activity_launcher.xml

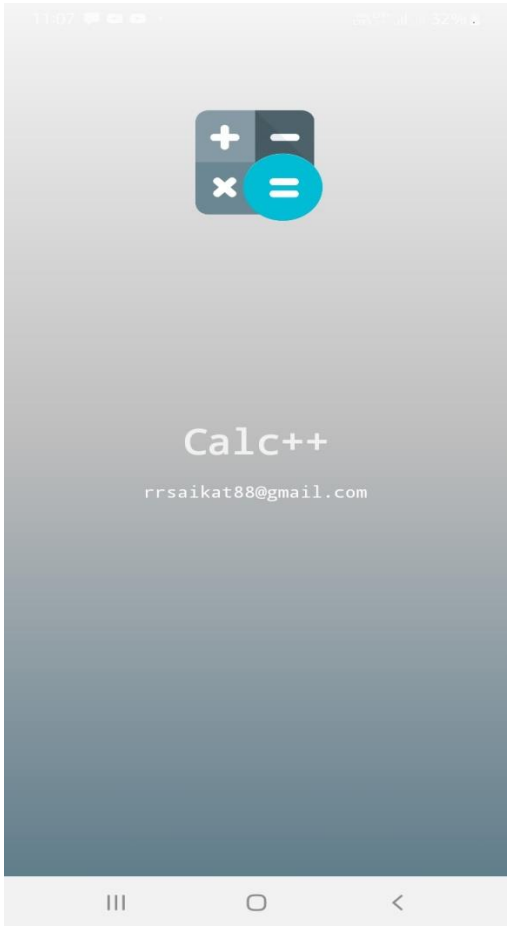
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@drawable/bg"
    android:orientation="vertical"
    android:layout_gravity="center"
    tools:context="com.rrsaikat.calc.LauncherActivity">

    <ImageView
        android:layout_width="110dp"
        android:layout_height="110dp"
        android:layout_gravity="center"
        android:layout_marginTop="100dp"
        android:background="@drawable/cl"/>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="190dp"
        android:orientation="vertical">

        <TextView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:gravity="center"
            android:text="Calc++"
            android:alpha=".8"
            android:textColor="@android:color/primary_text_dark"
            android:textStyle="bold"
            android:textSize="30sp"
            android:typeface="monospace"/>

        <TextView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginTop="16dp"
            android:gravity="center"
            android:text="rrsaikat88@gmail.com"
            android:textColor="@color/md_white_1000"
            android:typeface="monospace"/>
    </LinearLayout>

</LinearLayout>
```

LauncherActivity.java

```
package com.rrsaikat.calc;

import android.content.Intent;
import android.graphics.Color;
import android.os.AsyncTask;
import android.os.Build;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.View;
```

```
public class LauncherActivity extends AppCompatActivity
{
    private static final int SPLASH_TIME = 3000;
        @Override
        protected void onCreate (Bundle savedInstanceState)
        {
            super.onCreate(savedInstanceState);
//        Transparent Status Bar
            if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.LOLLIPOP)
            {

getWindow().getDecorView().setSystemUiVisibility(View.SYSTEM_UI_FLAG_LAYOUT_STABLE
                                                                    |
View.SYSTEM_UI_FLAG_LAYOUT_FULLSCREEN);
                getWindow().setStatusBarColor(Color.TRANSPARENT);
            }

            setContentView(R.layout.activity_launcher);

                new BackgroundTask().execute();
        }

        public class BackgroundTask extends AsyncTask
        {
            Intent intent;
            @Override
            protected void onPreExecute()
            {
                super.onPreExecute();
                intent = new Intent(LauncherActivity.this, MainActivity.class);
            }
            @Override
            protected Object doInBackground(Object[] params)
            {
            /*  Use this method to load background
            * data that your app needs. */
                try
                {
                    Thread.sleep(SPLASH_TIME);
                }
                catch (InterruptedException e)
                {
                    e.printStackTrace();
                }
                return null;
            }

            @Override
            protected void onPostExecute(Object o)
            {
                super.onPostExecute(o);
//            Pass your loaded data here using Intent
//            intent.putExtra("data_key", "");
                startActivity(intent);
                finish();
            }
        }
```

```
        @Override
        public void onStart ()
        {
            super.onStart();
            // Check if user is signed in (non-null) and update UI accordingly.
        }
}
```



activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/linearLay0"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:background="@color/md_blue_grey_400"
    tools:context="com.rrsaikat.calc.MainActivity">

    <LinearLayout
        android:id="@+id/top_label"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:textAlignment="center">

        <TextView
```

```
            android:id="@+id/shift_display"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:padding="8dp"
            android:textColor="@color/divider" />

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:padding="8dp"
            android:textColor="@color/divider" />

        <TextView
            android:id="@+id/float_number"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:padding="8dp"
            android:text="@string/no_text"
            android:textColor="@color/divider" />

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:padding="8dp" />

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:padding="8dp" />

        <TextView
            android:id="@+id/degree"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:padding="8dp"
            android:text="DEG"
            android:textAlignment="center"
            android:textColor="@color/md_white_1000" />
    </LinearLayout>
        <LinearLayout
            android:id="@+id/display_screen"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:background="@drawable/btn_bg">
            <TextView
                android:id="@+id/display"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:gravity="right"
                android:layout_gravity="right"
                android:cursorVisible="true"
                android:textColorHint="@color/icons"
                android:paddingLeft="10dp"
```

```
            android:paddingRight="10dp"
            android:singleLine="true"
            android:text="ln2"
            android:textColor="@color/primary_text"
            android:textSize="60sp" />
    </LinearLayout>
    <!--First Row-->
<!--Second Row Button-->
<LinearLayout
    android:id="@+id/first_row"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:textAlignment="center">

    <TextView
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:gravity="center"
        android:padding="4dp" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:gravity="center"
        android:padding="4dp" />

    <TextView
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:gravity="center"
        android:padding="4dp"
        android:textColor="@color/divider" />

    <TextView
        android:id="@+id/rcl"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:gravity="center"
        android:padding="4dp"
        android:text="@string/no_text"
        android:textColor="@color/divider" />

    <TextView
        android:id="@+id/sto"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:gravity="center"
        android:padding="4dp"
        android:text="@string/no_text"
        android:textColor="@color/divider" />

    <TextView
        android:id="@+id/m_minus"
```

```
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:gravity="center"
        android:padding="4dp"
        android:text="@string/m_minus"
        android:textColor="@color/divider"/>
</LinearLayout>

<LinearLayout
    android:id="@+id/second_row"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:theme="@style/MyButton">

    <Button
        android:id="@+id/shift"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
        android:padding="8dp"
        android:text="@string/shift"
        android:textColor="@color/calculator_color"
        android:textSize="14sp"
        android:textStyle="bold"
        android:theme="@style/MyButton" />

    <Button
        android:id="@+id/rad"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
        android:padding="8dp"
        android:text="@string/rad"
        android:textColor="@color/calculator_color"
        android:textSize="14sp"
        android:textStyle="bold"
        android:theme="@style/MyButton" />

    <Button
        android:id="@+id/abs"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
        android:padding="8dp"
        android:text="@string/abs"
        android:textColor="@color/calculator_color"
        android:textSize="14sp"
        android:textStyle="bold"
        android:theme="@style/MyButton" />

    <Button
```

```
            android:id="@+id/mr"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_marginRight="1dp"
            android:layout_weight="1"
            android:background="@drawable/cicle_bg"
            android:padding="8dp"
            android:text="@string/mr"
            android:textColor="@color/calculator_color"
            android:textSize="14sp"
            android:textStyle="bold"
            android:theme="@style/MyButton" />

        <Button
            android:id="@+id/ms"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_marginRight="1dp"
            android:layout_weight="1"
            android:background="@drawable/cicle_bg"
            android:padding="8dp"
            android:text="@string/ms"
            android:textColor="@color/calculator_color"
            android:textSize="14sp"
            android:textStyle="bold"
            android:theme="@style/MyButton" />

        <Button
            android:id="@+id/m_plus"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:background="@drawable/cicle_bg"
            android:padding="8dp"
            android:text="@string/m_plus"
            android:textColor="@color/calculator_color"
            android:textSize="14sp"
            android:textStyle="bold"
            android:theme="@style/MyButton" />
    </LinearLayout>
        <!--Third Row Text-->
    <LinearLayout
        android:id="@+id/third_row"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:textAlignment="center"
        android:weightSum="6">

        <TextView
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:gravity="center"
            android:padding="4dp"
            android:textColor="@color/divider" />

        <TextView
            android:id="@+id/inverse_sin"
```

```
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:gravity="center"
            android:padding="4dp"
            android:text="@string/inverse_sin"
            android:textColor="@color/divider"
            android:textSize="13dp" />

        <TextView
            android:id="@+id/inverse_cos"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:gravity="center"
            android:padding="4dp"
            android:text="@string/inverse_cos"
            android:textColor="@color/divider"
            android:textSize="13dp" />

        <TextView
            android:id="@+id/inverse_tan"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:gravity="center"
            android:padding="4dp"
            android:text="@string/inverse_tan"
            android:textColor="@color/divider"
            android:textSize="13dp" />

        <TextView
            android:id="@+id/expo"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:gravity="center"
            android:padding="4dp"
            android:text="@string/expo"
            android:textColor="@color/divider"
            android:textSize="13dp" />

        <TextView
            android:id="@+id/ten_power_x"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:gravity="center"
            android:padding="4dp"
            android:text="@string/ten_power"
            android:textColor="@color/divider"
            android:textSize="13dp" />
    </LinearLayout>
        <!--Fourth Row Button-->
    <LinearLayout
        android:id="@+id/fourth_row"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
```

```
android:theme="@style/MyButton">

<Button
    android:id="@+id/hys"
    android:layout_width="0dp"
    android:layout_height="match_parent"
    android:layout_marginRight="1dp"
    android:layout_weight="1"
    android:background="@drawable/cicle_bg"
    android:padding="8dp"
    android:text="@string/rnd"
    android:textAllCaps="false"
    android:textColor="@color/calculator_color"
    android:textSize="16sp"
    android:textStyle="bold"
    android:theme="@style/MyButton" />

<Button
    android:id="@+id/sin_sign"
    android:layout_width="0dp"
    android:layout_height="match_parent"
    android:layout_marginRight="1dp"
    android:layout_weight="1"
    android:background="@drawable/cicle_bg"
    android:padding="8dp"
    android:text="@string/sin_sign"
    android:textAllCaps="false"
    android:textColor="@color/calculator_color"
    android:textSize="16sp"
    android:textStyle="bold"
    android:theme="@style/MyButton" />

<Button
    android:id="@+id/cos_sign"
    android:layout_width="0dp"
    android:layout_height="match_parent"
    android:layout_marginRight="1dp"
    android:layout_weight="1"
    android:background="@drawable/cicle_bg"
    android:padding="8dp"
    android:text="@string/cos_sign"
    android:textAllCaps="false"
    android:textColor="@color/calculator_color"
    android:textSize="16sp"
    android:textStyle="bold"
    android:theme="@style/MyButton" />

<Button
    android:id="@+id/tan_sign"
    android:layout_width="0dp"
    android:layout_height="match_parent"
    android:layout_marginRight="1dp"
    android:layout_weight="1"
    android:background="@drawable/cicle_bg"
    android:padding="8dp"
    android:text="@string/tan_sign"
    android:textAllCaps="false"
    android:textColor="@color/calculator_color"
    android:textSize="16sp"
```

```
            android:textStyle="bold"
            android:theme="@style/MyButton" />

        <Button
            android:id="@+id/natural_log"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_marginRight="1dp"
            android:layout_weight="1"
            android:background="@drawable/cicle_bg"
            android:padding="8dp"
            android:text="@string/natural_log"
            android:textAllCaps="false"
            android:textColor="@color/calculator_color"
            android:textSize="16sp"
            android:textStyle="bold"
            android:theme="@style/MyButton" />

        <Button
            android:id="@+id/log"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:background="@drawable/cicle_bg"
            android:padding="8dp"
            android:text="@string/log"
            android:textAllCaps="false"
            android:textColor="@color/calculator_color"
            android:textSize="16sp"
            android:textStyle="bold"
            android:theme="@style/MyButton" />
    </LinearLayout>
        <!--Fifth Row Text-->
    <LinearLayout
        android:id="@+id/fifth_row"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:textAlignment="center"
        android:weightSum="6">

        <TextView
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:gravity="center"
            android:padding="4dp"
            android:textColor="@color/divider" />

        <TextView
            android:id="@+id/cube_root"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:gravity="center"
            android:padding="4dp"
            android:text="@string/cube_root"
            android:textColor="@color/divider"
            android:textSize="13dp" />
```

```
    <TextView
        android:id="@+id/cube"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:gravity="center"
        android:padding="4dp"
        android:text="@string/cube"
        android:textColor="@color/divider"
        android:textSize="13dp" />

    <TextView
        android:id="@+id/one_over_x"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:gravity="center"
        android:padding="4dp"
        android:text="@string/one_over_x"
        android:textColor="@color/divider"
        android:textSize="13dp" />

    <TextView
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:gravity="center"
        android:padding="4dp"
        android:text=""
        android:textColor="@color/divider" />

    <TextView
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:gravity="center"
        android:padding="4dp"
        android:text=""
        android:textColor="@color/divider" />
</LinearLayout>
    <!--Sixth Row Button-->
<LinearLayout
    android:id="@+id/sixth_row"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:theme="@style/MyButton">

    <Button
        android:id="@+id/x_power_y"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
        android:padding="8dp"
        android:text="@string/x_power_y"
        android:textAllCaps="false"
```

```
        android:textColor="@color/calculator_color"
        android:textSize="16sp"
        android:textStyle="bold"
        android:theme="@style/MyButton" />

    <Button
        android:id="@+id/square_root"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
        android:padding="8dp"
        android:text="@string/square_root"
        android:textAllCaps="false"
        android:textColor="@color/calculator_color"
        android:textSize="16sp"
        android:textStyle="bold"
        android:theme="@style/MyButton" />

    <Button
        android:id="@+id/x_square"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
        android:padding="8dp"
        android:text="@string/x_square"
        android:textAllCaps="false"
        android:textColor="@color/calculator_color"
        android:textSize="16sp"
        android:textStyle="bold"
        android:theme="@style/MyButton" />

    <Button
        android:id="@+id/percent"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
        android:padding="8dp"
        android:text="@string/percent"
        android:textAllCaps="false"
        android:textColor="@color/calculator_color"
        android:textSize="16sp"
        android:textStyle="bold"
        android:theme="@style/MyButton" />

    <Button
        android:id="@+id/open_bracket"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
        android:padding="8dp"
        android:text="@string/open_bracket"
```

```
            android:textAllCaps="false"
            android:textColor="@color/calculator_color"
            android:textSize="16sp"
            android:textStyle="bold"
            android:theme="@style/MyButton" />

        <Button
            android:id="@+id/close_bracket"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:background="@drawable/cicle_bg"
            android:padding="8dp"
            android:text="@string/close_bracket"
            android:textAllCaps="false"
            android:textColor="@color/calculator_color"
            android:textSize="16sp"
            android:textStyle="bold"
            android:theme="@style/MyButton" />
    </LinearLayout>
        <!--Seventh Row 5 Buttons-->
    <LinearLayout
        android:id="@+id/seventh_row"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="8dp"
        android:layout_weight="1"
        android:theme="@style/MyButton">

        <Button
            android:id="@+id/seven_button"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_marginRight="1dp"
            android:layout_weight="1"
            android:background="@drawable/cicle_bg"
            android:padding="8dp"
            android:text="@string/seven_button"
            android:textAllCaps="false"
            android:textColor="@color/calculator_color"
            android:textSize="20sp"
            android:textStyle="bold"
            android:theme="@style/MyButton" />

        <Button
            android:id="@+id/eight_button"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_marginRight="1dp"
            android:layout_weight="1"
            android:background="@drawable/cicle_bg"
            android:padding="8dp"
            android:text="@string/eight_button"
            android:textAllCaps="false"
            android:textColor="@color/calculator_color"
            android:textSize="20sp"
            android:textStyle="bold"
            android:theme="@style/MyButton" />
```

```
    <Button
        android:id="@+id/nine_button"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
        android:padding="8dp"
        android:text="@string/nine_button"
        android:textAllCaps="false"
        android:textColor="@color/calculator_color"
        android:textSize="20sp"
        android:textStyle="bold"
        android:theme="@style/MyButton" />

    <Button
        android:id="@+id/single_delete"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/del"
        android:padding="8dp"
        android:text="Del"
        android:textAllCaps="false"
        android:textColor="#dfded4"
        android:textSize="20sp"
        android:textStyle="bold"/>
    <Button
        android:id="@+id/clear"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/del"
        android:padding="8dp"
        android:text="@string/clear"
        android:textAllCaps="false"
        android:textColor="#dfded4"
        android:textSize="20sp"
        android:textStyle="bold"/>
</LinearLayout>
    <!--Eigth Row 5 Text-->
<LinearLayout
    android:id="@+id/eigth_row"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    android:textAlignment="center">

    <TextView
        android:id="@+id/factorial"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:gravity="center"
        android:padding="4dp"
        android:text="@string/factorial"
        android:textColor="@color/divider"
```

```
            android:textSize="13dp" />

        <TextView
            android:id="@+id/combination"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:gravity="center"
            android:padding="4dp"
            android:text="@string/combination"
            android:textColor="@color/divider"
            android:textSize="13dp" />

        <TextView
            android:id="@+id/permutation"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:gravity="center"
            android:padding="4dp"
            android:text="@string/permutation"
            android:textColor="@color/divider"
            android:textSize="13dp" />

        <TextView
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:gravity="center"
            android:padding="4dp"
            android:text=""
            android:textColor="@color/divider" />

        <TextView
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:gravity="center"
            android:padding="4dp"
            android:text=""
            android:textColor="@color/divider" />
    </LinearLayout>
        <!--Nine Row 5 Buttons-->
    <LinearLayout
        android:id="@+id/ninth_row"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:textAlignment="center"
        android:theme="@style/MyButton">

        <Button
            android:id="@+id/four_button"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_marginRight="1dp"
            android:layout_weight="1"
            android:background="@drawable/cicle_bg"
            android:padding="8dp"
```

```
        android:text="@string/four_button"
        android:textAllCaps="false"
        android:textColor="@color/calculator_color"
        android:textSize="20sp"
        android:textStyle="bold"
        android:theme="@style/MyButton" />

    <Button
        android:id="@+id/five_button"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
        android:padding="8dp"
        android:text="@string/five_button"
        android:textAllCaps="false"
        android:textColor="@color/calculator_color"
        android:textSize="20sp"
        android:textStyle="bold"
        android:theme="@style/MyButton" />

    <Button
        android:id="@+id/six_button"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
        android:padding="8dp"
        android:text="@string/six_button"
        android:textAllCaps="false"
        android:textColor="@color/calculator_color"
        android:textSize="20sp"
        android:textStyle="bold"
        android:theme="@style/MyButton" />

    <Button
        android:id="@+id/multiplication"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
        android:padding="8dp"
        android:text="@string/multiplication"
        android:textAllCaps="false"
        android:textColor="@color/calculator_color"
        android:textSize="20sp"
        android:textStyle="bold"
        android:theme="@style/MyButton" />

    <Button
        android:id="@+id/division"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
```

```
            android:padding="8dp"
            android:text="@string/division"
            android:textAllCaps="false"
            android:textColor="@color/calculator_color"
            android:textSize="20sp"
            android:textStyle="bold"
            android:theme="@style/MyButton" />
    </LinearLayout>
        <!--Ten Row 5 Text-->
    <LinearLayout
        android:id="@+id/tenth_row"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:textAlignment="center">

        <TextView
            android:id="@+id/pi"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:gravity="center"
            android:padding="4dp"
            android:text="@string/pi"
            android:textColor="@color/divider" />

        <TextView
            android:id="@+id/e"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:gravity="center"
            android:padding="4dp"
            android:text="@string/e"
            android:textColor="@color/divider" />

        <TextView
            android:id="@+id/comma"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:gravity="center"
            android:padding="4dp"
            android:text="@string/comma"
            android:textColor="@color/divider" />

        <TextView
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:gravity="center"
            android:padding="4dp"
            android:text=""
            android:textColor="@color/divider" />

        <TextView
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
```

```
        android:gravity="center"
        android:padding="4dp"
        android:text=""
        android:textColor="@color/divider" />
</LinearLayout>
    <!--Eleven Row 5 Buttons-->
<LinearLayout
    android:id="@+id/Eleven_row"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:textAlignment="center"
    android:theme="@style/MyButton">

    <Button
        android:id="@+id/one_button"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
        android:padding="8dp"
        android:text="@string/one_button"
        android:textAllCaps="false"
        android:textColor="@color/calculator_color"
        android:textSize="20sp"
        android:textStyle="bold"
        android:theme="@style/MyButton" />

    <Button
        android:id="@+id/two_button"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
        android:padding="8dp"
        android:text="@string/two_button"
        android:textAllCaps="false"
        android:textColor="@color/calculator_color"
        android:textSize="20sp"
        android:textStyle="bold"
        android:theme="@style/MyButton" />

    <Button
        android:id="@+id/three_button"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
        android:padding="8dp"
        android:text="@string/three_button"
        android:textAllCaps="false"
        android:textColor="@color/calculator_color"
        android:textSize="20sp"
        android:textStyle="bold"
        android:theme="@style/MyButton" />
```

```
    <Button
        android:id="@+id/addition"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
        android:padding="8dp"
        android:text="@string/addition"
        android:textAllCaps="false"
        android:textColor="@color/calculator_color"
        android:textSize="20sp"
        android:textStyle="bold"
        android:theme="@style/MyButton" />

    <Button
        android:id="@+id/subtraction"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
        android:padding="8dp"
        android:text="@string/subtraction"
        android:textAllCaps="false"
        android:textColor="@color/calculator_color"
        android:textSize="20sp"
        android:textStyle="bold"
        android:theme="@style/MyButton" />
</LinearLayout>
    <!--Twelve Row 5 Buttons-->
<LinearLayout
    android:id="@+id/twelve_row"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="8dp"
    android:layout_weight="1"
    android:textAlignment="center">

    <Button
        android:id="@+id/zero_button"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
        android:layout_weight="1"
        android:background="@drawable/cicle_bg"
        android:padding="8dp"
        android:text="@string/zero_button"
        android:textAllCaps="false"
        android:textColor="@color/calculator_color"
        android:textSize="20sp"
        android:textStyle="bold"
        android:theme="@style/MyButton" />

    <Button
        android:id="@+id/dot"
        android:layout_width="0dp"
        android:layout_height="match_parent"
        android:layout_marginRight="1dp"
```

```
            android:layout_weight="1"
            android:background="@drawable/cicle_bg"
            android:padding="8dp"
            android:text="@string/dot"
            android:textAllCaps="false"
            android:textColor="@color/calculator_color"
            android:textSize="20sp"
            android:textStyle="bold"
            android:theme="@style/MyButton" />

        <Button
            android:id="@+id/exp"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_marginRight="1dp"
            android:layout_weight="1"
            android:background="@drawable/cicle_bg"
            android:padding="8dp"
            android:text="@string/exp"
            android:textAllCaps="false"
            android:textColor="@color/calculator_color"
            android:textSize="20sp"
            android:textStyle="bold"
            android:theme="@style/MyButton" />

        <Button
            android:id="@+id/ans"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_marginRight="1dp"
            android:layout_weight="1"
            android:background="@drawable/cicle_bg"
            android:padding="8dp"
            android:text="@string/ans"
            android:textAllCaps="false"
            android:textColor="@color/calculator_color"
            android:textSize="20sp"
            android:textStyle="bold"
            android:theme="@style/MyButton" />

        <Button
            android:id="@+id/equal_sign"
            android:layout_width="0dp"
            android:layout_height="match_parent"
            android:layout_marginRight="1dp"
            android:layout_weight="1"
            android:background="@drawable/cicle_bg"
            android:padding="8dp"
            android:text="@string/equal_sign"
            android:textAllCaps="false"
            android:textColor="@color/calculator_color"
            android:textSize="20sp"
            android:textStyle="bold"
            android:theme="@style/MyButton" />
    </LinearLayout>
    </LinearLayout>
```

MainActivity.java

```
package com.rrsaikat.calc;

import android.content.Context;
import android.content.SharedPreferences;
import android.content.pm.ActivityInfo;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.text.Html;
import android.view.View;
import android.view.Window;
import android.view.WindowManager;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity implements
View.OnClickListener
{
private TextView outputResult;
private TextView shiftDisplay;
private TextView degreeRad;
private boolean isDegree = false;
private boolean isInverse = false;
private String lastResultObtain = "";
private String resultObject;
private String currentDisplayedInput = "";
private String inputToBeParsed = "";
private Calculator mCalculator;
private static String PREFS_NAME = "memory";
private Button button0, button1, button2,button3,button4,button5,button6,button7,
        button8,button9,buttonClear, buttonDivide,buttonMultiply,buttonSubtract,
        buttonAdd, buttonPercentage, buttonEqual, buttonDecimal, closeParenthesis,
openParenthesis, buttonAnswer,
        buttonSingleDelete, buttonExp;
private TextView labelFactorial, labelCombination, labelPermutation, labelPi,
labelE, labelComma, labelCubeRoot, labelCube,
        labelInverseX, labelInverseSin, labelInverseCos, labelInverseTan,
labelExponential, labelTenPowerX, labelRCL,
        labelSTO, labelMMinus, labelFloat, labelDeg;
private Button buttonSin, buttonLn,buttonCos, buttonLog, buttonTan,
buttonSquareRoot,  buttonXSquare, buttonYPowerX,
        buttonRnd;
private Button buttonShift, buttonRad, buttonAbs, buttonMr, buttonMs, buttonMPlus;
@Override
protected void onCreate(Bundle savedInstanceState)
{
        requestWindowFeature(Window.FEATURE_NO_TITLE);
        getWindow().setFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN,
WindowManager.LayoutParams.FLAG_FULLSCREEN);
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        setRequestedOrientation(ActivityInfo.SCREEN_ORIENTATION_PORTRAIT);
        mCalculator = new Calculator();
        outputResult = (TextView)findViewById(R.id.display);
        outputResult.setText("");
        shiftDisplay = (TextView)findViewById(R.id.shift_display);
        degreeRad = (TextView)findViewById(R.id.degree);
        button0 = (Button)findViewById(R.id.zero_button);
```

```
button1 = (Button)findViewById(R.id.one_button);
button2 = (Button)findViewById(R.id.two_button);
button3 = (Button)findViewById(R.id.three_button);
button4 = (Button)findViewById(R.id.four_button);
button5 = (Button)findViewById(R.id.five_button);
button6 = (Button)findViewById(R.id.six_button);
button7 = (Button)findViewById(R.id.seven_button);
button8 = (Button)findViewById(R.id.eight_button);
button9 = (Button)findViewById(R.id.nine_button);
buttonDivide = (Button)findViewById(R.id.division);
buttonMultiply = (Button)findViewById(R.id.multiplication);
buttonSubtract = (Button)findViewById(R.id.subtraction);
buttonAdd = (Button)findViewById(R.id.addition);
buttonPercentage = (Button)findViewById(R.id.percent);
buttonDecimal = (Button)findViewById(R.id.dot);
closeParenthesis = (Button)findViewById(R.id.close_bracket);
openParenthesis = (Button)findViewById(R.id.open_bracket);
buttonExp = (Button)findViewById(R.id.exp);
buttonSquareRoot = (Button)findViewById(R.id.square_root);
buttonXSquare = (Button)findViewById(R.id.x_square);
buttonYPowerX = (Button)findViewById(R.id.x_power_y);
buttonSin = (Button)findViewById(R.id.sin_sign);
buttonCos = (Button)findViewById(R.id.cos_sign);
buttonTan = (Button)findViewById(R.id.tan_sign);
buttonLn = (Button)findViewById(R.id.natural_log);
buttonLog = (Button)findViewById(R.id.log);
buttonRnd = (Button)findViewById(R.id.hys);
buttonDivide.setText(Html.fromHtml(Helpers.division));
buttonSquareRoot.setText(Html.fromHtml(Helpers.squareRoot));
buttonXSquare.setText(Html.fromHtml(Helpers.xSquare));
buttonYPowerX.setText(Html.fromHtml(Helpers.yPowerX));
buttonShift = (Button)findViewById(R.id.shift);
buttonRad = (Button)findViewById(R.id.rad);
buttonAbs = (Button)findViewById(R.id.abs);
buttonMr = (Button)findViewById(R.id.mr);
buttonMs = (Button)findViewById(R.id.ms);
buttonMPlus = (Button)findViewById(R.id.m_plus);
buttonClear = (Button)findViewById(R.id.clear);
buttonSingleDelete = (Button)findViewById(R.id.single_delete);
buttonEqual = (Button)findViewById(R.id.equal_sign);
buttonAnswer = (Button)findViewById(R.id.ans);
labelFactorial = (TextView)findViewById(R.id.factorial);
labelCombination = (TextView)findViewById(R.id.combination);
labelPermutation = (TextView)findViewById(R.id.permutation);
labelPi = (TextView)findViewById(R.id.pi);
labelE = (TextView)findViewById(R.id.e);
labelComma = (TextView)findViewById(R.id.comma);
labelCubeRoot = (TextView)findViewById(R.id.cube_root);
labelCube = (TextView)findViewById(R.id.cube);
labelInverseX = (TextView)findViewById(R.id.one_over_x);
labelInverseSin = (TextView)findViewById(R.id.inverse_sin);
labelInverseCos = (TextView)findViewById(R.id.inverse_cos);
labelInverseTan = (TextView)findViewById(R.id.inverse_tan);
labelExponential = (TextView)findViewById(R.id.expo);
labelTenPowerX = (TextView)findViewById(R.id.ten_power_x);
labelRCL = (TextView)findViewById(R.id.rcl);
labelSTO = (TextView)findViewById(R.id.sto);
labelMMinus = (TextView)findViewById(R.id.m_minus);
labelFloat = (TextView)findViewById(R.id.float_number);
```

```
        labelDeg = (TextView)findViewById(R.id.degree);
        labelInverseSin.setText(Html.fromHtml(Helpers.inverseSin));
        labelInverseCos.setText(Html.fromHtml(Helpers.inverseCos));
        labelInverseTan.setText(Html.fromHtml(Helpers.inverseTan));
        labelExponential.setText(Html.fromHtml(Helpers.exponential));
        labelTenPowerX.setText(Html.fromHtml(Helpers.tenPowerX));
        labelCubeRoot.setText(Html.fromHtml(Helpers.cubeSquare));
        labelCube.setText(Html.fromHtml(Helpers.cubeRoot));
        labelPi.setText(Html.fromHtml(Helpers.pi));
        button0.setOnClickListener(this);
        button1.setOnClickListener(this);
        button2.setOnClickListener(this);
        button3.setOnClickListener(this);
        button4.setOnClickListener(this);
        button5.setOnClickListener(this);
        button6.setOnClickListener(this);
        button7.setOnClickListener(this);
        button8.setOnClickListener(this);
        button9.setOnClickListener(this);
        buttonClear.setOnClickListener(this);
        buttonDivide.setOnClickListener(this);
        buttonMultiply.setOnClickListener(this);
        buttonSubtract.setOnClickListener(this);
        buttonAdd.setOnClickListener(this);
        buttonPercentage.setOnClickListener(this);
        buttonEqual.setOnClickListener(this);
        buttonAnswer.setOnClickListener(this);  // i have forgotten to add this
line
/*
        buttonAnswer.setOnClickListener(new View.OnClickListener() {
                @Override
                public void onClick(View v) {
                        Toast.makeText(MainActivity.this , "Clicked w" ,
Toast.LENGTH_SHORT).show();
                        if (resultObject != null) {
                                String enteredInput =
outputResult.getText().toString();
                                enteredInput += resultObject;

                                currentDisplayedInput = enteredInput;
                                inputToBeParsed = enteredInput;
                                //resultObject =
mCalculator.getResult(currentDisplayedInput, inputToBeParsed);

outputResult.setText(removeTrailingZero(enteredInput));
                                //currentDisplayedInput +=
removeTrailingZero(resultObject);

                        }
                }
        });
*/
        buttonDecimal.setOnClickListener(this);
        closeParenthesis.setOnClickListener(this);
        openParenthesis.setOnClickListener(this);
        buttonSingleDelete.setOnClickListener(this);
        buttonExp.setOnClickListener(this);
        buttonSquareRoot.setOnClickListener(this);
        buttonXSquare.setOnClickListener(this);
```

```
        buttonYPowerX.setOnClickListener(this);
        buttonSin.setOnClickListener(this);
        buttonCos.setOnClickListener(this);
        buttonTan.setOnClickListener(this);
        buttonLn.setOnClickListener(this);
        buttonLog.setOnClickListener(this);
        buttonRnd.setOnClickListener(this);
        buttonShift.setOnClickListener(this);
        buttonRad.setOnClickListener(this);
        buttonAbs.setOnClickListener(this);
        buttonMr.setOnClickListener(this);
        buttonMs.setOnClickListener(this);
        buttonMPlus.setOnClickListener(this);
}
private void obtainInputValues(String input)
{
        switch (input){
        case "0":
        currentDisplayedInput += "0";
        inputToBeParsed += "0";
        break;
        case "1":
        if(isInverse){
        currentDisplayedInput += "π";
        inputToBeParsed += "pi";
        }else{
        currentDisplayedInput += "1";
        inputToBeParsed += "1";
        }
        toggleInverse();
        toggleShiftButton();
        break;
        case "2":
        if(isInverse){
        currentDisplayedInput += "e";
        inputToBeParsed += "e";
        }else{
        currentDisplayedInput += "2";
        inputToBeParsed += "2";
        }
        toggleInverse();
        toggleShiftButton();
        break;
        case "3":
        if(isInverse){
        currentDisplayedInput += ",";
        inputToBeParsed += ",";
        }else{
        currentDisplayedInput += "3";
        inputToBeParsed += "3";
        }
        toggleInverse();
        toggleShiftButton();
        break;
        case "4":
        if(isInverse){
        currentDisplayedInput += "!(";
        inputToBeParsed += "!(";
        }else{
```

```
currentDisplayedInput += "4";
inputToBeParsed += "4";
}
toggleInverse();
toggleShiftButton();
break;
case "5":
if(isInverse){
currentDisplayedInput += "comb(";
inputToBeParsed += "comb(";
}else{
currentDisplayedInput += "5";
inputToBeParsed += "5";
}
toggleInverse();
toggleShiftButton();
break;
case "6":
if(isInverse){
currentDisplayedInput += "permu(";
inputToBeParsed += "permu(";
}else{
currentDisplayedInput += "6";
inputToBeParsed += "6";
}
toggleInverse();
toggleShiftButton();
break;
case "7":
currentDisplayedInput += "7";
inputToBeParsed += "7";
break;
case "8":
currentDisplayedInput += "8";
inputToBeParsed += "8";
break;
case "9":
currentDisplayedInput += "9";
inputToBeParsed += "9";
break;
case ".":
currentDisplayedInput += ".";
inputToBeParsed += ".";
break;
case "+":
currentDisplayedInput += "+";
inputToBeParsed += "+";
break;
case "-":
currentDisplayedInput += "-";
inputToBeParsed += "-";
break;
case "÷":
currentDisplayedInput += "÷";
inputToBeParsed += "/";
break;
case "x":
currentDisplayedInput += "*";
inputToBeParsed += "*";
```

```
break;
case "(":
currentDisplayedInput += "(";
inputToBeParsed += "(";
break;
case ")":
currentDisplayedInput += ")";
inputToBeParsed += ")";
break;
case "%":
if(isInverse){
currentDisplayedInput += "1÷";
inputToBeParsed += "1÷";
}else{
currentDisplayedInput += "%";
inputToBeParsed += "%";
}
toggleInverse();
toggleShiftButton();
break;
case "ln":
if(isInverse){
currentDisplayedInput += "e^";
inputToBeParsed += "e^";
}else{
currentDisplayedInput += "ln(";
inputToBeParsed += "ln(";
}
toggleInverse();
toggleShiftButton();
break;
case "log":
if(isInverse){
currentDisplayedInput += "10^";
inputToBeParsed += "10^";
}else{
currentDisplayedInput += "log(";
inputToBeParsed += "log(";
}
toggleInverse();
toggleShiftButton();
break;
case "√":
if(isInverse){
currentDisplayedInput += "3√(";
inputToBeParsed += "crt(";
}else{
currentDisplayedInput += "√(";
inputToBeParsed += "sqrt(";
}
toggleInverse();
toggleShiftButton();
break;
case "Yx":
currentDisplayedInput += "^";
inputToBeParsed += "^";
break;
case "sin":
if(isInverse){
```

```
currentDisplayedInput += "asin(";
inputToBeParsed += "asin(";
}else{
currentDisplayedInput += "sin(";
inputToBeParsed += "sin(";
}
toggleInverse();
toggleShiftButton();
break;
case "cos":
if(isInverse){
currentDisplayedInput += "acos(";
inputToBeParsed += "acos(";
}else{
currentDisplayedInput += "cos(";
inputToBeParsed += "cos(";
}
toggleInverse();
toggleShiftButton();
break;
case "tan":
if(isInverse){
currentDisplayedInput += "atan(";
inputToBeParsed += "atan(";
}else{
currentDisplayedInput += "tan(";
inputToBeParsed += "tan(";
}
toggleInverse();
toggleShiftButton();
break;
case "exp":
currentDisplayedInput += "E";
inputToBeParsed += "E0";
break;
case "x2":
if(isInverse){
currentDisplayedInput += "^3";
inputToBeParsed += "^3";
}else{
currentDisplayedInput += "^2";
inputToBeParsed += "^2";
}
toggleInverse();
toggleShiftButton();
break;
case "rnd":
double ran = Math.random();
currentDisplayedInput += String.valueOf(ran);
inputToBeParsed += String.valueOf(ran);
break;
case "ABS":
currentDisplayedInput += "abs(";
inputToBeParsed += "abs(";
break;
case "MR":
String mValue = getStoredPreferenceValue(MainActivity.this);
String result = removeTrailingZero(mValue);
if(!result.equals("0")){
```

```
        currentDisplayedInput += result;
        inputToBeParsed += result;
        }
        break;
        case "MS":
        clearMemoryStorage(MainActivity.this);
        break;
        case "M+":
        if (isInverse){
        double inputValueMinus  = isANumber(outputResult.getText().toString());
        if(!Double.isNaN(inputValueMinus)){
        subtractMemoryStorage(MainActivity.this, inputValueMinus);
        }
        }else{
        double inputValue  = isANumber(outputResult.getText().toString());
        if(!Double.isNaN(inputValue)){
        addToMemoryStorage(MainActivity.this, inputValue);
        }
        }
        toggleInverse();
        toggleShiftButton();
        break;
        }
        outputResult.setText(currentDisplayedInput);

}
@Override
public void onClick(View view) {
        Button button = (Button) view;
        String data = button.getText().toString();
        //Toast.makeText(this, "Click " + data, Toast.LENGTH_LONG).show();
        if(data.equals("AC")){
                outputResult.setText("");
                currentDisplayedInput = "";
                inputToBeParsed = "";
        }
        else if(data.equals("Del")){
                 String enteredInput = outputResult.getText().toString();
        if(enteredInput.length() > 0){
                enteredInput = enteredInput.substring(0, enteredInput.length() -
1);
                currentDisplayedInput = enteredInput;
                inputToBeParsed = enteredInput;
                outputResult.setText(currentDisplayedInput);
        }
        }else if(data.equals("=")){
                String enteredInput = outputResult.getText().toString();
                // call a function that will return the result of the calculate.
                resultObject = mCalculator.getResult(currentDisplayedInput,
inputToBeParsed);
                outputResult.setText(removeTrailingZero(resultObject));
        }else if(data.equals("Ans")){
                if (resultObject != null) {
                        String enteredInput = outputResult.getText().toString();
                        enteredInput += resultObject;
                        //currentDisplayedInput = enteredInput;
                        inputToBeParsed = enteredInput;
                        outputResult.setText(removeTrailingZero(enteredInput));
```

```
                }else {
                        Toast.makeText(MainActivity.this , "No Answer found" ,
Toast.LENGTH_SHORT).show();
                }

        }else if(data.equals("SHIFT")){
        if(!isInverse){
                 isInverse = true;
        }else{
                isInverse = false;
        }
        toggleShiftButton();
        }else if(data.equals("RAD")){
                 buttonRad.setText("DEG");
                 degreeRad.setText("RAD");
        }
        else if(data.equals("DEG")){
                buttonRad.setText("RAD");
                degreeRad.setText("DEG");
        }else{
                obtainInputValues(data);
        }
}
private String removeTrailingZero(String formattingInput){
        if(!formattingInput.contains(".")){
                 return formattingInput;
        }
        int dotPosition = formattingInput.indexOf(".");
        String newValue = formattingInput.substring(dotPosition,
formattingInput.length());
        if(newValue.equals(".0")){
                 return formattingInput.substring(0, dotPosition);
        }
                return formattingInput;
}
private void toggleInverse(){
        if(isInverse){
                isInverse = false;
        }
}
private void toggleShiftButton(){
        if(isInverse){
                shiftDisplay.setText("SHIFT");
        }else{
                shiftDisplay.setText("");
        }
}

private double isANumber(String numberInput){
        double result = Double.NaN;
        try{
                result = Double.parseDouble(numberInput);
        }catch(NumberFormatException nfe){

        }
                return result;
}
private void addToMemoryStorage(Context context, double inputToStore){
                float returnPrefValue = getPreference(context);
```

```
                float newValue = returnPrefValue + (float)inputToStore;
                setPreference(context, newValue);
        }
private void subtractMemoryStorage(Context context, double inputToStore){
                float returnPrefValue = getPreference(context);
                float newValue = returnPrefValue - (float)inputToStore;
                setPreference(context, newValue);
        }
private void clearMemoryStorage(Context context){
                 setPreference(context, 0);
        }
private String getStoredPreferenceValue(Context context){
                float returnedValue = getPreference(context);
                return String.valueOf(returnedValue);
        }
static public boolean setPreference(Context c, float value) {
                SharedPreferences settings = c.getSharedPreferences(PREFS_NAME,
0);
                settings = c.getSharedPreferences(PREFS_NAME, 0);
                SharedPreferences.Editor editor = settings.edit();
                editor.putFloat("key", value);
                return editor.commit();
        }
static public float getPreference(Context c) {
                SharedPreferences settings = c.getSharedPreferences(PREFS_NAME,
0);
                settings = c.getSharedPreferences(PREFS_NAME, 0);
                float value = settings.getFloat("key", 0);
                return value;
        }

}
```

Calculator.java

```
package com.rrsaikat.calc;

import com.fathzer.soft.javaluator.DoubleEvaluator;
import com.fathzer.soft.javaluator.Function;
import com.fathzer.soft.javaluator.Parameters;

import java.util.ArrayList;
import java.util.Iterator;

/**
 * Created by Rezwan on 03-06-18.
 */

public class Calculator
{
    final Function sqrt = new Function("sqrt", 1);
    final Function factorial = new Function("!", 1);
    final Function cuberoot = new Function("crt", 1);
    final Function combination = new Function("comb", 2);
    final Function permutation = new Function("permu", 2);
    Parameters params;
    DoubleEvaluator evaluator;
    private double previousSum = 0;
    private double currentSum = 0;
    private String currentDisplay = "";
    //private String expressionUsedForParsing ="";
    private boolean isRadians = false;
    public Calculator()
    {
        addFunctions();
        //Adds the functions to the evaluator
        evaluator = new DoubleEvaluator(params)
        {
            @Override
            protected Double evaluate(Function function, Iterator arguments,
Object evaluationContext)
            {
                if (function == sqrt)
                    return Math.sqrt((Double) arguments.next());
                else if(function == cuberoot){
                    return Math.cbrt((Double) arguments.next());
                }
                else if(function == combination)
                {
                    double numberInputs = 0;
                    ArrayList<Double> saveValue = new ArrayList<Double>();
                    while(arguments.hasNext())
                    {
                        numberInputs = (Double) arguments.next();
                        saveValue.add(numberInputs);
                    }
                    double firstArgument = saveValue.get(0);
                    double secondArgument = saveValue.get(1);
                    double denominator = getFactorial((int) firstArgument);
                    double nominator = getFactorial((int)secondArgument) *
(getFactorial((int)(firstArgument - secondArgument)));
                    return denominator / nominator;
                }
```

```
                else if(function == permutation)
                {
                    double numberInputs = 0;
                    ArrayList<Double> saveValue = new ArrayList<Double>();
                    while(arguments.hasNext())
                    {
                        numberInputs = (Double) arguments.next();
                        saveValue.add(numberInputs);
                    }
                    double firstArgument = saveValue.get(0);
                    double secondArgument = saveValue.get(1);
                    double denominator = getFactorial((int) firstArgument);
                    double nominator = (getFactorial((int)(firstArgument -
secondArgument)));
                    return denominator / nominator;
                }
                else if (function == factorial)
                {
                    double result = 1;
                    double num = (Double) arguments.next();
                    for (int i = 2; i <= num; i++)
                    {
                        result = result * i;
                    }
                    return result;
                } else
                    return super.evaluate(function, arguments, evaluationContext);
            }
        };
    }
    private int getFactorial(int n)
    {
        int result;
        if(n==0 || n==1)
            return 1;
        result = getFactorial(n-1) * n;
        return result;
    }
    public void addFunctions()
    {
        params = DoubleEvaluator.getDefaultParameters();
        params.add(sqrt);
        params.add(factorial);
        params.add(cuberoot);
        params.add(combination);
        params.add(permutation);
    }
    public String getResult(String currentDisplay, String
expressionUsedForParsing)
    {
        //Tries to parse the information as it is entered, if the parser can't
handle it, the word error is shown on screen
        try
        {
            System.out.println("Displayed Output " + expressionUsedForParsing);
            currentSum =
evaluator.evaluate(fixExpression(expressionUsedForParsing));
            currentSum = convertToRadians(currentSum);
            currentDisplay = String.valueOf(currentSum);
```

```
            //previousSum = currentSum;
        } catch (Exception e) {
            currentDisplay = "Error";
        }
        return currentDisplay;
    }
    public double convertToRadians(double sum)
    {
        double newSum = sum;
        if(isRadians == true)
            newSum = Math.toRadians(sum);
        return newSum;
    }
    //Used to show display to user
    public String getCurrentDisplay() {
        return currentDisplay;
    }
    //Handles fixing the expression before parsing. Adding parens, making sure
parens can multiply with each other,
    public String fixExpression(String exp)
    {
        int openParens = 0;
        int closeParens = 0;
        char openP = '(';
        char closeP = ')';
        String expr = exp;
        for (int i = 0; i < exp.length(); i++)
        {
            if (exp.charAt(i) == openP)
                openParens++;
            else if (exp.charAt(i) == closeP)
                closeParens++;
        }
        while (openParens > 0)
        {
            expr += closeP;
            openParens--;
        }
        while (closeParens > 0)
        {
            expr = openP + expr;
            closeParens--;
        }
        expr = multiplicationForParens(expr);
        return expr;
    }
    //Used to fix multiplication between parentheses
    public String multiplicationForParens(String s)
    {
        String fixed = "";
        for (int position = 0; position < s.length(); position++)
        {
            fixed += s.charAt(position);
            if (position == s.length() - 1)
                continue;
            if (s.charAt(position) == ')' && s.charAt(position + 1) == '(')
                fixed += '*';
            if (s.charAt(position) == '(' && s.charAt(position + 1) == ')')
                fixed += '1';
```

```
        }
        return fixed;
    }
}
```

Helpers.java

```
package com.rrsaikat.calc;

import android.content.Context;
import android.os.Bundle;
import android.widget.EditText;
import android.widget.Toast;

/**
 * Created by Rezwan on 03-06-18.
 */

public class Helpers {
    public static String division = "&divide;";
    public static String inverseSin = "sin<sup>-1</sup>";
    public static String inverseCos = "cos<sup>-1</sup>";
    public static String inverseTan = "tan<sup>-1</sup>";
    public static String exponential = "e<sup>x</sup>";
    public static String tenPowerX = "10<sup>x</sup>";
    public static String cubeSquare = "3&radic;";
    public static String cubeRoot = "x<sup>3</sup>";
    public static String yPowerX = "Y<sup>x</sup>";
    public static String squareRoot = "&radic;";
    public static String xSquare = "x<sup>2</sup>";
    public static String pi = "&pi;";
    public static void displayErrorMessage(Context context){
        Toast.makeText(context, "Input field must not be zero",
Toast.LENGTH_LONG).show();
    }
    public static boolean isZero(EditText input){
        if(Double.parseDouble(input.getText().toString()) == 0){
            return true;
        }
        return false;
    }
    public static int getTopicId(Bundle bundle, String inputValue){
        int id = 0;
        if(bundle != null){
            id  = bundle.getInt(inputValue);
        }
        return id;
    }
}
```

AndroiManifest.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.rrsaikat.calc">

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.DEFAULT" />
            </intent-filter>
        </activity>
        <activity android:name=".LauncherActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>
```

String.xml

```xml
<resources>
    <string name="app_name">Calc++</string>
    <string name="hello_world">Hello world!</string>
    <string name="action_settings">Settings</string>
    <string name="no_text"> </string>
    <string name="rcl">RCL</string>
    <string name="sto">STO</string>
    <string name="m_minus">M-</string>
    <string name="shift">SHIFT</string>
    <string name="rad">RAD</string>
    <string name="abs">ABS</string>
    <string name="mr">MR</string>
    <string name="ms">MS</string>
    <string name="m_plus">M+</string>
    <string name="inverse_sin">sin1</string>
    <string name="inverse_cos">cos1</string>
    <string name="inverse_tan">tan1</string>
    <string name="expo">ex</string>
    <string name="ten_power">10x</string>
    <string name="rnd">rnd</string>
    <string name="sin_sign">sin</string>
    <string name="cos_sign">cos</string>
    <string name="tan_sign">tan</string>
    <string name="natural_log">ln</string>
    <string name="log">log</string>
    <string name="cube_root">3?</string>
    <string name="cube">x3</string>
    <string name="one_over_x">1/x</string>
```

```
    <string name="x_power_y">Yx</string>
    <string name="square_root">/</string>
    <string name="x_square">x^2</string>
    <string name="percent">%</string>
    <string name="open_bracket">(</string>
    <string name="close_bracket">)</string>
    <string name="seven_button">7</string>
    <string name="eight_button">8</string>
    <string name="nine_button">9</string>
    <string name="single_delete">DEL</string>
    <string name="clear">AC</string>
    <string name="factorial">n!</string>
    <string name="combination">c(n,r)</string>
    <string name="permutation">p(n,r)</string>
    <string name="rate">Rate</string>
    <string name="four_button">4</string>
    <string name="five_button">5</string>
    <string name="six_button">6</string>
    <string name="multiplication">x</string>
    <string name="division">/</string>
    <string name="pi">ii</string>
    <string name="e">e</string>
    <string name="comma">,</string>
    <string name="one_button">1</string>
    <string name="two_button">2</string>
    <string name="three_button">3</string>
    <string name="addition">+</string>
    <string name="subtraction">-</string>
    <string name="zero_button">0</string>
    <string name="dot">.</string>
    <string name="exp">exp</string>
    <string name="ans">Ans</string>
    <string name="equal_sign">=</string>
    <string name="x_value">x</string>
    <string name="plus_minus">+/-</string>
    <string name="plot">Plot</string>
    <string name="asterisk">*</string>
</resources>
```