

Exercise – 1 Personal Information Page using GUI Controls, Fonts and Colors

Develop an android application using GUI controls for creating personal information page using the below specifications. Apply formatting using different styles of Font and Colors.

Specifications:

1. Name in text
2. DOB in date picker
3. Address in text
4. Email using email
5. Mobile number in text
6. Gender radio buttons
7. Languages known in check boxes

Exercise – 2 Program using Layouts and Listeners

Add the following features for the GUI created in the first exercise

1.Create a button to show the Calender and once the date is selected the calender should collapse and the selected date should set in the textview for DOB

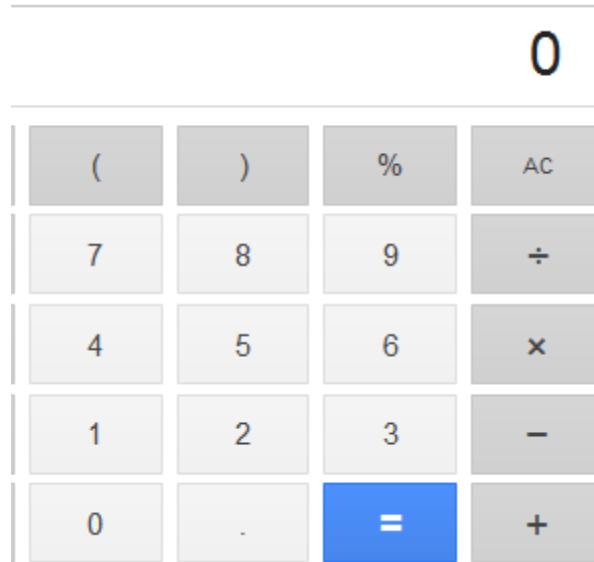
2. Reset Button – should clear all the fields

3. Submit button - should collect the text or values of all the fields and display it in a new activity using Table Layout

Write appropriate event listeners for the Calender and Buttons to achieve this.

Exercise – 3**Calculator Application**

Create a Calculator Application using Andriod with the operations specified in the diagram. The layout of the calculator should look as given below. Use listeners for the buttons to achieve the desired output.



Exercise – 4**Andriod Application using Graphics**

Develop an Andriod application to perform following Graphical Operations:

1. Draw shapes such as Line, Circle, Rectangle and Arc
2. Perform animation using any Image (Gif, Jpeg)
3. Perform transformation – Rotation, Zooming

Exercise -5 Andriod Application for CRUD Operations on Database

1. Create a database using **SQLLite** which contains the following fields:
Name, Address, Phone, Email
2. Create an activity with the below buttons
Insert, Display, Edit, Delete and when these buttons are pressed a new activity should open.
3. When “**Insert**” button is clicked should open a new activity which has controls for corresponding fields in the database such as Name, Address, Phone, Email. Also should have “**Submit**” button which when clicked should insert the details into the database.
4. When **Display** button is pressed, should open an activity to display all the records from the database
5. When **Edit** button is pressed, should open an activity that should have a field to enter the name of row to be edited and a “**OK**” button. When name entered and **OK** button is pressed, should open a new activity and display the record to be updated. When changes are made to the record and “**Update**” button is pressed, the changes should be updated in the database.
6. When **Delete** button is pressed, should open an activity that ask for name field of the record to be deleted and a “**OK**” button. When **OK** button is pressed, the record should be deleted from the database.

Exercise – 6

Android RSS Parser Application

Develop RSS parser application that reads RSS Feed from the internet, parse the file and list the items.

Sample RSS Feed File

```
<?xml version="1.0" encoding="UTF-8" ?>
<rss version="2.0">
<channel>
    <title>W3Schools Home Page</title>
    <link>http://www.w3schools.com</link>
    <description>Free web building tutorials</description>
    <item>
        <title>RSS Tutorial</title>
        <link>http://www.w3schools.com/xml/xml_rss.asp</link>
        <description>New RSS tutorial on W3Schools</description>
    </item>
</channel>
</rss>
```

For help refer this site:

<http://www.itcuties.com/android/how-to-write-android-rss-parser/>

Exercise – 7**Android Application using Multi-threading**

Develop an Android Application that uses multi-threading to create a moving banner which changes the color for every movement and also display the starting position (x,y) of the banner on the device

Exercise – 8**Andriod Location Tracker Application**

Develop an android application that uses Geographical Positioning System (GPS) to display the user's current location in terms of Latitude and Longitude.

Exercise 9**Android Program for sending SMS and Notification**

Develop an android application to do the following:

- i) To send SMS to a mobile number
- ii) Create a textview for composing the message and a "Send" button to send the SMS
- ii) If the user sends message more than two times from the same number and exit from the activity
- iv) Also, send notification to the user (indicated in the status bar)

Exercise – 10**Read and Write data from SD Card**

Write an android program to read the content of a file stored in the SD card and write contents into the file present in the SD Card.

Exercise – 11 Android Alarm Clock

Create an android program for alarm clock using the below spec.

1. Create 2 buttons “Start” and “Cancel”
2. After clicking “Start” button, time picker should be displayed
3. Schedule the time
4. Make alarm to ring when the scheduled time expires
5. Display the message “Time is up.....”
6. Pressing “Cancel” button, should close the timer

CS8662 Mobile Application Development

Lab

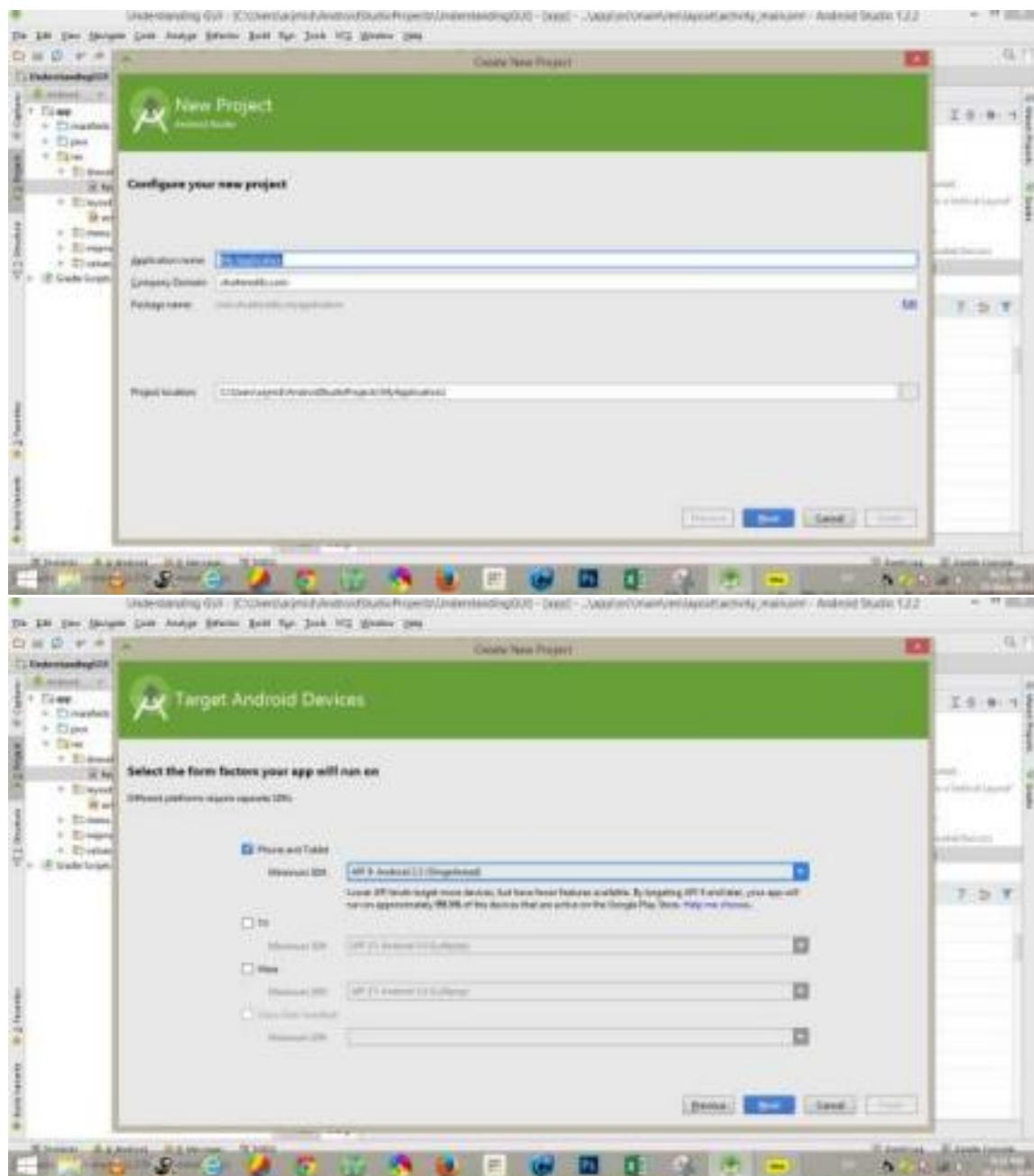
Develop an application that uses GUI components, Font and Colours

Understanding GUI

In this chapter we'll learn about different GUI in Android Studio and develop an app that use GUI, Font and Colors.

Part 1:

Start a project “Understanding GUI”



*You can learn more about the Android Studio Interface from
<http://developer.android.com/tools/studio/index.html>.*

Part 2:

UI design for android application is done using a layout xml file.

Android studio offers a layout editor which allows you to drag and drop UI elements into the interface.

You can learn more about layout editor from

<http://developer.android.com/sdk/installing/studio-layout.html>

Part 3:

Learn more on Material Design at

<https://www.google.com/design/spec/material-design/introduction.html#introduction-goals>

UI Elements:

Layouts:

- Linear Layout
 - Horizontal
 - Vertical
- Relative Layout
- Table Layout
- Grid Layout (Requires API 14 or more)
- Frame Layout

Widgets:

- TextView
- Button
- RadioButton
- ToggleButton
- ImageView
- ImageButton
- CheckBox
- ProgressBar
- SeekBar
- RatingBar
- WebView
- Spinner

Text Fields

- EditText
 - Plain text, Name, Number, Email etc.

Containers

- ScrollView
 - Vertical
 - Horizontal
- ListView
- GridView
- SearchView
- TabHost

Common Attributes

- Layout Width
- Layout Height
- Gravity
 - centre
 - left
 - right etc.

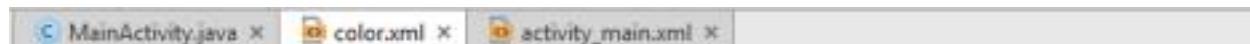
- 
- match_parent
 - fill_parent
 - wrap_content
 - <>pixel value>> in dp

- style
 - uses drawable.
- background
 - color or drawable.
- id
- padding
- margin
- textColor
 - color value (Hex,Rgba etc.)
 - drawable
 - color resource
- textStyle
- typeface

Changing attributes (text color, background, typeface etc.) in java

```
TextView <<variable>> = (TextView) findViewById(R.id.<<id>>);  
<<variable>>.setTextColor(getResources().getColor(R.color.<<name>>)) ;  
The color resource is defined in a "color.xml" resource file inside "values" resource directory.
```

Eg:

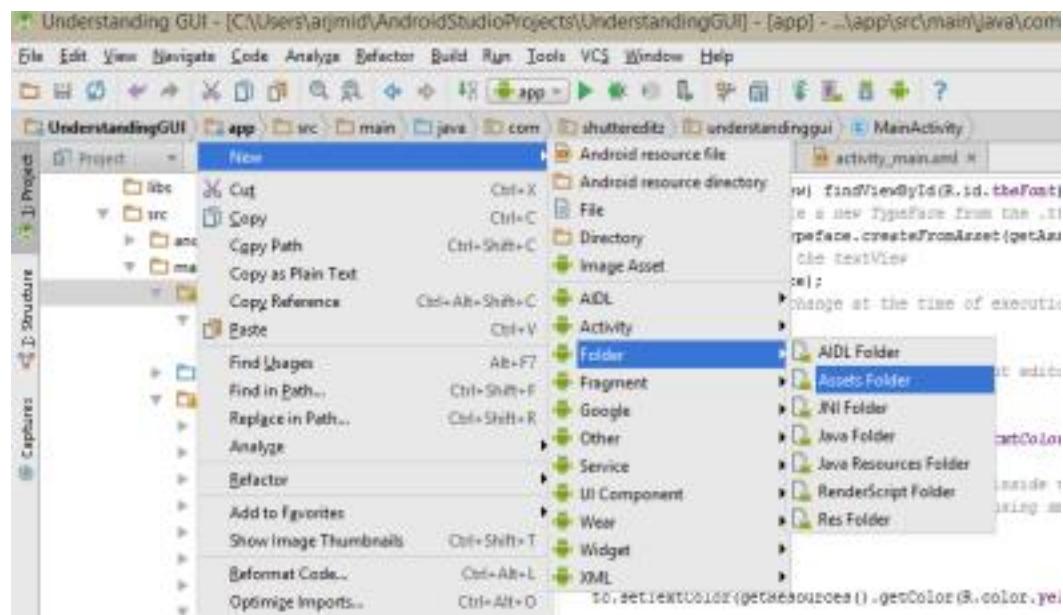


```
<?xml version="1.0" encoding="utf-8"?>  
<resources>  
    <color name="yellow">#FFFF00</color>  
</resources>  
  
<<variable>>.setBackgroundColor(getResources().getColor(R.color.<<name>>)) ;
```

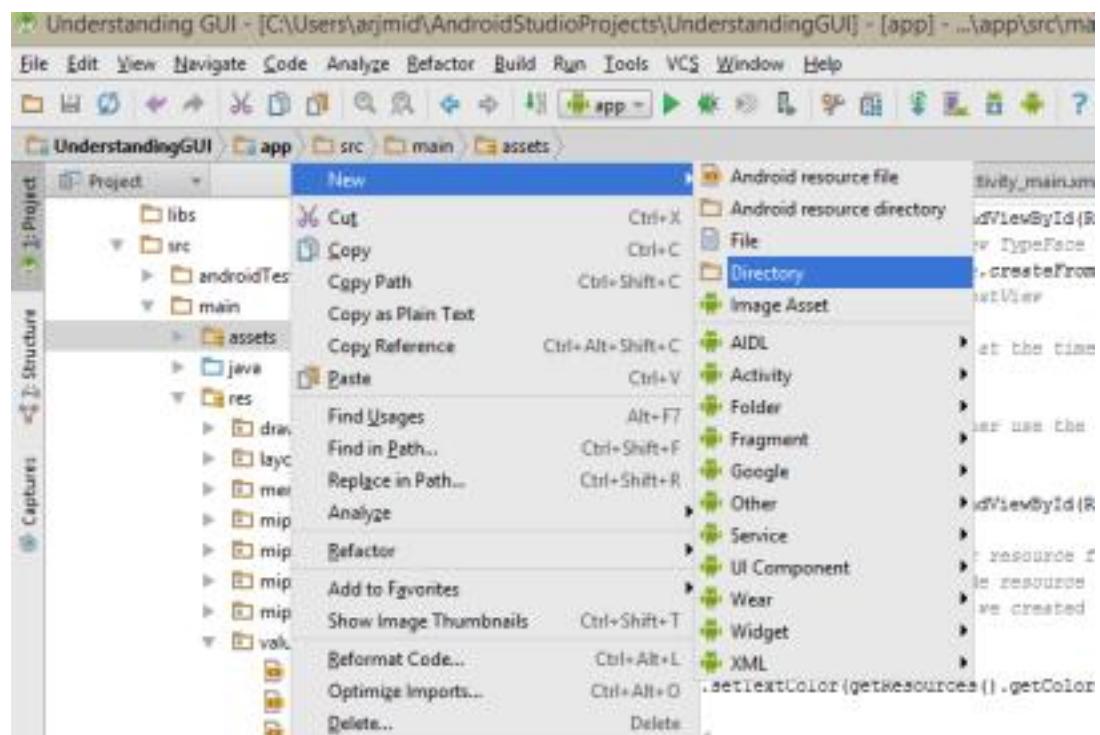
Changing Type Face

First we need to import a font-face to assets directory.

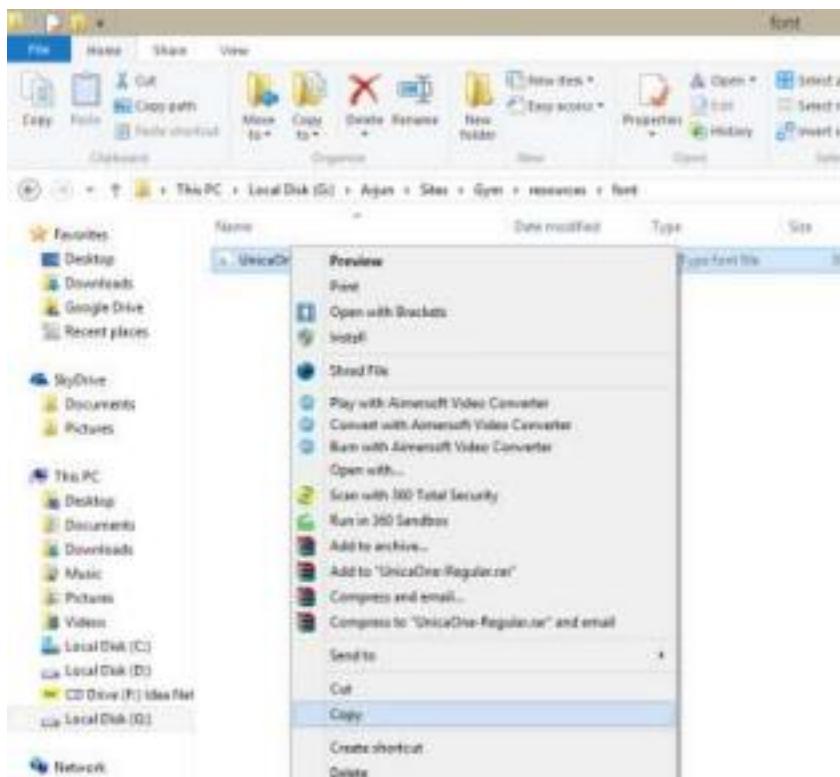
Create an assets directory.



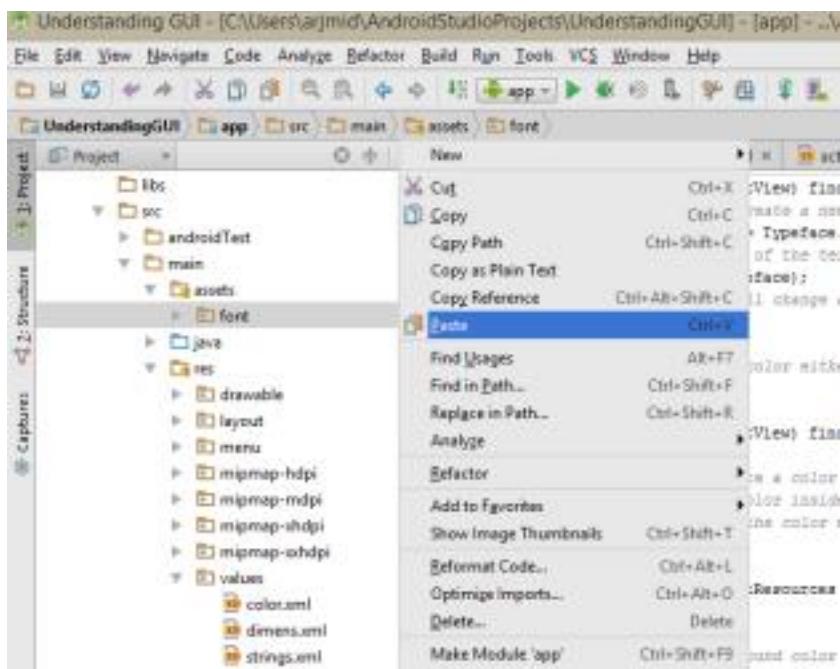
Create a new directory “font” – *not necessary* –



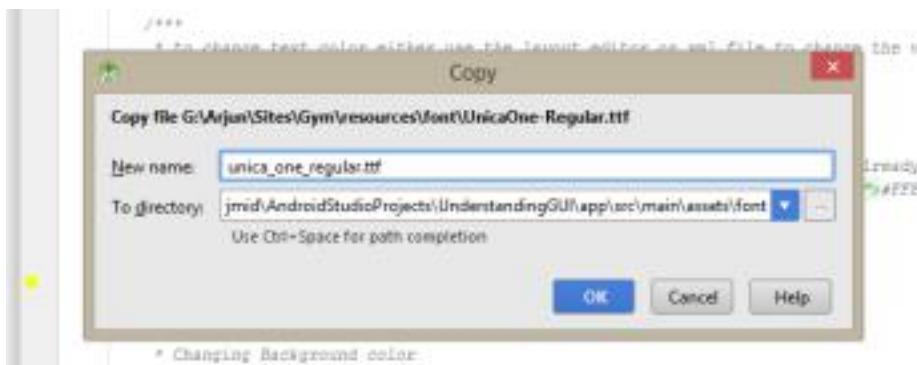
Copy the font



Paste it in the directory.



Change all caps to small and special characters (space, dash etc.) to underscore.
Else it'll give an error on gradle build.



Now use the java script:

The screenshot shows the Android Studio code editor with three tabs: MainActivity.java, color.xml, and activity_main.xml. The MainActivity.java tab is active and displays the following Java code:

```
TextView tF = (TextView) findViewById(R.id.theFont); //find the
textView with id theFont
//Now we need to create a new Typeface from the .ttf file we imported
Typeface typeface = Typeface.createFromAsset(getAssets(),
"font/unica_one_regular.ttf");
//Set the typeface of the textView
tF.setTypeface(typeface);
//the type-face will change at the time of execution
```

Layout and Event Listeners

Part 1:

Start a new project. (API Level 14 – Android 4.0 Ice-cream Sandwich).

Part 2:

Layouts

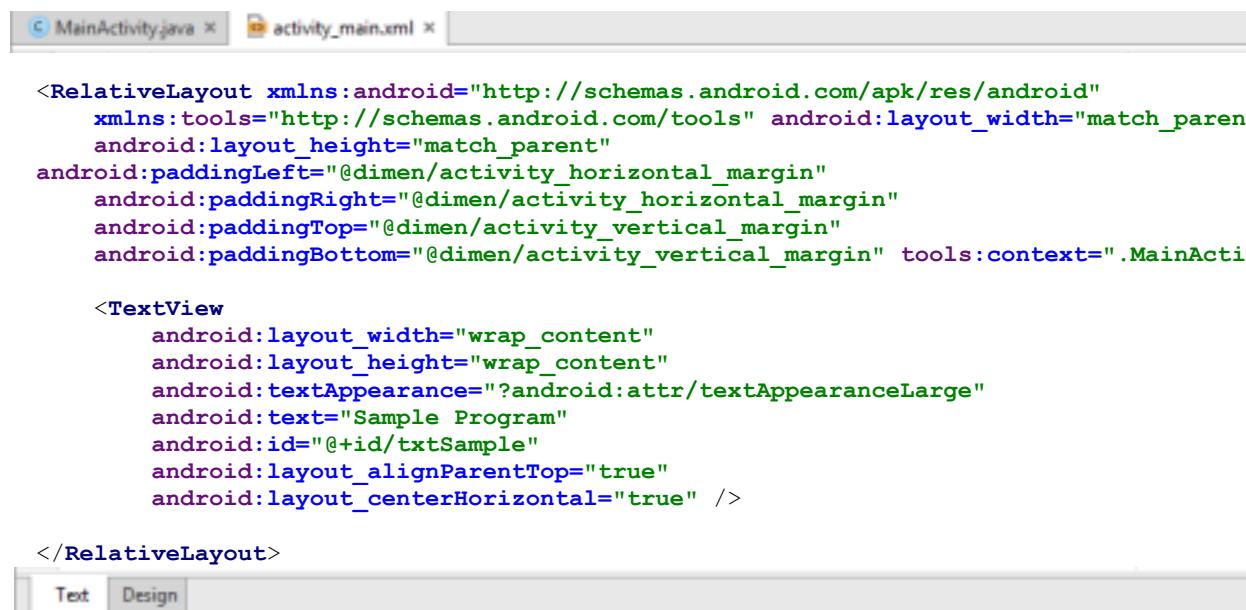
1. Relative Layout

As in name this layout positions elements relative to the adjacent elements.

It uses the following attributes for each element to position them:

- layout:alignEnd
- layout:alignStart
- layout:toEndOf
- layout:toStartOf
- layout:alignParent
- layout:centerInParent

We will create a TextView (Large) inside the parent Relative layout by editing the xml code:



```

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools" android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingBottom="@dimen/activity_vertical_margin" tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textAppearance="?android:attr/textAppearanceLarge"
        android:text="Sample Program"
        android:id="@+id/txtSample"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true" />

</RelativeLayout>

```

The screenshot shows the Android Studio interface with two tabs: "MainActivity.java" and "activity_main.xml". The "activity_main.xml" tab is active, displaying the XML code for a RelativeLayout. The code defines a single TextView with various styling and alignment attributes. At the bottom of the screen, there are "Text" and "Design" tabs, with "Text" currently selected.

Now we have created a TextView.



2. Linear Layout

Linear layout are two types Horizontal and Vertical.

Horizontal/Vertical is set using the **orientation** attribute.

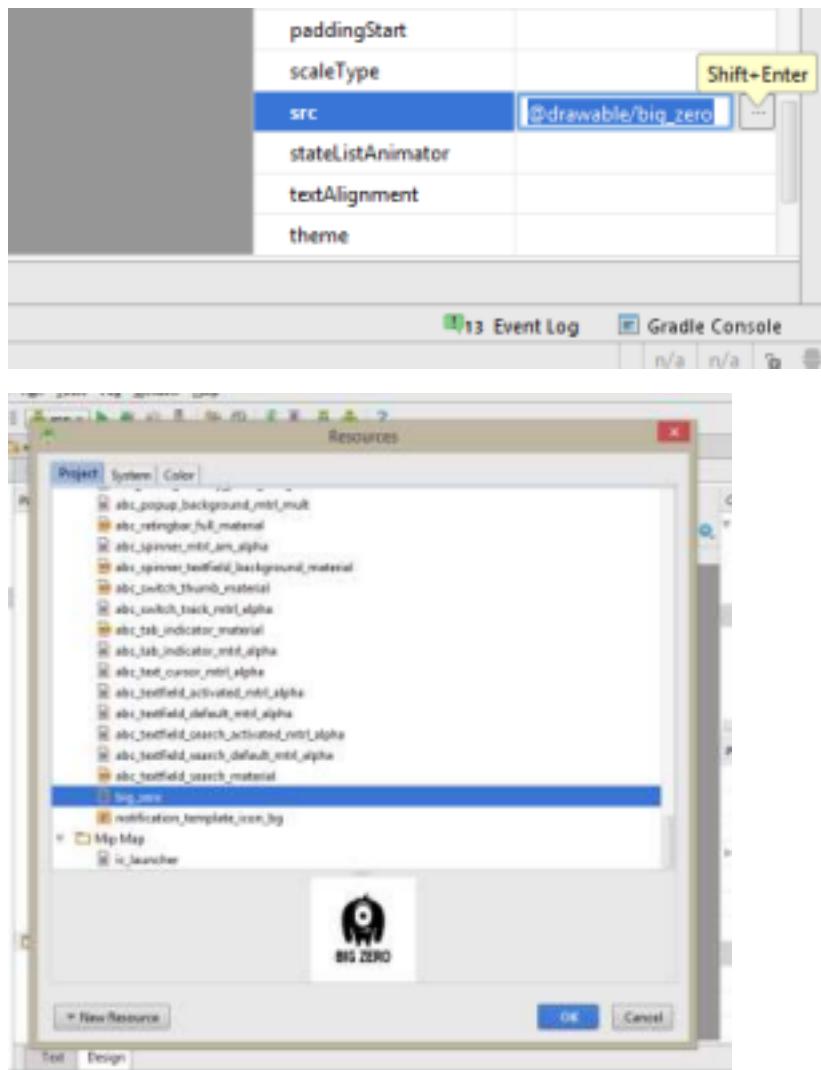
In such layout the elements are arranged in order top-to-bottom or left-to-right.

Let's add a Linear Layout now. (Now you can use the drag and drop layout editor). Change orientation to Vertical.

Now add an ImageView to the Linear Layout.

Import an image to the drawable directory. (Just as we have imported font-face in previous chapter).

Set the **src** attribute to the drawable we imported. (Click the browse button and select the file from Drawable directory).



3. Table Layout:

As we all know table layout uses rows and columns to position elements.

Add table layout inside the linear layout. Table layout uses TableRow layout to create rows.

Add a TableRow to the TableLayout. Add two Buttons to the TableRow.

Change the Id's of the two Buttons to ***btnClick*** and ***btnLongClick*** respectively.

we will use these buttons to implement event listeners

Change **text** to *Click Me!* and *Long Click Me!* also.

Select one of the buttons from the component tree. Pay attention to **Properties** window. You can see **layout:span** and **layout:column** attributes. The table layout uses these attributes to position elements.

If the values are unset then uses default values (span=1 and column increments according to order of placement).

4. Grid Layout

This is a very useful layout. This layout has order as well as freedom.

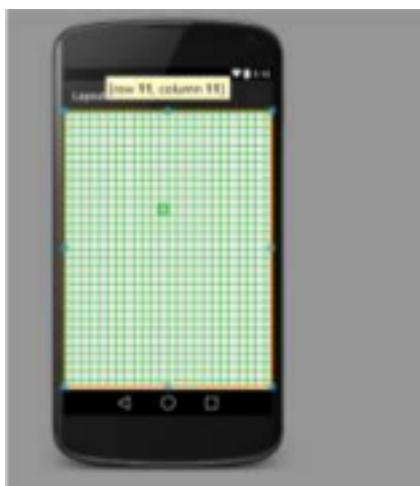
This layout uses orderly grids with rows and columns , span and spaces.

Add a **GridLayout** below the table layout.

Now drag and drop a Button to the GridLayout.

You'll see a green grid with many blocks.

Example:

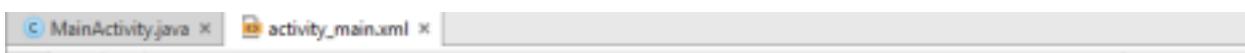


Select this button and you can see that it uses attributes **layout:column**, **layout:row**, **layout:rowSpan**, **layout:columnSpan**. These are the attributes to position to items in GridLayout.

Change the **rowSpan** to 3. resize the button

Add one more button and a text field.

Edit the xml file to position them correctly:



```
<GridLayout
    android:layout_width="match_parent"
    android:layout_height="fill_parent"
    android:id="@+id/lytGrid">

    <Button
        android:layout_width="202dp"
        android:layout_height="156dp"
        android:text="Click or Long Click \n Me"
        android:id="@+id/btnAll"
        android:layout_column="3"
        android:layout_row="0"
        android:layout_columnSpan="1"
        android:layout_rowSpan="2" />
```

```

<Button
    android:layout_width="143dp"
    android:layout_height="match_parent"
    android:text="Show \nMy \nName"
    android:id="@+id/btnShowName"
    android:layout_row="1"
    android:layout_column="2"
    android:layout_rowSpan="3" />

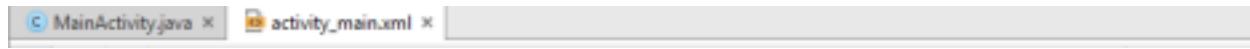
<EditText
    android:layout_width="match_parent"
    android:layout_height="62dp"
    android:id="@+id/txtName"
    android:layout_row="3"
    android:layout_column="3"
    android:hint="Enter your Name"
    android:layout_columnSpan="1"
    android:layout_rowSpan="1" />

</GridLayout>

```

As you see we changed the id's of the elements since we are going to use these to implement event listeners as well.

Final XML:



```

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools" android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingBottom="@dimen/activity_vertical_margin" tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textAppearance="?android:attr/textAppearanceLarge"
        android:text="Sample Program"
        android:id="@+id/txtSample"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true" />

    <LinearLayout
        android:orientation="vertical"
        android:layout_width="match_parent"
        android:layout_height="fill_parent"
        android:layout_below="@+id/txtSample"
        android:layout_centerHorizontal="true">

        <ImageView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:id="@+id/imageView"
            android:layout_gravity="center_horizontal"
            android:src="@drawable/big_zero" />

        <TableLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content">

```

```
<TableRow
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:id="@+id/tableRow"
    android:orientation="horizontal">

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Click Me"
        android:id="@+id	btnClick" />

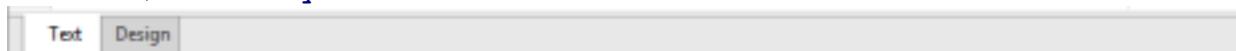
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Long Click Me"
        android:id="@+id	btnLongClick" />
</TableRow>
</TableLayout>

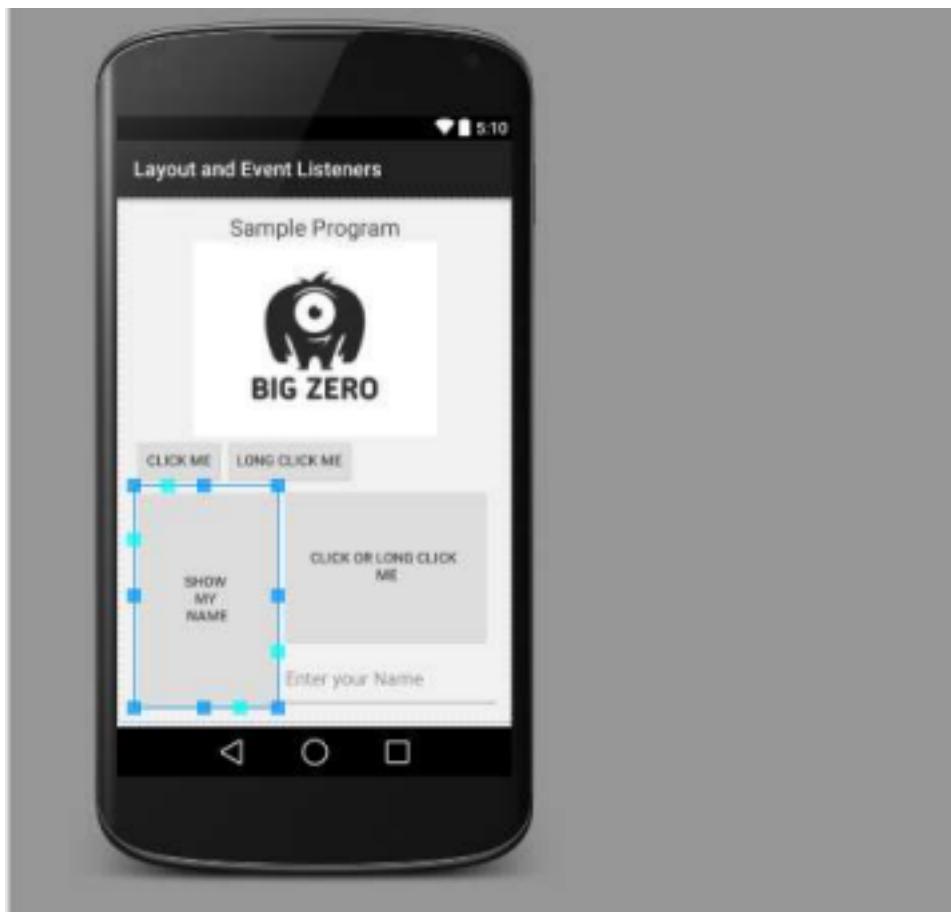
<GridLayout
    android:layout_width="match_parent"
    android:layout_height="fill_parent"
    android:id="@+id/lytGrid">

    <Button
        android:layout_width="202dp"
        android:layout_height="156dp"
        android:text="Click or Long CLick \n Me"
        android:id="@+id	btnAll"
        android:layout_column="3"
        android:layout_row="0"
        android:layout_columnSpan="1"
        android:layout_rowSpan="2" />

    <Button
        android:layout_width="143dp"
        android:layout_height="match_parent"
        android:text="Show \nMy \nName"
        android:id="@+id	btnShowName"
        android:layout_row="1"
        android:layout_column="2"
        android:layout_rowSpan="3" />

    <EditText
        android:layout_width="match_parent"
        android:layout_height="62dp"
        android:id="@+id/txtName"
        android:layout_row="3"
        android:layout_column="3"
        android:hint="Enter your Name"
        android:layout_columnSpan="1"
        android:layout_rowSpan="1" />
</GridLayout>
</LinearLayout>
</RelativeLayout>
```





Part 3: Event Listeners

We will discuss about two most commonly used event listeners – **onClickEventListener()** and **onLongClickListener()**.

Step 1:

First we need to define some variables for each items in the UI.

```
Button clickBtn, longClickBtn, allBtn, btnShow;
TextView sample;
EditText nameTxt;
```

Step 2:

Assign the UI elements to these variables using **findViewById()**

```
clickBtn = (Button) findViewById(R.id.btnClick);
longClickBtn = (Button) findViewById(R.id.btnLongClick);
allBtn = (Button) findViewById(R.id.btnAll);
btnShow = (Button) findViewById(R.id.btnShowName);
sample = (TextView) findViewById(R.id.txtSample);
nameTxt = (EditText) findViewById(R.id.txtName);
```

Step 3:

Implementing the **onClick** Listener:

```
/*Simple Click onClick Listener*/
clickBtn.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Toast.makeText(getApplicationContext(), "Hai fellas!", Toast.LENGTH_SHORT).show();
    }
});
```

-This event listener toasts a message Hai Fella when the “Click Me!” button is clicked

Step 4:

Implementing the **onLongClick** Listener

```
/*Implement Long Click Listener*/
longClickBtn.setOnLongClickListener(new View.OnLongClickListener() {
    @Override
    public boolean onLongClick(View v) {
        Toast.makeText(getApplicationContext(), "Hai there!", Toast.LENGTH_SHORT).show();
        return false;
    }
});
```

- This event listener toasts a message “Hai there!” when the “Long Click Me!” button is clicked and held.

Step 5:

Implementing onClick and onLongClick Event on the same button.

```
allBtn.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Toast.makeText(getApplicationContext(), "You Just Clicked Me!",
        Toast.LENGTH_SHORT).show();
    }
});

allBtn.setOnLongClickListener(new View.OnLongClickListener() {
    @Override
    public boolean onLongClick(View v) {
        Toast.makeText(getApplicationContext(), "You clicked me for so long!",
        Toast.LENGTH_SHORT).show();
        return false;
    }
});
```

The button defined by the variable **allBtn** will toast two different messages when clicked and long-clicked i.e, “*You just Clicked Me!*” when clicked and “*You clicked me for so long!*” when long clicked.

Step 6:

Reading a data from a text field and writing it to a text view using event listeners.

```
btnShow.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        sample.setText(nameTxt.getText().toString());
    }
});
```

This event reads the value of the **nameTxt** text field and writes it to **sample** TextView.

That's all for this chapter. Hope it helps.

Ex3 Calculator Application

Question:

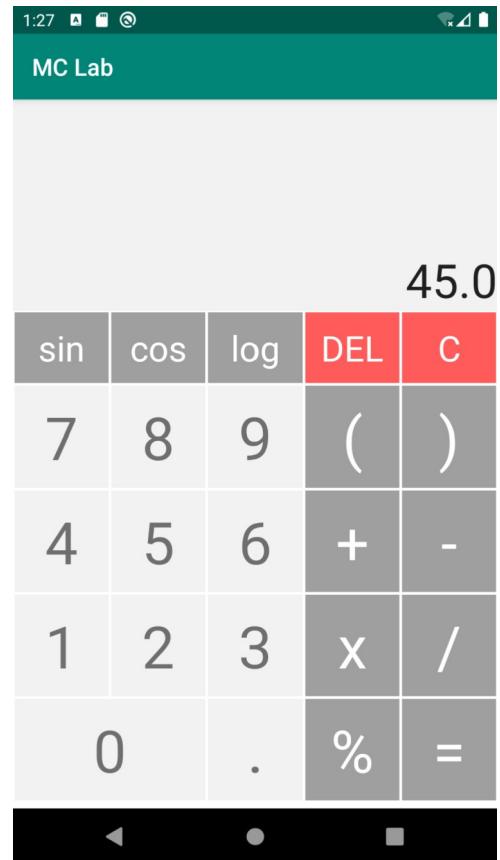
Create a simple calculator application

- a. Use Grid Layout
- b. Display all Digits, Decimal Point, Basic 5 operations (+, -, *, /, %) , =, Del
- c. +, -, *, /, % (on press, perform the corresponding operations)
- d. = (On press, display the answer).
- e. Del (On press Del, Delete a character)
- f. Also provision for basic trigonometric, logarithmic operations

Input:



Output:



//ex3.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#fffff"
    tools:context="cocomo.lab.ex3_main">

    <EditText
        android:id="@+id/et_input"
        android:layout_width="match_parent"
        android:layout_height="180dp"
        android:background="#F3F2F2"
        android:textSize="40dp"
        android:gravity="right|bottom"/>

    <GridLayout
        android:layout_below="@+id/et_input"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:columnCount="5"
        android:rowCount="5"
        android:orientation="vertical">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="horizontal">

            <TextView
                android:id="@+id/tv_sin"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_margin="1dp"
                android:background="#60000000"
                android:textColor="#fffff"
                android:text="sin"
                android:layout_gravity="center"
                android:gravity="center"
                android:textSize="30dp"
                android:padding="10dp"
                android:layout_weight="1"/>
            <TextView
                android:id="@+id/tv_cos"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_margin="1dp"
                android:background="#60000000"
                android:textColor="#fffff"
```

```
        android:text="cos"
        android:layout_gravity="center"
        android:gravity="center"
        android:textSize="30dp"
        android:padding="10dp"
        android:layout_weight="1"/>
<TextView
    android:id="@+id/tv_log"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#60000000"
    android:textColor="#ffffff"
    android:text="log"
    android:layout_gravity="center"
    android:gravity="center"
    android:textSize="30dp"
    android:padding="10dp"
    android:layout_weight="1"/>
<TextView
    android:id="@+id/tv_del"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:background="#A4FF0000"
    android:textColor="#ffffff"
    android:layout_margin="1dp"
    android:text="DEL"
    android:layout_gravity="center"
    android:gravity="center"
    android:textSize="30dp"
    android:padding="10dp"
    android:layout_weight="1"/>
<TextView
    android:id="@+id/tv_c"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:background="#A4FF0000"
    android:textColor="#ffffff"
    android:layout_margin="1dp"
    android:text="C"
    android:gravity="center"
    android:textSize="30dp"
    android:padding="10dp"
    android:layout_weight="1"/>
</LinearLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">
<TextView
    android:id="@+id/tv_7"
```

```
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#F3F2F2"
    android:text="7"
    android:gravity="center"
    android:textSize="50dp"
    android:padding="10dp"
    android:layout_weight="1"/>
<TextView
    android:id="@+id/tv_8"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#F3F2F2"
    android:text="8"
    android:gravity="center"
    android:textSize="50dp"
    android:padding="10dp"
    android:layout_weight="1"/>
<TextView
    android:id="@+id/tv_9"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#F3F2F2"
    android:text="9"
    android:gravity="center"
    android:textSize="50dp"
    android:padding="10dp"
    android:layout_weight="1"/>
<TextView
    android:id="@+id/tv_open"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#60000000"
    android:textColor="#ffffff"
    android:text="("
    android:gravity="center"
    android:textSize="50dp"
    android:padding="10dp"
    android:layout_weight="1"/>
<TextView
    android:id="@+id/tv_close"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#60000000"
    android:textColor="#ffffff"
    android:text ")"
    android:gravity="center"
```

```
        android:textSize="50dp"
        android:padding="10dp"
        android:layout_weight="1"/>
    </LinearLayout>
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal">

        <TextView
            android:id="@+id/tv_4"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_margin="1dp"
            android:background="#F3F2F2"
            android:text="4"
            android:gravity="center"
            android:textSize="50dp"
            android:padding="10dp"
            android:layout_weight="1"/>
        <TextView
            android:id="@+id/tv_5"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_margin="1dp"
            android:background="#F3F2F2"
            android:text="5"
            android:gravity="center"
            android:textSize="50dp"
            android:padding="10dp"
            android:layout_weight="1"/>
        <TextView
            android:id="@+id/tv_6"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_margin="1dp"
            android:background="#F3F2F2"
            android:text="6"
            android:gravity="center"
            android:textSize="50dp"
            android:padding="10dp"
            android:layout_weight="1"/>
        <TextView
            android:id="@+id/tv_plus"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_margin="1dp"
            android:background="#60000000"
            android:textColor="#ffffff"
            android:text="+"
            android:gravity="center"
            android:textSize="50dp"
```

```
    android:padding="10dp"
    android:layout_weight="1"/>
<TextView
    android:id="@+id/tv_minus"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#60000000"
    android:textColor="#ffffff"
    android:text="-"
    android:gravity="center"
    android:textSize="50dp"
    android:padding="10dp"
    android:layout_weight="1"/>
</LinearLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">

    <TextView
        android:id="@+id/tv_1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="1dp"
        android:background="#F3F2F2"
        android:text="1"
        android:gravity="center"
        android:textSize="50dp"
        android:padding="10dp"
        android:layout_weight="1"/>
    <TextView
        android:id="@+id/tv_2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="1dp"
        android:background="#F3F2F2"
        android:text="2"
        android:gravity="center"
        android:textSize="50dp"
        android:padding="10dp"
        android:layout_weight="1"/>
    <TextView
        android:id="@+id/tv_3"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="1dp"
        android:background="#F3F2F2"
        android:text="3"
        android:gravity="center"
        android:textSize="50dp"
        android:padding="10dp"

```

```
    android:layout_weight="1"/>
<TextView
    android:id="@+id/tv_mul"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#60000000"
    android:textColor="#fffffff"
    android:text="x"
    android:gravity="center"
    android:textSize="50dp"
    android:padding="10dp"
    android:layout_weight="1"/>
<TextView
    android:id="@+id/tv_div"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#60000000"
    android:textColor="#fffffff"
    android:text="/"
    android:gravity="center"
    android:textSize="50dp"
    android:padding="10dp"
    android:layout_weight="1"/>
</LinearLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">

    <TextView
        android:id="@+id/tv_0"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="1dp"
        android:background="#F3F2F2"
        android:text="0"
        android:gravity="center"
        android:textSize="50dp"
        android:padding="10dp"
        android:layout_weight="0.75"/>
    <TextView
        android:id="@+id/tv_dot"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="1dp"
        android:background="#F3F2F2"
        android:text="."
        android:gravity="center"
        android:textSize="50dp"
        android:padding="10dp"

```

```
    android:layout_weight="1"/>
<TextView
    android:id="@+id/tv_percent"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#60000000"
    android:textColor="#fffffff"
    android:text="%"
    android:gravity="center"
    android:textSize="50dp"
    android:padding="10dp"
    android:layout_weight="1"/>
<TextView
    android:id="@+id/tv_equal"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="1dp"
    android:background="#60000000"
    android:textColor="#fffffff"
    android:text="="
    android:gravity="center"
    android:textSize="50dp"
    android:padding="10dp"
    android:layout_weight="1"/>
</LinearLayout>
</GridLayout>
</RelativeLayout>
```

```
//ex3_main.java
```

```
package cocomo.lab;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.TextView;

import java.util.ArrayList;
import java.util.Stack;

public class ex3_main extends AppCompatActivity implements View.OnClickListener{

    EditText et_input;
    Stack<String> input;
    ArrayList<String> post_input;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.ex3_main);

        et_input=findViewById(R.id.et_input);
        input=new Stack<String>();
        post_input=new ArrayList<String>();

        String
        ops[]{"c","del","dot","plus","minus","mul","div","percent","open","close","equal","sin","cos","log"};
    }

    for(int i=0;i<10;i++){
        int id=getResources().getIdentifier("tv_"+Integer.toString(i),"id",getPackageName());
        findViewById(id).setOnClickListener(this);
    }
    for(int i=0;i<14;i++){
        int id=getResources().getIdentifier("tv_"+ops[i],"id",getPackageName());
        findViewById(id).setOnClickListener(this);
    }
}

@Override
public void onClick(View v) {
    switch (v.getId()){
        case R.id.tv_c:
            et_input.setText("");
            break;
        case R.id.tv_del:
            String val=et_input.getText().toString();
            et_input.setText(val.substring(0,val.length()-1));
            break;
    }
}
```

```

case R.id.tv_equal:
    String ip=et_input.getEditableText().toString();
    if(!ip.startsWith("sin") && !ip.startsWith("cos") && !ip.startsWith("log")) {
        postFix(ip);
        calc();
        et_input.setText(input.peek());
    }
    else
        trig_calc(ip);
    break;
default:
    TextView tv_num=(TextView)v;
    et_input.setText(et_input.getEditableText().toString() + tv_num.getText());
    break;
}
et_input.setSelection(et_input.getEditableText().length());
}

private void postFix(String ip){
    makeEmpty();
    post_input.clear();

    ip = ip.replaceAll("[+|-|x|/|(|)]", ",,$0,");
    ip = ip.replaceAll(", , ,");

    String sep[] = ip.split(",");
    for(int i=0;i<sep.length;i++){
        if(sep[i].equals("x") || sep[i].equals("(") || sep[i].equals("+") || sep[i].equals("-") ||
           sep[i].equals("/") || sep[i].equals("%"))
            input.push(sep[i]);
        else if(sep[i].equals(")")){
            while(!input.peek().equals("("))
                post_input.add(input.pop());
            input.pop();
        }
        else
            post_input.add(sep[i]);
    }
    while(!input.isEmpty())
        post_input.add(input.pop());
}

private void calc(){
    makeEmpty();

    for(String num:post_input){
        if(num.equals("x") || num.equals("+") || num.equals("-") || num.equals("/") ||
           num.equals("%")){
            String val_a=input.pop();
            String val_b=input.pop();

            float a,b;

```

```

try {
    a = Integer.parseInt(val_a);
}
catch (Exception e){
    a = Float.parseFloat(val_a);
}

try {
    b = Integer.parseInt(val_b);
}
catch (Exception e){
    b = Float.parseFloat(val_b);
}

switch (num){
    case "+":
        input.push(Float.toString(b+a));
        break;
    case "-":
        input.push(Float.toString(b-a));
        break;
    case "x":
        input.push(Float.toString(b*a));
        break;
    case "/":
        input.push(Float.toString(b/a));
        break;
    case "%":
        input.push(Float.toString(b%a));
        break;
    }
    else
        input.push(num);
}

private void trig_calc(String ip){
    Double val = Double.parseDouble(ip.substring(3));
    if(ip.startsWith("sin"))
        et_input.setText(Double.toString(Math.sin(Math.toRadians(val))));
    else if(ip.startsWith("cos"))
        et_input.setText(Double.toString(Math.cos(Math.toRadians(val))));
    else if(ip.startsWith("log"))
        et_input.setText(Double.toString(Math.log(val)));
}

private void makeEmpty(){
    while (!input.isEmpty())
        input.pop();
}

```

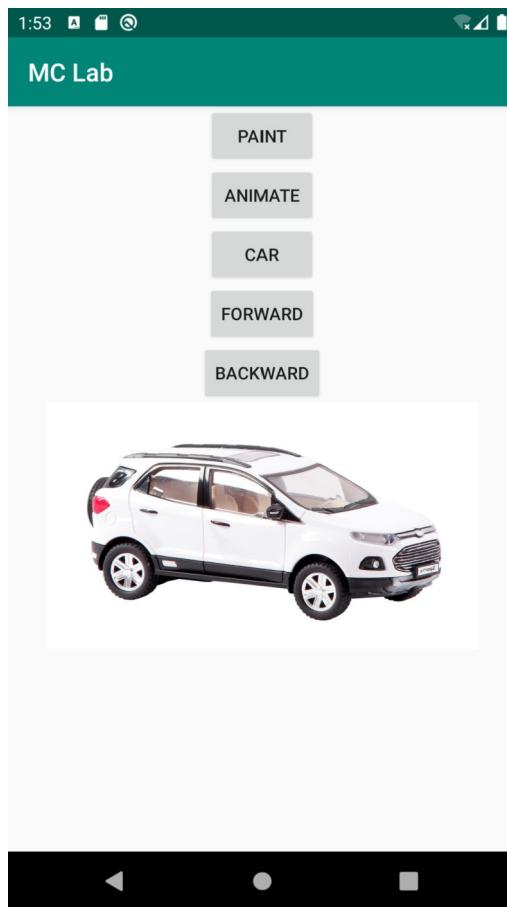

Ex 4: Application Development using basic graphical primitives

Question:

Generate the following using graphical primitives.

- Draw shapes such as Line, Circle, Rectangle and Arc
- Perform animation using any Image (Gif, Jpeg)
- Perform transformation – Rotation, Zooming
- Draw a car and animate the car.

Input:



//ex4_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context="cocomo.lab.ex4_main">

    <Button
        android:id="@+id/bt_paint"
        android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
    android:text="Paint"
    android:layout_centerHorizontal="true"/>

<Button
    android:id="@+id/bt_animate"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Animate"
    android:layout_below="@+id/bt_paint"
    android:layout_centerHorizontal="true"/>

<Button
    android:id="@+id/bt_car"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Car"
    android:layout_below="@+id/bt_animate"
    android:layout_centerHorizontal="true"/>

<Button
    android:id="@+id/bt_forward"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Forward"
    android:layout_below="@+id/bt_car"
    android:layout_centerHorizontal="true"/>

<Button
    android:id="@+id/bt_backward"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Backward"
    android:layout_below="@+id/bt_forward"
    android:layout_centerHorizontal="true"/>

<ImageView
    android:id="@+id/iv_animate"
    android:layout_width="match_parent"
    android:layout_height="200dp"
    android:layout_marginLeft="30dp"
    android:layout_marginRight="30dp"
    android:layout_below="@+id/bt_backward"
    android:background="@drawable/car"/>

</RelativeLayout>
```

```
//ex4_main.java

package cocomo.lab;

import android.graphics.Bitmap;
import android.graphics.Canvas;
import android.graphics.Color;
import android.graphics.Paint;
import android.graphics.RectF;
import android.graphics.drawable.BitmapDrawable;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.view.animation.Animation;
import android.view.animation.AnimationUtils;
import android.widget.Button;
import android.widget.ImageView;

public class ex4_main extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.ex4_main);

        Button bt_paint=findViewById(R.id.bt_paint);
        Button bt_animate=findViewById(R.id.bt_animate);
        Button bt_car=findViewById(R.id.bt_car);
        Button bt_forward=findViewById(R.id.bt_forward);
        Button bt_backward=findViewById(R.id.bt_backward);

        final ImageView iv_animate=findViewById(R.id.iv_animate);

        bt_paint.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                paint p=new paint(ex4_main.this);
                setContentView(p);
            }
        });

        bt_animate.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                iv_animate.startAnimation(AnimationUtils.loadAnimation(getApplicationContext(),R.anim.zoom_in));
            }
        });

        bt_car.setOnClickListener(new View.OnClickListener() {
```

```

@Override
public void onClick(View v) {
    Bitmap b=Bitmap.createBitmap(720,1280, Bitmap.Config.ARGB_8888);
    iv_animate.setBackgroundDrawable(new BitmapDrawable(b));

    Canvas canvas=new Canvas(b);
    Paint p=new Paint();

    p.setStrokeWidth(10);
    p.setColor(Color.RED);

    RectF r=new RectF(100,100,400,300);
    canvas.drawRect(r,p);
}

bt_forward.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        iv_animate.animate().translationXBy(300f).setDuration(600);
    }
});

bt_backward.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        iv_animate.animate().translationXBy(-300f).setDuration(600);
    }
});
}
}

```

**//Insert car.jpg in res > drawable
//Create a directory ‘anim’ inside res.
//Create below files inside ‘anim’ directory:**

//fade_in.xml

```

<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <alpha
        android:fromAlpha="0.0"
        android:toAlpha="1.0"
        android:duration="2000"/>
</set>

```

//rotate_in.xml

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <rotate
        android:fromDegrees="0"
        android:toDegrees="360"
        android:pivotX="50%"
        android:pivotY="50%"
        android:duration="1000" />
</set>
```

//zoom_in.xml

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <scale xmlns:android="http://schemas.android.com/apk/res/android"
        android:fromXScale="0.5"
        android:fromYScale="0.5"
        android:toXScale="1.0"
        android:toYScale="1.0"
        android:duration="3000"
        android:pivotX="50%"
        android:pivotY="50%"/>
</set>
```

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BATCH: 2017-2021

Ex. No. 5 Android Application Development using Database

In main activity have the following buttons:

Create, Insert, Update, Delete, Retrieve

1. On clicking Create Button, create a new database to store the following contents. (Use SQLite Database)
 - a. Name
 - b. Gender
 - c. Employee Code
 - d. Department
 - e. Salary
2. On Clicking Insert, move to a new view which contains the following details: (Insert new Employee to the database)
 - a. Name (EditText-Validation checking-Alphabet)
 - b. Gender (RadioButton)
 - c. Employee Code(EditText-Validation checking-Alphanumeric)
 - d. Department (Spinner)
 - e. Salary (EditText-Validation checking-Numeric)
 - f. Submit (Button) – On press, Insert the data into database.
3. On clicking Update, move to a new view which contains above details and Update by Employee Code.
4. On clicking Delete, Delete the whole row in the table by Employee Code.
5. On clicking Retrieve, Retrieve an employee by Employee Code. Also retrieve the details of all the employees in a particular department.

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Ex. No. 6 Android Application Development which uses RSS Feed

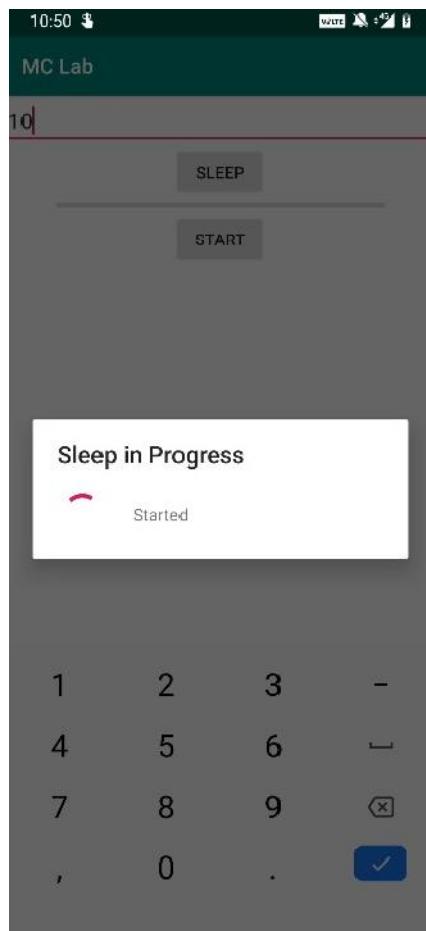
- Create a RSS Reader application for android.
- This android application should read RSS feed from the website, parse the XML and show all the post in a ListView

Ex 7. Progress bar and progress dialog

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context="cocomo.lab.ex7_main">
    <EditText
        android:id="@+id/et_time"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="time (in secs)"
        android:inputType="number"/>
    <Button
        android:id="@+id/bt_sleep"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/et_time"
        android:text="SLEEP"
        android:layout_centerHorizontal="true"/>
    <ProgressBar
        android:id="@+id/pbar"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/bt_sleep"
        android:layout_marginLeft="50dp"
        android:layout_marginRight="50dp"
        style="@style/Widget.AppCompat.ProgressBar.Horizontal"/>
    <Button
        android:id="@+id/bt_start"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/pbar"
        android:text="START"
        android:layout_centerHorizontal="true"/>
</RelativeLayout>
```

```
package cocomo.lab;
import android.app.ProgressDialog;
import android.content.res.ColorStateList;
import android.graphics.Color;
import android.os.Build;
import android.os.Handler;
import android.support.annotation.RequiresApi;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ProgressBar;
public class ex7_main extends AppCompatActivity {
    ProgressBar pbar;
    Handler handler;
    int i;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.ex7_main);
        Button bt_sleep=findViewById(R.id.bt_sleep);
        final Button bt_start=findViewById(R.id.bt_start);
```

```
pbar=findViewById(R.id.pbar);
handler=new Handler();
bt_sleep.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        final ProgressDialog pd=new ProgressDialog(ex7_main.this);
        pd.setTitle("Sleep in Progress");
        pd.setMessage("Started");
        pd.show();
        EditText et_time=findViewById(R.id.et_time);
        int count=Integer.parseInt(et_time.getText().toString());
        new Handler().postDelayed(new Runnable() {
            @Override
            public void run() {
                pd.dismiss();
            }
        },count*1000);
    }
});
bt_start.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        new Thread(new Runnable() {
            @Override
            public void run() {
                for(i=0;i<=100;i+=10){
                    if(i==100){
                        handler.post(new Runnable() {
                            @Override
                            public void run() {
                                pbar.setProgressTintList(ColorStateList.valueOf(Color.GREEN));
                                bt_start.setText("FINISH");
                            }
                        });
                    }
                    pbar.setProgress(i);
                    try{
                        Thread.sleep(100);
                    }
                    catch (Exception e){
                        e.printStackTrace();
                    }
                }
            }
        }).start();
    }
});
```



```

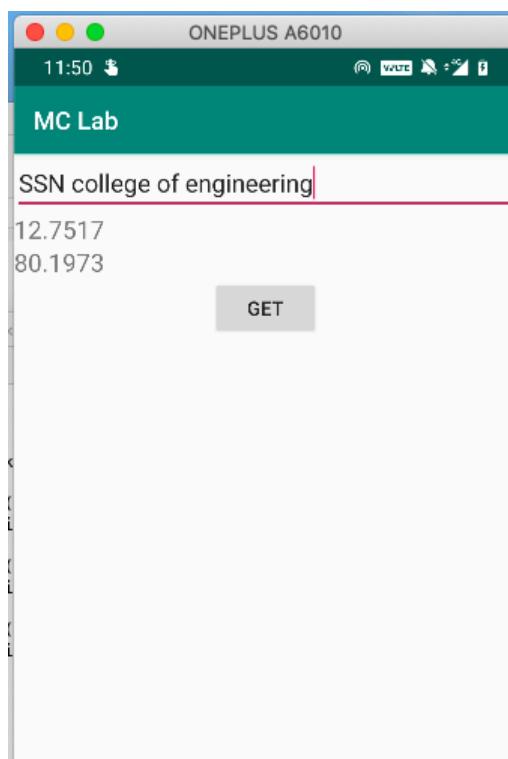
package cocomo.lab;
import android.Manifest;
import android.content.Context;
import android.content.pm.PackageManager;
import android.location.Address;
import android.location.Geocoder;
import android.location.Location;
import android.location.LocationListener;
import android.location.LocationManager;
import android.support.v4.app.ActivityCompat;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import java.util.List;
public class ex8_main extends AppCompatActivity implements LocationListener {
    TextView tv_lat,tv_log;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.ex8_main);
        tv_lat=findViewById(R.id.tv_lat);
        tv_log=findViewById(R.id.tv_log);
        final EditText et_name=findViewById(R.id.et_name);
        Button bt_get=findViewById(R.id.bt_get);
        LocationManager locationManager = (LocationManager) getSystemService(Context.LOCATION_SERVICE);
        if (ActivityCompat.checkSelfPermission(this, Manifest.permission.ACCESS_FINE_LOCATION) != PackageManager.PERMISSION_GRANTED && ActivityCompat.checkSelfPermission(this, Manifest.permission.ACCESS_COARSE_LOCATION) != PackageManager.PERMISSION_GRANTED) {
            return;
        }
        locationManager.requestLocationUpdates(LocationManager.GPS_PROVIDER, 0, 0, (LocationListener) this);
        bt_get.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                try {
                    Geocoder geocoder = new Geocoder(ex8_main.this);
                    List<Address> list = geocoder.getFromLocationName(et_name.getText().toString(), 1);
                    if(list!=null && list.size()>0){
                        Address adr=list.get(0);
                        tv_lat.setText(Double.toString(adr.getLatitude()));
                        tv_log.setText(Double.toString(adr.getLongitude()));
                    }
                } catch (Exception e){
                    e.printStackTrace();
                }
            }
        });
    }
    @Override
    public void onLocationChanged(Location location) {
        tv_lat.setText(Double.toString(location.getLatitude()));
        tv_log.setText(Double.toString(location.getLongitude()));
    }
    @Override
    public void onStatusChanged(String provider, int status, Bundle extras) {
    }
    @Override
    public void onProviderEnabled(String provider) {
    }
    @Override
    public void onProviderDisabled(String provider) {
    }
}

```

```
}
```

```
//ex8_main.xml
```

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context="cocomo.lab.ex8_main">
    <EditText
        android:id="@+id/et_name"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Place name"
        android:textSize="20dp"/>
    <TextView
        android:id="@+id/tv_lat"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/et_name"
        android:maxLength="7"
        android:textSize="20dp"/>
    <TextView
        android:id="@+id/tv_log"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/tv_lat"
        android:maxLength="7"
        android:textSize="20dp"/>
    <Button
        android:id="@+id/bt_get"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_below="@+id/tv_log"
        android:text="GET"/>
</RelativeLayout>
```



Reading and writing a file in android

```
// Reading and writing to a file

// permissions required
<uses-permission android:name="android.permission.READ_EXTERNAL_STORAGE" />
<uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE" />

// ex9_main.java

public class ex9_main extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.ex9_main);

        Button bt_read=findViewById(R.id.bt_read);
        Button bt_write=findViewById(R.id.bt_write);
        final EditText et_name=findViewById(R.id.et_name);
        final EditText et_text=findViewById(R.id.et_content);

        bt_read.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                try {
                    String inp,text="";
                    File file=new File(getFilesDir(),et_name.getEditableText().toString());
                    BufferedReader bf=new BufferedReader(new FileReader(file));
                    while((inp=bf.readLine())!=null)
                        text+=inp;

                    et_text.setText(text);
                    Toast.makeText(ex9_main.this, "File Read", Toast.LENGTH_SHORT).show();
                }
                catch (Exception e){
                    e.printStackTrace();
                }
            }
        });

        bt_write.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                try {
                    File file=new File(getFilesDir(),et_name.getEditableText().toString());
                    FileOutputStream fp = new FileOutputStream(file);
                    fp.write(et_text.getEditableText().toString().getBytes());
                }
            }
        });
    }
}
```

```
        fp.close();

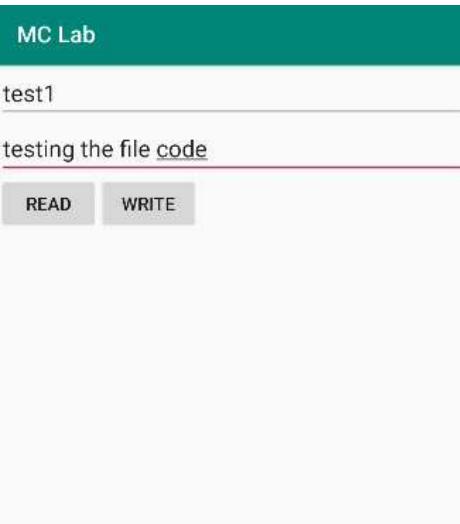
        et_text.setText("");
        Toast.makeText(ex9_main.this, "File Written",
Toast.LENGTH_SHORT).show();
    }
    catch (Exception e){
        e.printStackTrace();
    }
}
});
```

```
}
```

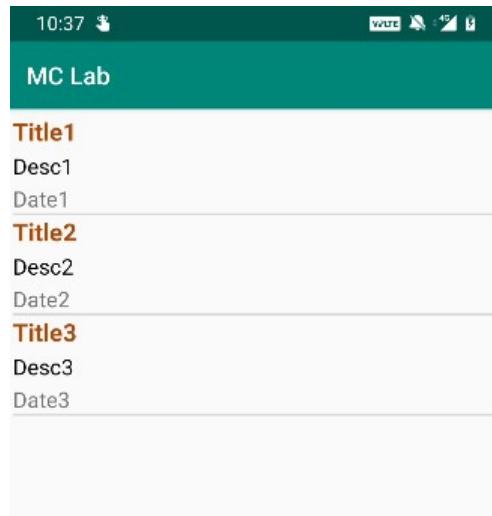
```
// ex9_main.xml
```

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context="cocomo.lab.ex9_main">

    <EditText
        android:id="@+id/et_name"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="File name"/>
    <EditText
        android:id="@+id/et_content"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/et_name"
        android:hint="File Content"/>
    <Button
        android:id="@+id/bt_read"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="read"
        android:layout_below="@+id/et_content"/>
    <Button
        android:id="@+id/bt_write"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="write"
        android:layout_toRightOf="@+id/bt_read"
        android:layout_below="@+id/et_content"/>
</RelativeLayout>
```



Ex 6 – RSS feed reader



```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context="cocomo.lab.ex6_main">

    <ListView
        android:id="@+id/lv_rss"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:dividerHeight="2dp"
        android:padding="5dp"/>

</RelativeLayout>

package cocomo.lab;
import android.app.ProgressDialog;
import android.os.AsyncTask;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.ListView;
import android.widget.Toast;
import org.xmlpull.v1.XmlPullParser;
```

```

import org.xmlpull.v1.XmlPullParserFactory;
import java.io.IOException;
import java.io.InputStream;
import java.net.URL;
import java.util.ArrayList;
public class ex6_main extends AppCompatActivity {
    ListView lv_rss;
    ArrayList<rssFeed> arr;
    listViewAdapter adapter;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.ex6_main);
        lv_rss=findViewById(R.id.lv_rss);
        arr=new ArrayList<rssFeed>();
        adapter=new listViewAdapter(this,arr);
        new parseFeed().execute();
        lv_rss.setOnItemClickListener(new AdapterView.OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> parent, View view, int position,
long id) {
                rssFeed rs=(rssFeed)parent.getItemAtPosition(position);
                Toast.makeText(ex6_main.this, rs.getTitle(),
Toast.LENGTH_SHORT).show();
            }
        });
    }
    public class parseFeed extends AsyncTask<Void(Void,Void)>{
        @Override
        protected Void doInBackground(Void... voids) {
            try {
                InputStream is = getAssets().open("sample.xml");
                XmlPullParser xp=XmlPullParserFactory.newInstance().newPullParser();
                xp.setInput(is,"UTF-8");
                int event=xp.getEventType();
                String title="",desc="",date="";
                while(event!=XmlPullParser.END_DOCUMENT){
                    if(event==XmlPullParser.START_TAG){
                        if(xp.getName().equals("title"))
                            title=xp.nextText();
                        else if(xp.getName().equals("description"))
                            desc=xp.nextText();
                        else if(xp.getName().equals("pubDate")){
                            date = xp.nextText();
                            adapter.add(new rssFeed(title,desc,date));
                        }
                    }
                    event=xp.nextTag();
                }
            } catch (Exception e){
                e.printStackTrace();
            }
            return null;
        }
        @Override
        protected void onPostExecute(Void aVoid) {
            super.onPostExecute(aVoid);
            lv_rss.setAdapter(adapter);
        }
    }
}

```

Ex 7. Progress bar and progress dialog

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context="cocomo.lab.ex7_main">
    <EditText
        android:id="@+id/et_time"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="time (in secs)"
        android:inputType="number"/>
    <Button
        android:id="@+id/bt_sleep"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/et_time"
        android:text="SLEEP"
        android:layout_centerHorizontal="true"/>
    <ProgressBar
        android:id="@+id/pbar"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/bt_sleep"
        android:layout_marginLeft="50dp"
        android:layout_marginRight="50dp"
        style="@style/Widget.AppCompat.ProgressBar.Horizontal"/>
    <Button
        android:id="@+id/bt_start"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/pbar"
        android:text="START"
        android:layout_centerHorizontal="true"/>
</RelativeLayout>
```

```
package cocomo.lab;
import android.app.ProgressDialog;
import android.content.res.ColorStateList;
import android.graphics.Color;
import android.os.Build;
import android.os.Handler;
import android.support.annotation.RequiresApi;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ProgressBar;
public class ex7_main extends AppCompatActivity {
    ProgressBar pbar;
    Handler handler;
    int i;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.ex7_main);
        Button bt_sleep=findViewById(R.id.bt_sleep);
        final Button bt_start=findViewById(R.id.bt_start);
```

```

pbar=findViewById(R.id.pbar);
handler=new Handler();
bt_sleep.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        final ProgressDialog pd=new ProgressDialog(ex7_main.this);
        pd.setTitle("Sleep in Progress");
        pd.setMessage("Started");
        pd.show();
        EditText et_time=findViewById(R.id.et_time);
        int count=Integer.parseInt(et_time.getEditableText().toString());
        new Handler().postDelayed(new Runnable() {
            @Override
            public void run() {
                pd.dismiss();
            }
        },count*1000);
    }
});
bt_start.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        new Thread(new Runnable() {
            @Override
            public void run() {
                for(i=0;i<=100;i+=10){
                    if(i==100){
                        handler.post(new Runnable() {
                            @Override
                            public void run() {

pbar.setProgressTintList(ColorStateList.valueOf(Color.GREEN));
                                bt_start.setText("FINISH");
                            }
                        });
                    }
                    pbar.setProgress(i);
                    try{
                        Thread.sleep(100);
                    }
                    catch (Exception e){
                        e.printStackTrace();
                    }
                }
            }
        }).start();
    }
});
}
}

```

