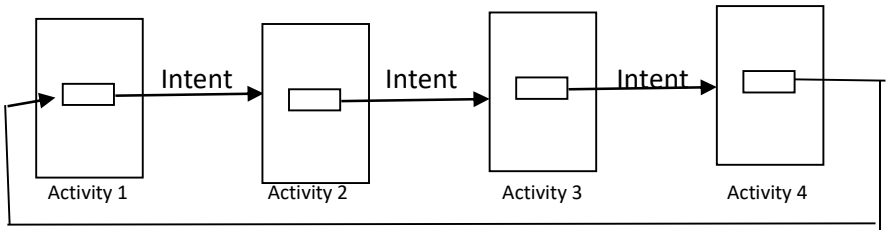
a. **String-array** in strings.xml
b. **ArrayAdapter** Class in java

Experiment 7 (Fragments)

1. Create an application that uses fragments inside an activity
2. Create a tabbed activity and create 4 sliding tabs, using:
   a. **Viewpager** widget, and,
   b. **SectionsPagerAdapter**

Experiment 8 (Activities and Intents)

1. Create an application with 2 activities and study about <intent-filter> in Manifest File and alternatively make each activity main and launcher one by one at a time.
2. Use a Button to make intent and move between various activities.
3. Design a Login Page that forwards user to new activity using intent on successful login.
4. Design a 2 Activity long registration form such that on ' next Page Button ' activity 1 proceeds to next Page of form only if all the fields in current form are filled .
5. Design a App named Loopy that basically has 4 activities in a way that the intents form a loop as shown in figure :



6. Pass Key Values in Intent in above ques and retrieve it in second activity (Forward Parsing)
7. Perform Backward Parsing in above ques
8. Make a form in one activity and pass the values in next activity and display all filled details in the form or design a login page.
9. Try both implicit and explicit intent for the above parts.

Experiment 9 (Data Storage)

1. Use shared Preferences to store and retrieve key value pairs stored in Shared Preferences
2. Use Content Provider and store data in SQLite.

Experiment 10 (Project)

1. Design any Application using all above learned techniques to solve a real life problem or for use in daily life .