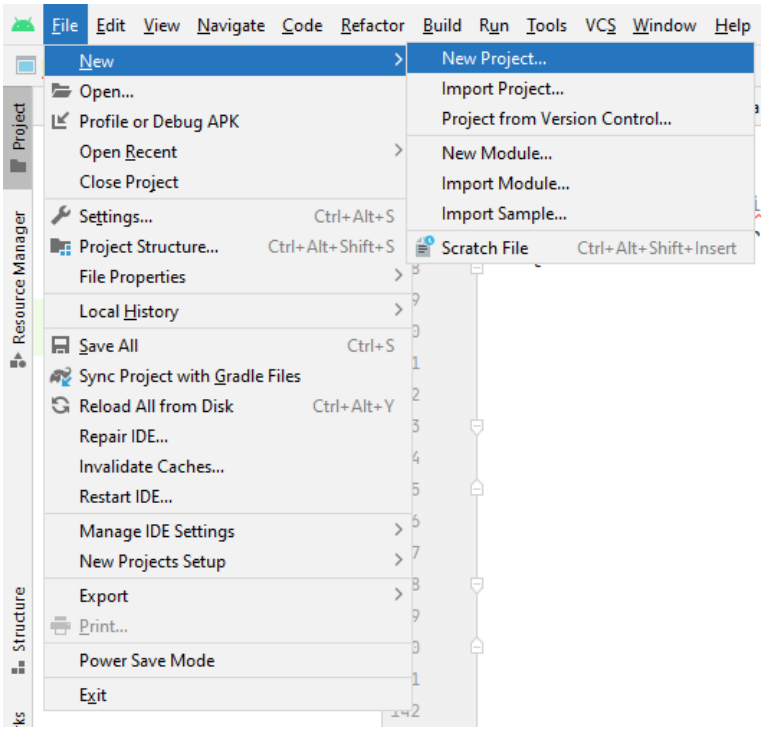
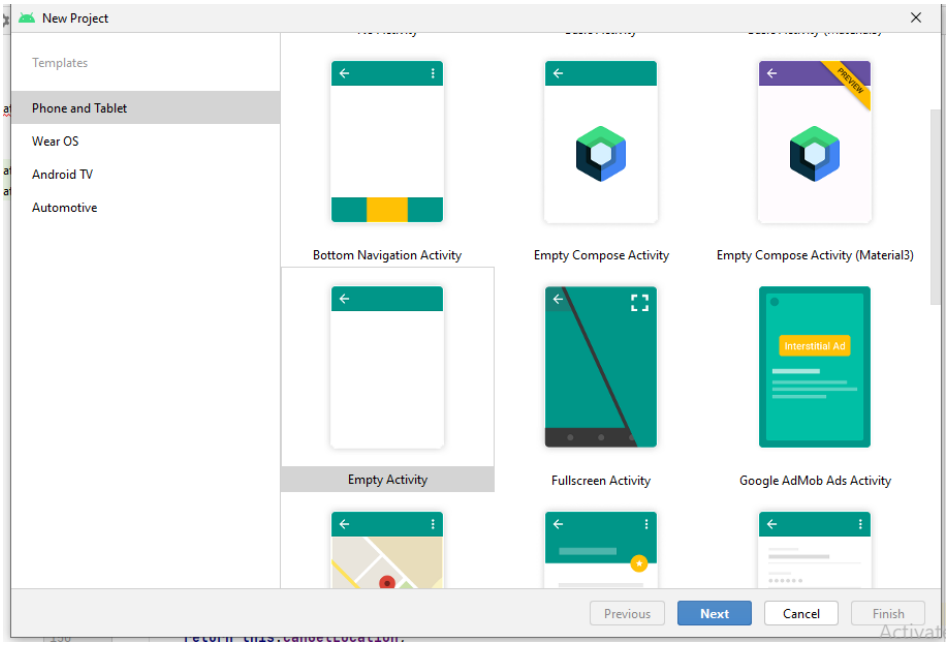
PROCEDURE TO DEVELOP AN ANDROID APP

STEPS:

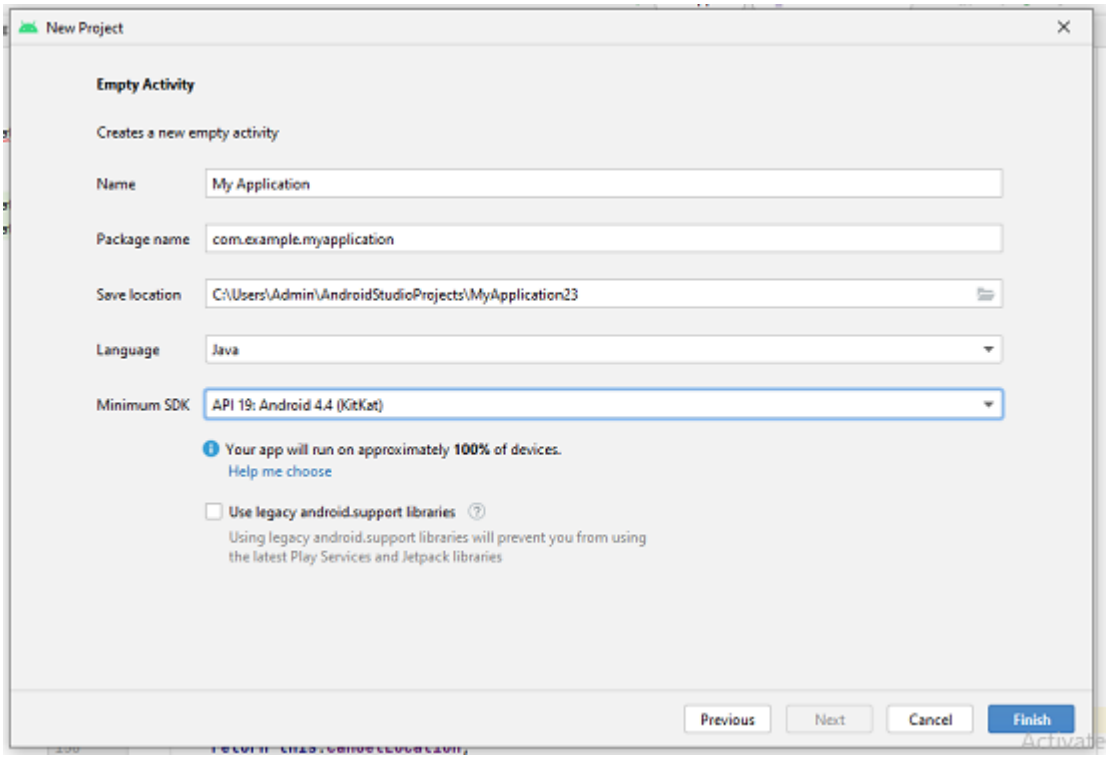
- Open **Android Studio Dolphin ||2021.3.1** and create a **workspace** and click **OK**
- To create a new file click on **FILE →New →New Project**



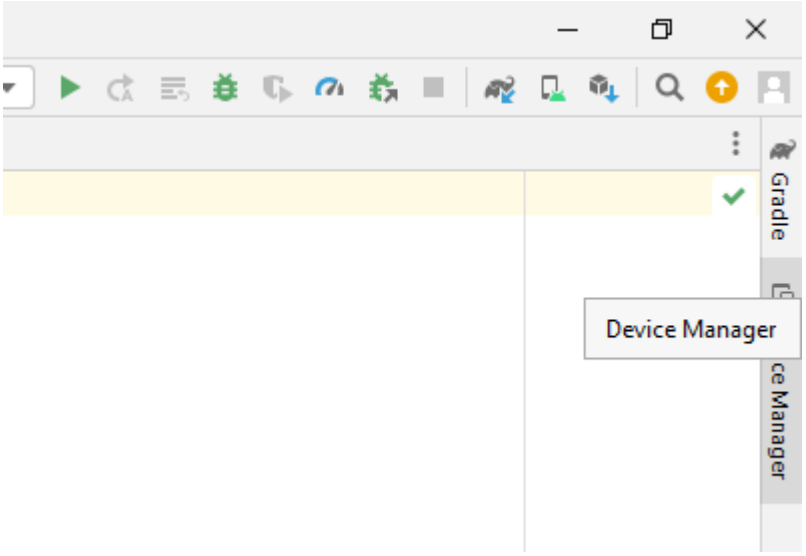
- Select **Empty Activity** and click on **Next** Button.



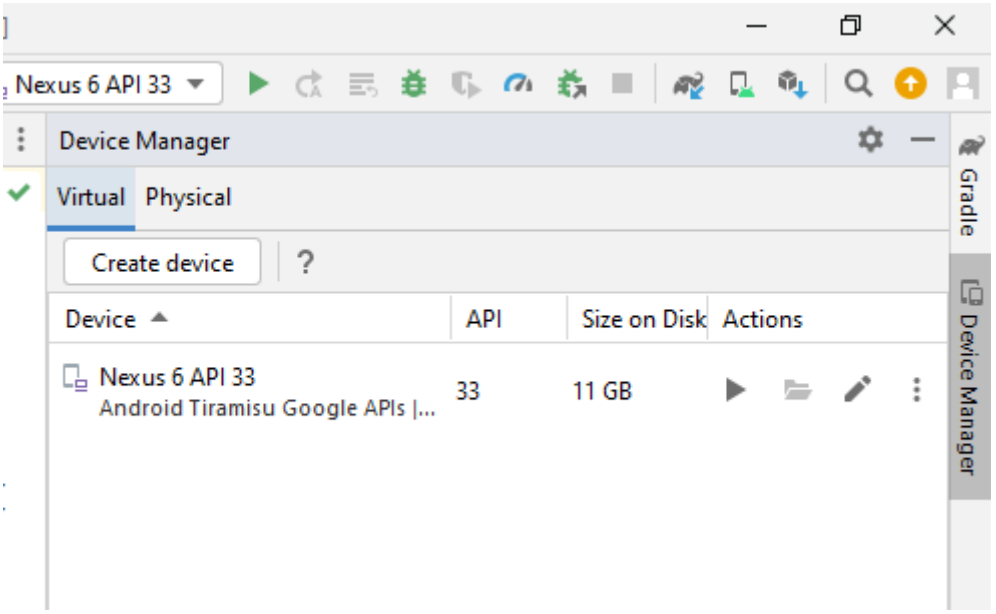
- Enter the **Name** of the Project starting with a Capital letter and also enter the **Package Name**.
- Select the **Language** as **Java** and **Minimum SDK** as **API 19: Android 4.4 (KitKat).**
- Click on **Finish** Button.
-



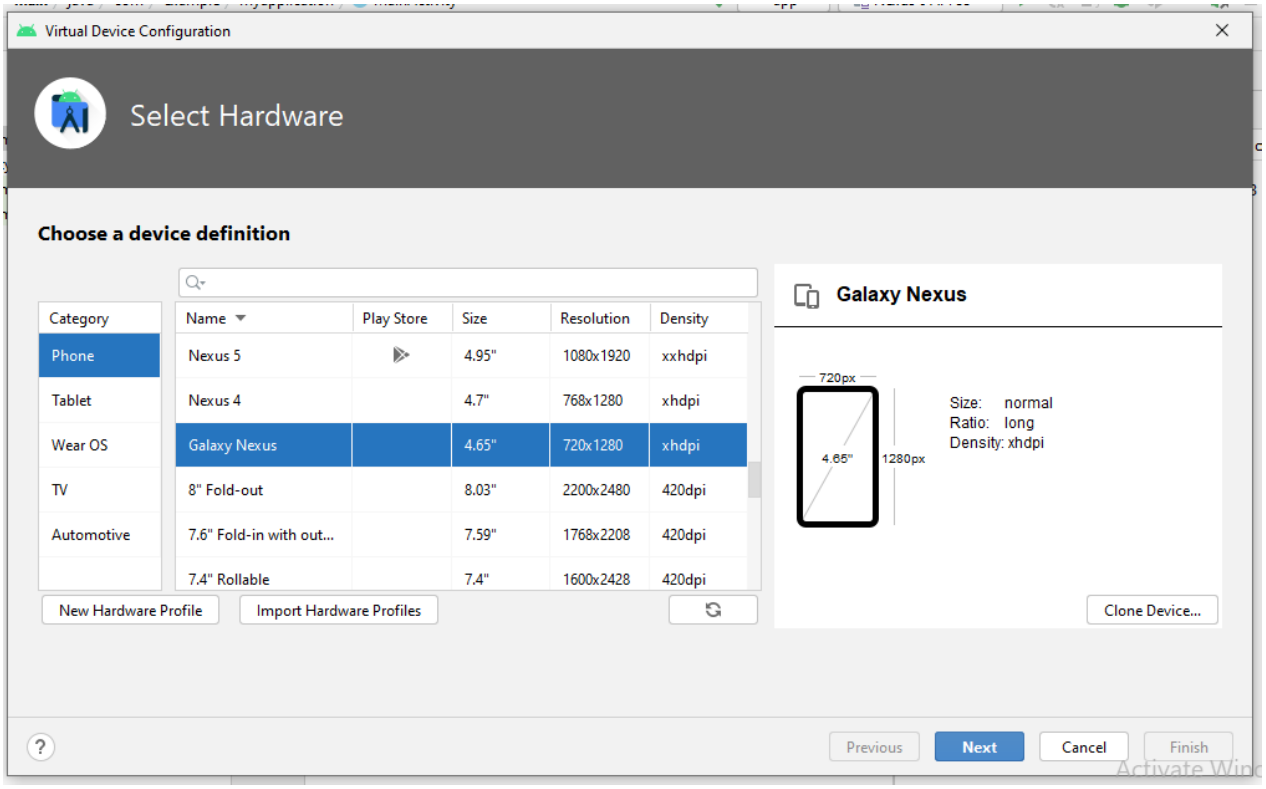
- Write the xml and java code in workspace.
- To run the application create an emulator with following specification.
- Click on Device Manager to the right menu bar.



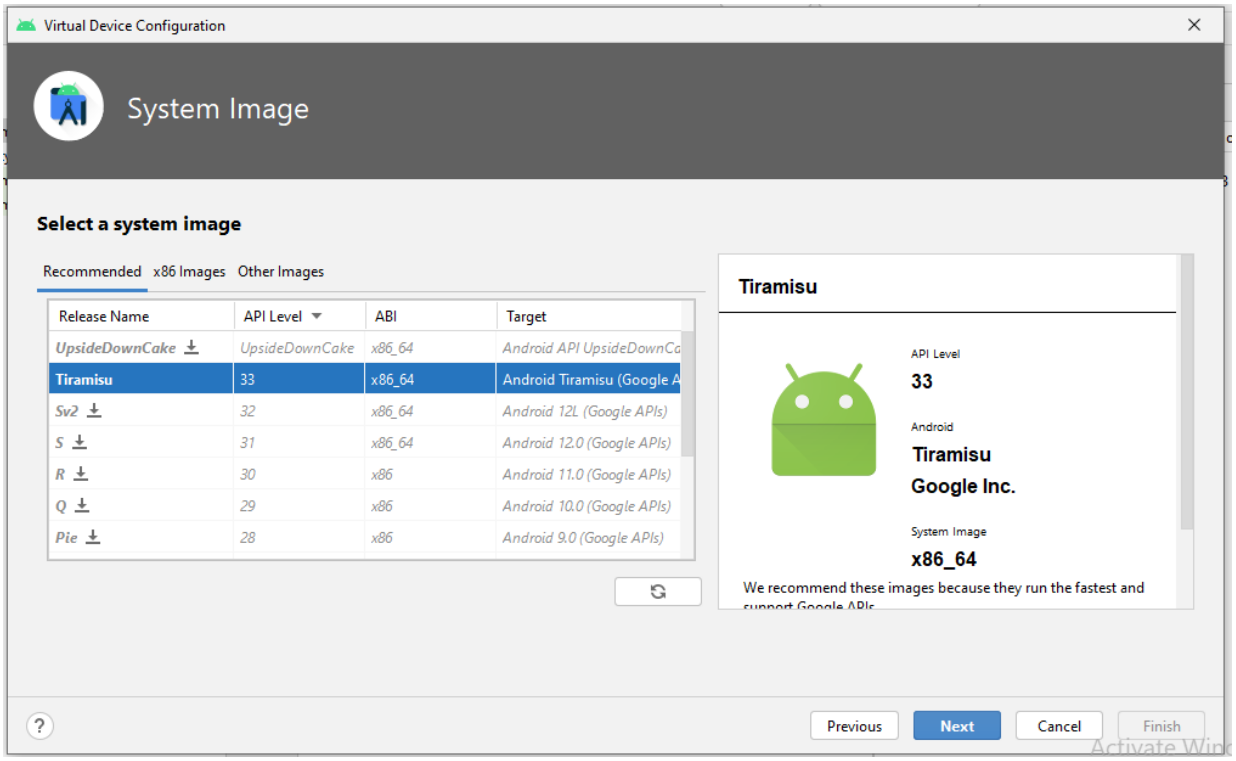
- Click on **Create device** Button to create new emulator.



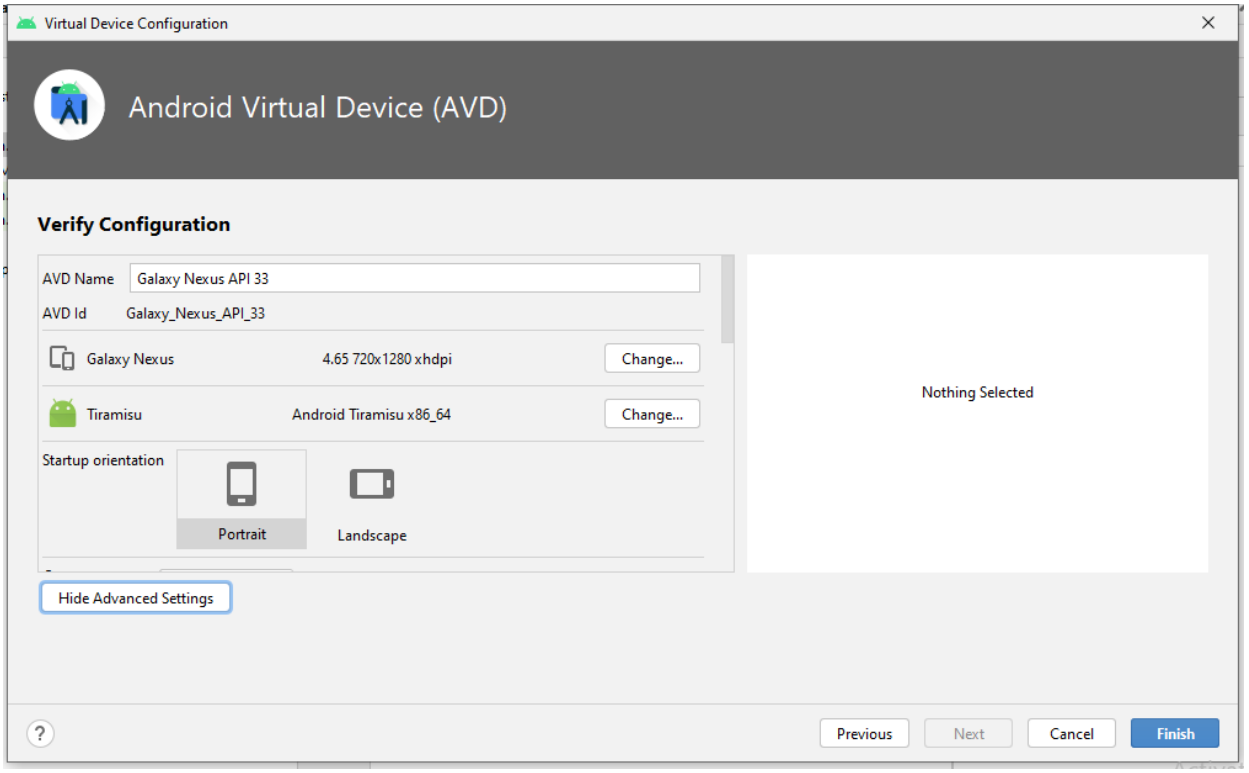
- Select **Phone** ot **Tablet** , then select **Galaxy Nexus** and click on **Next Button.**



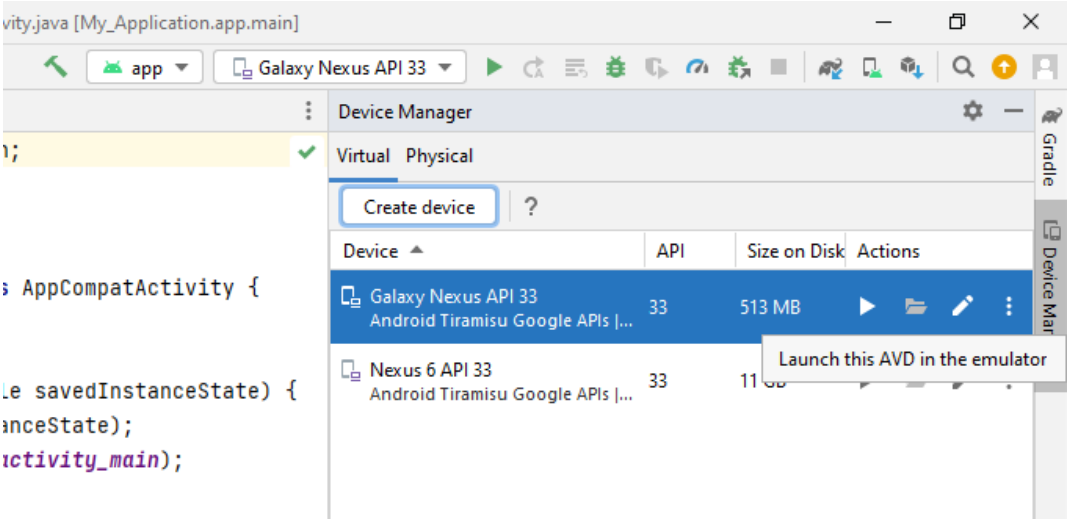
- Select **Tiramisu** of **API level 33** and click on **Next** Button.



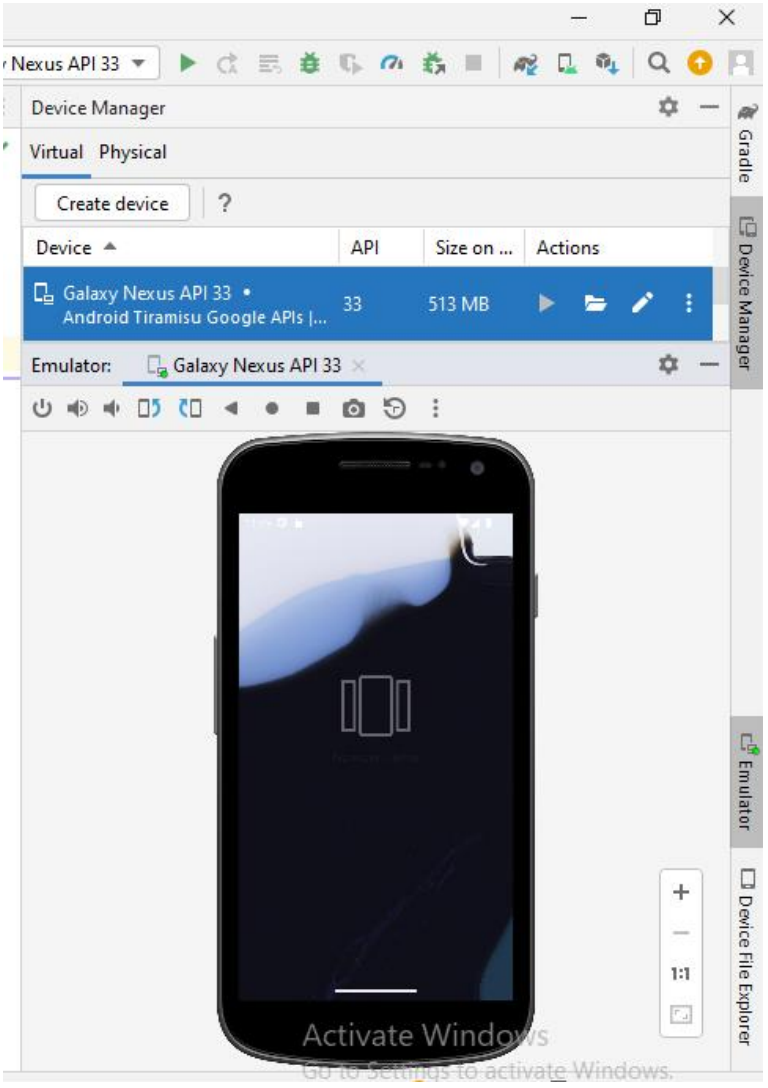
- Enter the **AVD Name** and select **Portrait**.
- Click on **Finish** button.



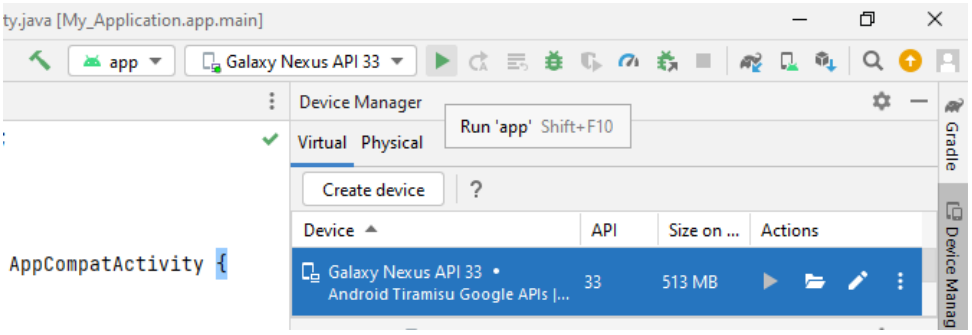
- To Launch the emulator click on **run ►** button Next to **Galaxy Nexus API 33**. ►



- Emulator window pops out.

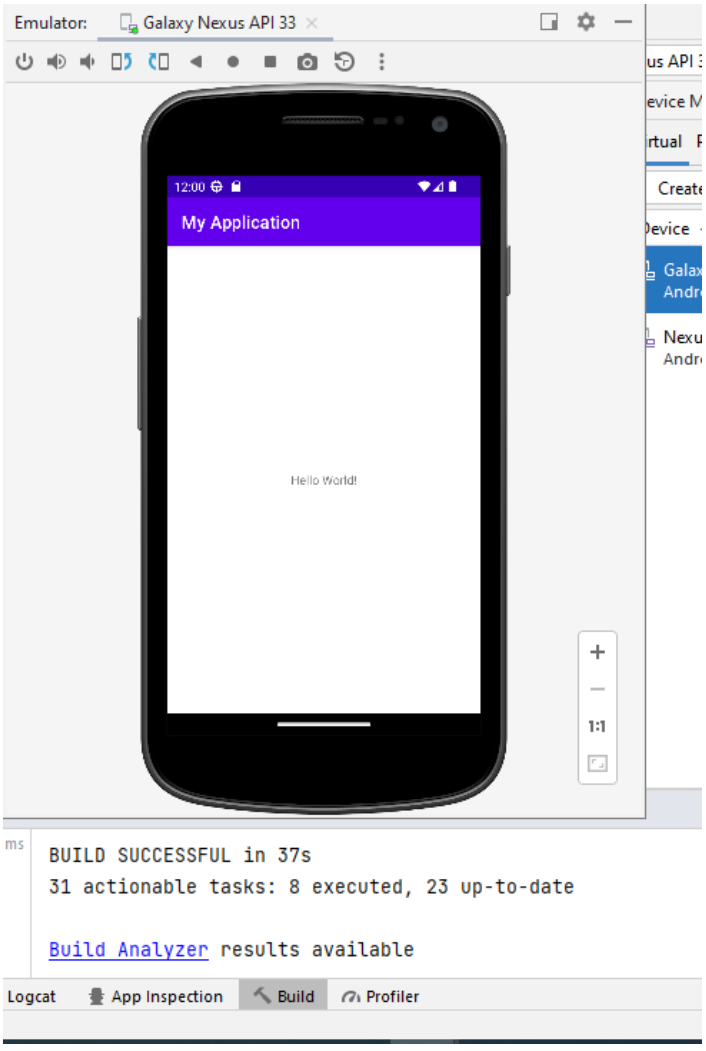


- To run the application Click on Run ► button above the Device Manager or **Shift+F10**.



- Grade Build will be running at the right botton , once done it will install and launch the app.

- Finally the output is viewed in the emulator.



EX. NO : 1
DATE : **GUI COMPONENTS**

AIM :

To develop an “Hello World” application that uses GUI components, Font and Colors.

PROCEDURE:

1) Open eclipse or android studio and select new android project
2)Go to res folder and select layout. Double click the main.xml file.
3)Now you can see the Graphics layout window.
4) Click the main.xml file and type the code
5) Again click the graphics layout tab and screen layout is look like below
6) Go to project explorer and select src folder. Now select mainactivity.java file and type the following code
7) Now go to main.xml and right click .select run as option and select run configuration

PROGRAM :

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
  xmlns:app="http://schemas.android.com/apk/res-auto"
  xmlns:tools="http://schemas.android.com/tools"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  android:orientation="vertical"
  android:gravity="center"
  tools:context=".MainActivity">
  <TextView
        android:id="@+id/idTVHeading"
        android:layout_width="match_parent"
        android:layout_height="61dp"
        android:layout_above="@id/idTVStatus"
        android:layout_centerInParent="true"
        android:layout_margin="20dp"
        android:gravity="center"
        android:padding="10dp"
        android:text="HELLO WORLD!"
        android:textAlignment="center"
        android:textColor="@color/purple_700"
        android:textSize="20sp"
        android:textStyle="bold" />
  <TextView
        android:id="@+id/idTVStatus"
        android:layout_width="290dp"
        android:layout_height="wrap_content"
        android:layout_above="@id/idRadioGroup"
        android:layout_centerInParent="true"
        android:layout_margin="20dp"
```

```
        android:gravity="center"
        android:padding="10dp"
        android:text="View Status"
        android:textAlignment="center"
        android:textColor="@color/black"
        android:textColorLink="#9C27B0"
        android:textSize="20sp"
        android:textStyle="bold" />
    <RadioGroup
        android:id="@+id/idRadioGroup"
        android:layout_width="291dp"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:gravity="center">
    <RadioButton
        android:id="@+id/rb1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:padding="4dp"
        android:text="change text color"
        android:textAlignment="center"
        android:textColor="@color/purple_700"
        android:textColorHighlight="#9C27B0"
        android:textColorLink="#9C27B0"
        android:textSize="20sp" />
    <RadioButton
        android:id="@+id/rb2"
        android:layout_width="291dp"
        android:layout_height="wrap_content"
        android:padding="4dp"
        android:text="change text size"
        android:textAlignment="center"
        android:textColor="@color/purple_700"
        android:textSize="20sp" />
     <RadioButton
        android:id="@+id/rb3"
        android:layout_width="291dp"
        android:layout_height="wrap_content"
        android:padding="4dp"
        android:text="change background"
        android:textAlignment="center"
        android:textColor="@color/purple_700"
        android:textSize="20sp" />
    </RadioGroup>
</LinearLayout>
```

Colors.xml

```
<?xml version="1.0" encoding="utf-8"?>
<resources>
```

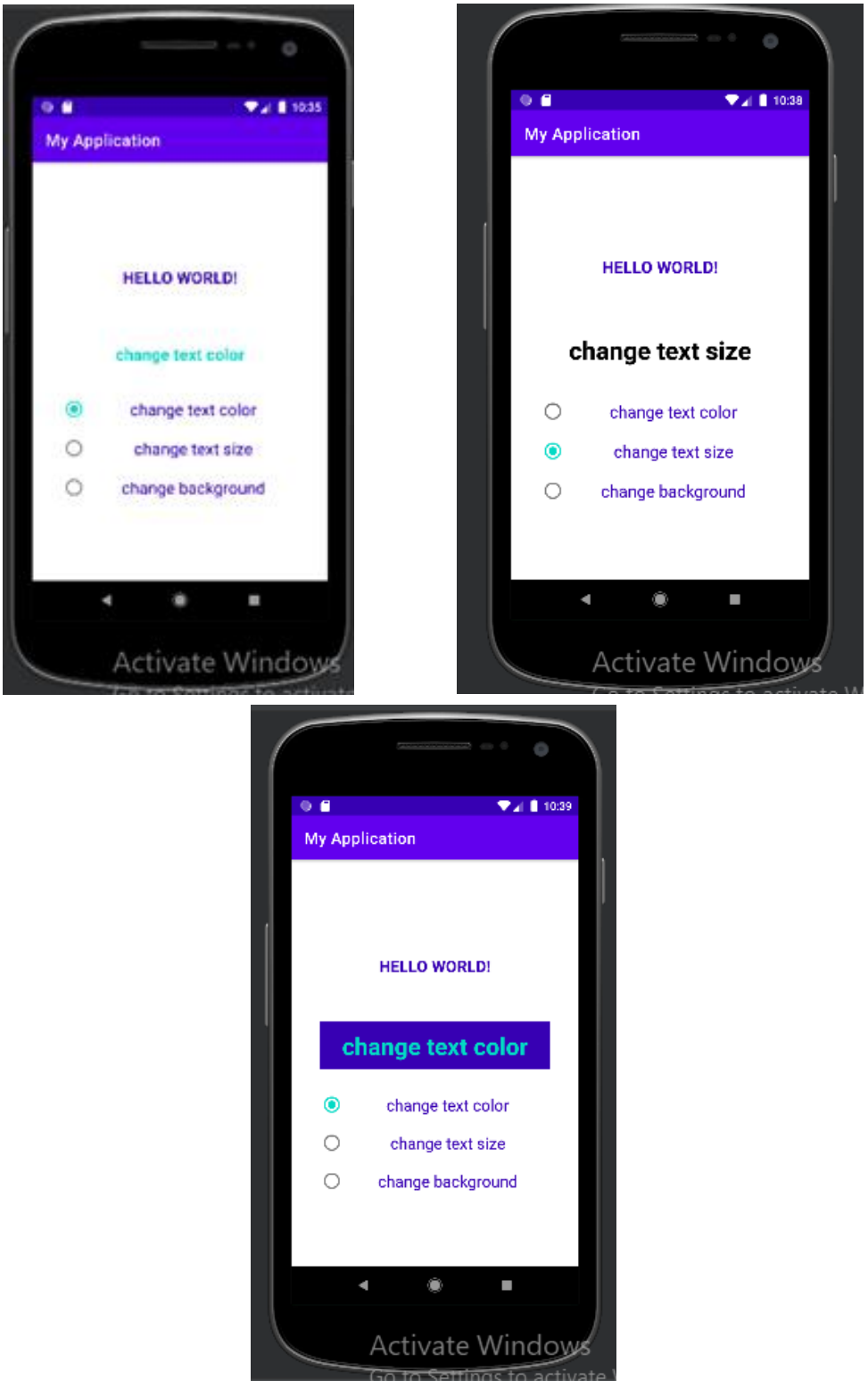
```
        <color name="purple_200">#FFBB86FC</color>
        <color name="purple_500">#FF6200EE</color>
        <color name="purple_700">#FF3700B3</color>
        <color name="teal_200">#FF03DAC5</color>
        <color name="teal_700">#FF018786</color>
        <color name="black">#FF000000</color>
        <color name="white">#FFFFFFFF</color>
</resources>
```

Mainactivity.Java

```
package com.sn.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.graphics.Typeface;
import android.os.Bundle;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.TextView;
public class MainActivity extends AppCompatActivity {
        TextView tv1;
        RadioButton rb_1,rb_2,rb_3;
        RadioGroup rg_1;
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
 setContentView(R.layout.activity_main);
 rg_1=findViewById(R.id.idRadioGroup);
tv1 = findViewById(R.id.idTVStatus);
rg_1.setOnCheckedChangeListener(new RadioGroup.OnCheckedChangeListener() {
@Override
public void onCheckedChanged(RadioGroup group, int checkedId) {
        switch (rg_1.getCheckedRadioButtonId())
         {
                case R.id.rb1:
                RadioButton radioButton = group.findViewById(checkedId);
                tv1.setText(radioButton.getText());
                tv1.setTextColor(0XFF03DAC5);
                break;
                case R.id.rb2:
                RadioButton rb_2 = group.findViewById(checkedId);
                tv1.setText(rb_2.getText());
                Typeface face=Typeface.DEFAULT_BOLD;
                tv1.setTypeface(face);
                tv1.setTextSize(30);
                break;
                case R.id.rb3:
                RadioButton rb_3 = group.findViewById(checkedId);
                tv1.setText(rb_3.getText());
                tv1.setBackgroundColor(0XFF3700B3);
                break;
         }
        }
});
}
```

}

OUTPUT :



RESULT :

Thus an android application to display “Hello World” using the GUI components , Font and Colors has been developed successfully.

EX. NO : 2

DATE :

SIMPLE CALCULATOR THAT USES LAYOUT MANAGERS AND EVENT LISTENERS

AIM:

To develop a simple calculator application that uses Layout Managers and Event Listeners.

PROCEDURE:

Step 1: Create a graphical user interface with buttons for numbers and operations, text field to get the input.
Step 2: Add the listener for all buttons.
Step 3: For the number buttons, set the text field for the numbers
Step 4: Perform operations for each Button and display result.

PROGRAM:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:orientation="vertical"
    android:gravity="center"
    android:layout_width="match_parent"
    android:layout_height="match_parent"

    tools:context=".MainActivity">

    <TextView
        android:layout_width="200dp"
        android:layout_height="50dp"
        android:hint="your answers"
        android:gravity="center"
        android:textSize="25dp"
        android:id="@+id/tv1"
        android:layout_marginTop="20dp"
        />
    <EditText
        android:layout_width="match_parent"
        android:layout_height="50dp"
        android:hint="value 1"
        android:gravity="center"
        android:textSize="25dp"
        android:id="@+id/et1"
        android:layout_marginTop="20dp"
        />
    <Space
        android:layout_width="match_parent"
        android:layout_height="30dp"
        />
```

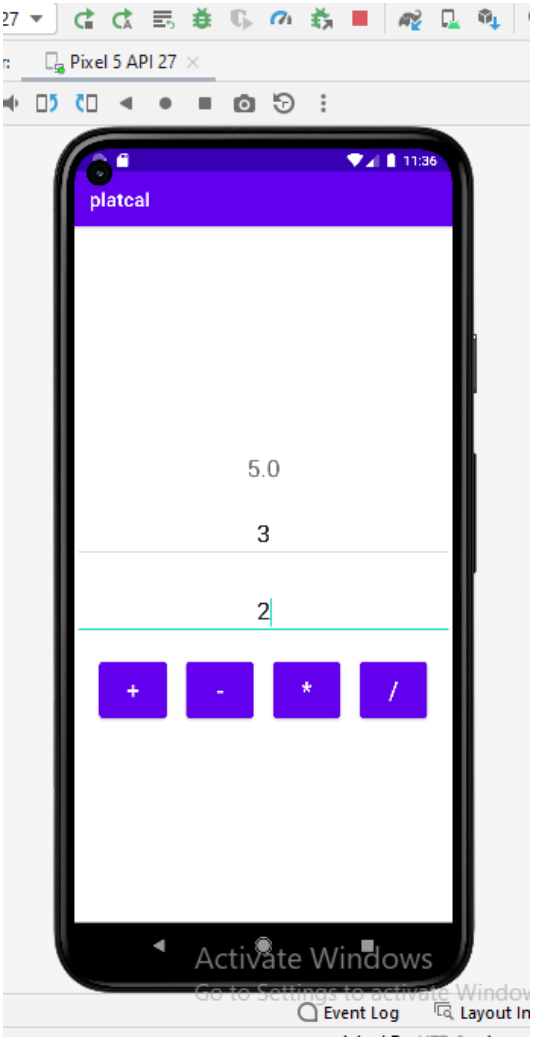
```
<EditText
        android:layout_width="match_parent"
        android:layout_height="50dp"
        android:hint="value 2"
        android:gravity="center"
        android:id="@+id/et2"
        android:textSize="25dp"
        />


    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="70dp"
        android:gravity="center"
        android:layout_marginTop="20dp"
        >
        <Button
            android:layout_width="70dp"
            android:layout_height="70dp"
            android:text="+"
            android:id="@+id/bt1"
            android:textSize="25dp"
            />
        <Space
            android:layout_width="20dp"
            android:layout_height="70dp"
            />
        <Button
            android:layout_width="70dp"
            android:layout_height="70dp"
            android:text="-"
            android:id="@+id/bt2"
            android:textSize="25dp"
            />
        <Space
            android:layout_width="20dp"
            android:layout_height="70dp"
            />
        <Button
            android:layout_width="70dp"
            android:layout_height="70dp"
            android:text="*"
            android:id="@+id/bt3"
            android:textSize="25dp"
            />
        <Space
            android:layout_width="20dp"
            android:layout_height="70dp"
            />
        <Button
            android:layout_width="70dp"
            android:layout_height="70dp"
            android:text="/"
            android:id="@+id/bt4"
            android:textSize="25dp"
            />

    </LinearLayout>
</LinearLayout
```

MainActivity.java

```
package com.example.platcal;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
public class MainActivity extends AppCompatActivity {
   EditText et_1,et_2;
   TextView tv_1;
   Button bt_1,bt_2,bt_3,bt_4;
   int num1,num2;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      et_1=findViewById(R.id.et1);
      et_2=findViewById(R.id.et2);
      tv_1=findViewById(R.id.tv1);
      bt_1=findViewById(R.id.bt1);
      bt_2=findViewById(R.id.bt2);
      bt_3=findViewById(R.id.bt3);
      bt_4=findViewById(R.id.bt4);
      bt_1.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            num1 = Integer.parseInt(et_1.getText().toString());
            num2 = Integer.parseInt(et_2.getText().toString());
            int sum=num1+num2;
            tv_1.setText(Double.toString(sum));
         }
      });
      bt_2.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            num1 = Integer.parseInt(et_1.getText().toString());
            num2 = Integer.parseInt(et_2.getText().toString());
            int sum=num1-num2;
            tv_1.setText(Double.toString(sum));
         }
      });
      bt_3.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            num1 = Integer.parseInt(et_1.getText().toString());
            num2 = Integer.parseInt(et_2.getText().toString());
            int sum=num1*num2;
```

```
            tv_1.setText(Double.toString(sum));
        }
    });
    bt_4.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            num1 = Integer.parseInt(et_1.getText().toString());
            num2 = Integer.parseInt(et_2.getText().toString());
            double sum=num1/num2;
            tv_1.setText(Double.toString(sum));
        }
    });
  }
}
```

OUTPUT:



Result:

Thus the simple calculator application in android using Layout managers and Event Listeners is executed successfully in eclipse

EX. NO : 3

DATE :

GRAPHICAL PRIMITIVES

AIM:

To develop an application that draws basic graphical primitives on the screen.

PROCEDURE

1. Open eclipse or android studio and select new android project
2. Give project name and select next
3. Choose the android version. Choose the lowest android version (Android 2.2) and select next.
4. Enter the package name. Package name must be two word separated by comma and click finish
5. Go to package explorer in the left hand side and select our project.
6. Go to res folder and select layout. Double click the activitymain.xml file. Don't change anything in layout. Leave as default.
7. Now select mainactivity.java file and type the following code.

PROGRAM

activity_main.xml

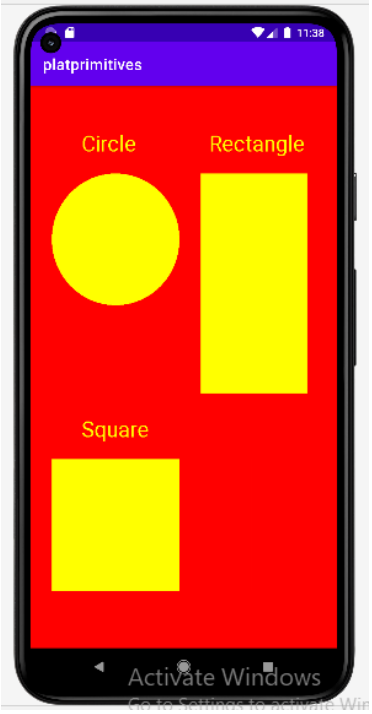
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
   <ImageView
      android:layout_width="match_parent"
      android:layout_height="match_parent"
      android:id="@+id/imageview"
      />
</LinearLayout>
```

MainActivity.java

```
package com.example.platprimitives;
import androidx.appcompat.app.AppCompatActivity;
import android.graphics.Bitmap;
import android.graphics.Canvas;
import android.graphics.Color;
import android.graphics.Paint;
import android.graphics.drawable.BitmapDrawable;
import android.os.Bundle;
import android.widget.ImageView;
public class MainActivity extends AppCompatActivity {
```

```
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        //Creating a Bitmap
        Bitmap bg = Bitmap.createBitmap(720, 1280, Bitmap.Config.ARGB_8888);
        //Setting the Bitmap as background for the ImageView
        ImageView i = (ImageView) findViewById(R.id.imageview);
        i.setBackground(new BitmapDrawable(bg));
        Canvas canvas = new Canvas(bg);
        Paint paint = new Paint();
        paint.setColor(Color.YELLOW);
        paint.setTextSize(50);
        canvas.drawColor(Color.RED);
        canvas.drawText("Rectangle", 420, 150, paint);
        canvas.drawRect(400, 200, 650, 700, paint);
        canvas.drawText("Circle", 120, 150, paint);
        canvas.drawCircle(200, 350, 150, paint);
        canvas.drawText("Square", 120, 800, paint);
        canvas.drawRect(50, 850, 350, 1150, paint);
        canvas.drawLine(520,850,520,1150,paint);
    }
}
```

OUTPUT:



RESULT:

Thus an android application to display the graphical primitives is developed and executed successful.

EX. NO : 4

DATE :

HEALTHCARE APPLICATION THAT MAKE USE OF DATABASES

AIM:

To create an android application that uses database.

PROCEDURE:

1)Open eclipse or android studio and select new android project
2)Give project name and select next
3) Choose the android version. Choose the lowest android version(Android 2.2) and select next
4) Enter the package name. Package name must be two word separated by comma and click finish
5)Go to package explorer in the left hand side and select our project.
6)Go to res folder and select layout. Double click the activity_main.xml file. Add the code below

PROGRAM

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <TextView
        android:id="@+id/tv1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="100dp"
        android:layout_marginTop="8dp"
        android:gravity="center"
        android:text="Patient Details"
        android:textSize="30sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent"
```

```
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.03" />
    <EditText
        android:id="@+id/et1"
        android:layout_width="277dp"
        android:layout_height="58dp"
        android:layout_marginTop="8dp"
        android:ems="10"
        android:gravity="center"
        android:hint="Enter Patient Id"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/tv1"
        app:layout_constraintVertical_bias="0.0" />
    <EditText
        android:id="@+id/et2"
        android:layout_width="277dp"
        android:layout_height="58dp"
        android:layout_marginTop="8dp"
        android:ems="10"
        android:gravity="center"
        android:hint="Enter Name"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/et1"
        app:layout_constraintVertical_bias="0.0" />
    <EditText
        android:id="@+id/et3"
        android:layout_width="277dp"
        android:layout_height="58dp"
        android:layout_marginTop="8dp"
        android:ems="10"
        android:gravity="center"
        android:hint="Enter Disease"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/et2"
        app:layout_constraintVertical_bias="0.0" />
    <Button
        android:id="@+id/b1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="8dp"
        android:gravity="center"
```

```
    android:onClick="onSubmit"
    android:text="Submit"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.543"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@id/et3"
    app:layout_constraintVertical_bias="0.044" />
<Button
    android:id="@+id/b2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="8dp"
    android:gravity="center"
    android:onClick="onUpdate"
    android:text="Update"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.547"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@id/et3"
    app:layout_constraintVertical_bias="0.198" />
<Button
    android:id="@+id/b3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="8dp"
    android:gravity="center"
    android:onClick="onView"
    android:text="View"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.557"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@id/b1"
    app:layout_constraintVertical_bias="0.191" />
<Button
    android:id="@+id/b4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="8dp"
    android:gravity="center"
    android:onClick="onDelete"
    android:text="Delete"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.56"
```

```
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@id/b3"
        app:layout_constraintVertical_bias="0.046" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

DBHelper.java

```
package com.example.myapplication;
import android.content.Context;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import androidx.annotation.Nullable;
public class DBHelper extends SQLiteOpenHelper {
        public DBHelper(@Nullable Context context) {
                super(context, "patient.db", null, 1);
        }
        @Override
        public void onCreate(SQLiteDatabase sqLiteDatabase) {
                sqLiteDatabase.execSQL("create table patient(patientid int,name varchar(20),disease
varchar(5))");
        }
        @Override
        public void onUpgrade(SQLiteDatabase sqLiteDatabase, int i, int i1) {
        sqLiteDatabase.execSQL("drop table if exists patient");
        onCreate(sqLiteDatabase);
        }
}
```

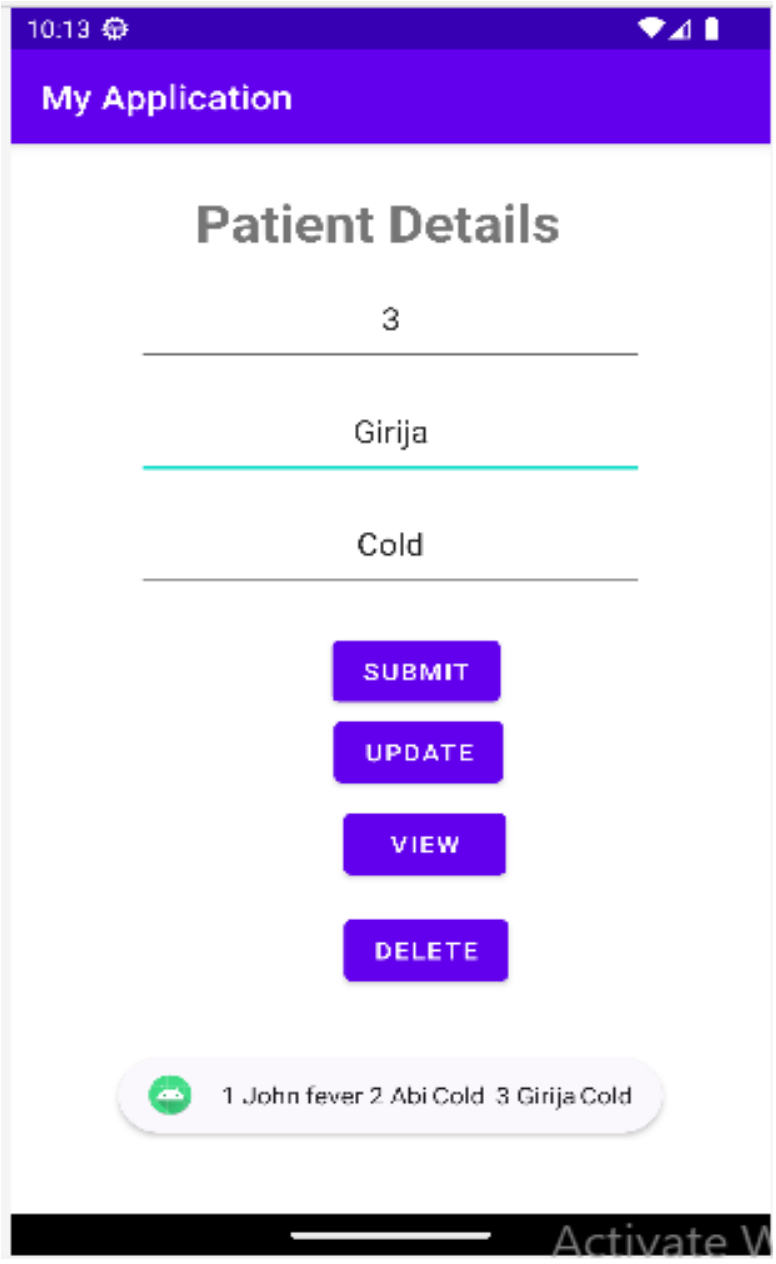
Mainactivity.java

```
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.content.ContentValues;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.os.DropBoxManager;
import android.renderscript.Sampler;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    TextView tv1;
    EditText et1,et2,et3;
    Button b1,b2,b3,b4;
```

```
String pid,name,disease;
SQLiteDatabase db;
@Override
protected void onCreate(Bundle savedInstanceState) {
   super.onCreate(savedInstanceState);
   setContentView(R.layout.activity_main);
   tv1=findViewById(R.id.tv1);
   et1=findViewById(R.id.et1);
   et2=findViewById(R.id.et2);
   et3=findViewById(R.id.et3);
   b1=findViewById(R.id.b1);
   b2=findViewById(R.id.b2);
   b3=findViewById(R.id.b3);
   b4=findViewById(R.id.b4);
   DBHelper dbHelper=new DBHelper(this);
   db=dbHelper.getWritableDatabase();
   db=dbHelper.getReadableDatabase();
}
public void onSubmit(View view)
{
   pid=et1.getText().toString();
   name=et2.getText().toString();
   disease=et3.getText().toString();
   if(pid.equals("")||name.equals("")||disease.equals(""))
   {
      Toast.makeText(this,"please enter values",Toast.LENGTH_SHORT).show();
      return;
   }
   else {
      ContentValues values = new ContentValues();
      values.put("patientid", pid);
      values.put("name", name);
      values.put("disease", disease);
      db.insert("patient", null, values);
      Toast.makeText(this, "Inserted successfully", Toast.LENGTH_SHORT).show();
   }
}
public void onUpdate(View view)
{
   pid=et1.getText().toString();
   name=et2.getText().toString();
   disease=et3.getText().toString();
   if(pid.equals("")||name.equals("")||disease.equals(""))
   {
      Toast.makeText(this,"please enter values",Toast.LENGTH_SHORT).show();
      return;
   }
```

```
        else {
            ContentValues values = new ContentValues();
            values.put("patientid", pid);
            values.put("name", name);
            values.put("disease", disease);

            db.update("patient",values,"patientid="+pid,null);
            Toast.makeText(this, "Updated successfully", Toast.LENGTH_SHORT).show();
        }
    }
    public void onView(View view)
    {
        StringBuffer buffer=new StringBuffer();
        Cursor c=db.rawQuery("select * from patient",null);
        while(c.moveToNext())
        {
            buffer.append("\t"+c.getString(0));
            buffer.append("\t"+c.getString(1));
            buffer.append("\t"+c.getString(2));
        }
        Toast.makeText(this,buffer.toString(),Toast.LENGTH_SHORT).show();
    }
    public void onDelete(View view)
    {
        pid=et1.getText().toString();
        name=et2.getText().toString();
        disease=et3.getText().toString();
        if(pid.equals(""))
        {
            Toast.makeText(this,"please enter values",Toast.LENGTH_SHORT).show();
            return;
        }
        else {
            ContentValues values = new ContentValues();
            values.put("patientid", pid);
            values.put("name", name);
            values.put("disease", disease);
            db.delete("patient","patientid="+pid,null);
            Toast.makeText(this, "Deleted successfully", Toast.LENGTH_SHORT).show();
        }
    }
}
```

OUTPUT:



RESULT:

Thus an android application is created successfully to implement the database connection.

EX. NO : 5

DATE :

NOTIFICATION MANAGER TO DISPLAY NOTIFICATION

AIM:

To create an application using notification manager in android.

PROCEDURE:

Step 1:Create a user interface with button and textfield to get the message to be notified.
Step 2: Add an image for icon in the drawable folder under res folder to the project at the left side.
Step 3: Add the name of the image to dispay it as an icon in the output.
Step 4: The when the button is clicked print the message in the notification area.

PROGRAM:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="36dp"
        android:text="Send Notification"
        app:layout_constraintEnd_toEndOf="@+id/editTextTextPersonName"
        app:layout_constraintHorizontal_bias="0.51"
        app:layout_constraintStart_toStartOf="@+id/editTextTextPersonName"
        app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName" />
    <EditText
        android:id="@+id/editTextTextPersonName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="244dp"
        android:ems="10"
        android:hint="Message"
        android:inputType="textPersonName"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        app:layout_constraintStart_toStartOf="parent"
```

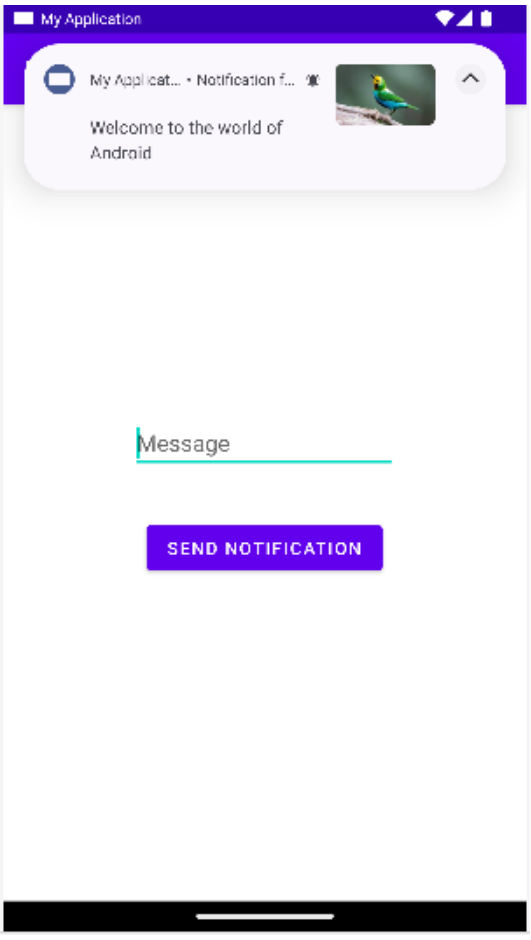
```
    app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

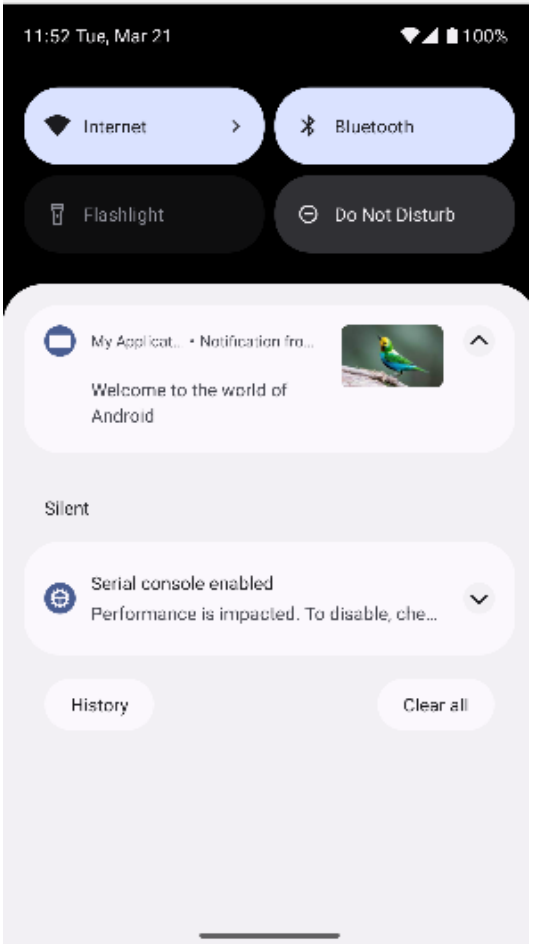
MainActivity.java

```
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.content.res.ResourcesCompat;
import android.app.Notification;
import android.app.NotificationChannel;
import android.app.NotificationManager;
import android.graphics.Bitmap;
import android.graphics.drawable.BitmapDrawable;
import android.graphics.drawable.Drawable;
import android.os.Build;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
public class MainActivity extends AppCompatActivity {
   public static String channelId="My channel";
   Notification n;
   NotificationManager notificationManager;
   EditText et;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      et=findViewById(R.id.editTextTextPersonName);
      Drawable drawable= ResourcesCompat.getDrawable(getResources(),R.drawable.img,null);
      BitmapDrawable bitmapDrawable=(BitmapDrawable) drawable;
      Bitmap largeIcon= bitmapDrawable.getBitmap();
      notificationManager=(NotificationManager)
getSystemService(NOTIFICATION_SERVICE);
      Button btn=(Button) findViewById(R.id.button);
      btn.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.O) {
               n=new Notification.Builder(MainActivity.this)
                     .setLargeIcon(largeIcon)
                     .setSmallIcon(R.drawable.img)
                     .setContentText(et.getText().toString())
                     .setSubText("Notification from this app")
                     .setChannelId(channelId)
                     .build();
               notificationManager.createNotificationChannel(new
NotificationChannel(channelId,"new channel",NotificationManager.IMPORTANCE_HIGH));
```

```
            }else{
               n=new Notification.Builder(MainActivity.this)
                     .setLargeIcon(largeIcon)
                     .setSmallIcon(R.drawable.icon)
                     .setContentText(et.getText().toString())
                     .setSubText("Notification from this app")
                     .build();
            }
            notificationManager.notify(channelId,100,n);
            et.setText("");
         }
      });

   }
}
```

OUTPUT:





RESULT:

Thus an application using notification manager to display notification is executed successfully in android studio.

EX. NO : 6

DATE :

MUTITHREADING

AIM:

To develop an application that implements Multithreading.

PROCEDURE:

1)Open eclipse or android studio and select new android project
2)Give project name and select next
3) Choose the android version. Choose the lowest android version(Android 2.2) and select next
4) Enter the package name , Package name must be two word separated by comma and click finish
5) Go to package explorer in the left hand side and select our project.
6) Go to res folder and select layout and double click on the activity_main.xml file.
7) Now select mainactivity.java file and type the code.
8)Now go to main.xml and right click .select run as option and select run configuration
9) Android output is present in the android emulator as shown in below.

PROGRAM:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   tools:context=".MainActivity">
   <RelativeLayout
      android:id="@+id/r1"
      android:layout_width="364dp"
      android:layout_height="90sp"
      android:layout_alignParentLeft="true"
      android:layout_alignParentTop="true"
      android:layout_marginLeft="43dp"
      android:layout_marginTop="44dp">
      <TextView
         android:layout_width="wrap_content"
         android:layout_height="wrap_content"
         android:id="@+id/tv1"
         android:layout_alignParentStart="true"
         android:layout_alignParentLeft="true"
         android:layout_alignParentTop="true"
```

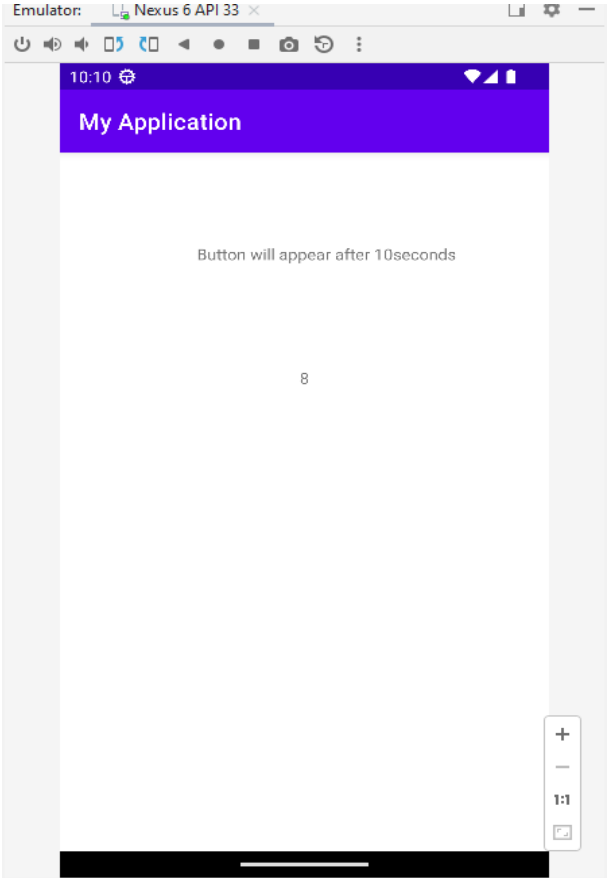
```
        android:layout_alignParentEnd="true"
        android:layout_alignParentBottom="true"
        android:layout_marginStart="72dp"
        android:layout_marginLeft="72dp"
        android:layout_marginTop="38dp"
        android:layout_marginEnd="74dp"
        android:layout_marginBottom="33dp"
        android:gravity="center"
        android:text="Button will appear after 10seconds" />
    </RelativeLayout>
      <RelativeLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/r2"
        android:layout_centerHorizontal="true"
        android:layout_below="@+id/r1">
        <TextView
          android:layout_width="wrap_content"
          android:layout_height="wrap_content"
          android:text="10"
          android:id="@+id/tv2"
          android:layout_marginTop="59dp"/>
    </RelativeLayout>
    <RelativeLayout
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:id="@+id/r3"
      android:layout_below="@+id/r2"
      android:layout_centerHorizontal="true">
      <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_alignParentTop="true"
        android:gravity="center"
        android:id="@+id/button"
        android:layout_centerHorizontal="true"
        android:text="CLICK ME"
        android:visibility="invisible" />
    </RelativeLayout>
</RelativeLayout>
```

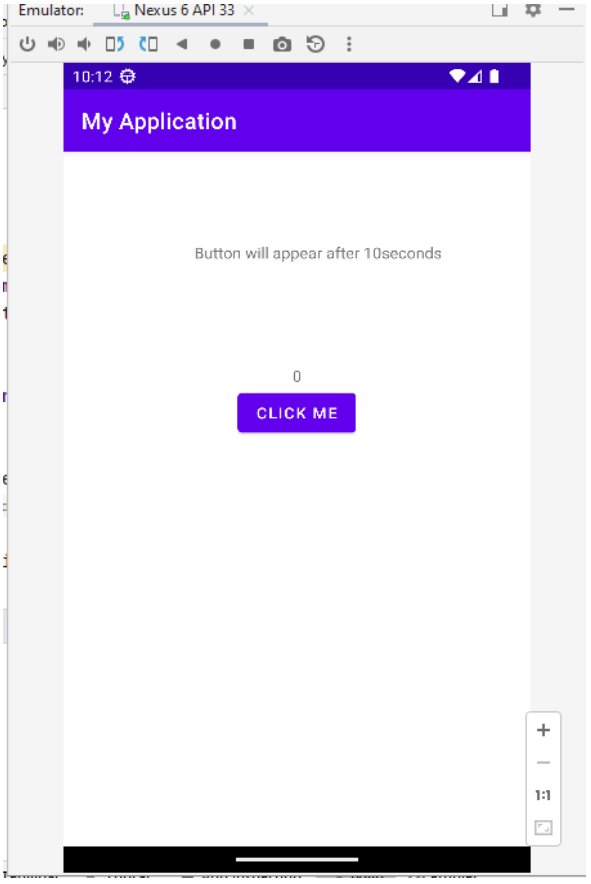
MainActivity.java

```
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.os.Handler;
```

```
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
public class MainActivity extends AppCompatActivity {
    Handler hand=new Handler();
    Button clickme;
    TextView timer;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        timer=(TextView) findViewById(R.id.tv2);
        clickme=(Button) findViewById(R.id.button);
        hand.postDelayed(run,1000);
    }
    Runnable run=new Runnable() {
        @Override
        public void run() {
            updateTimer();
        }
    };
    public void updateTimer() {
        timer.setText("" + (Integer.parseInt(timer.getText().toString()) - 1));
        if (Integer.parseInt(timer.getText().toString()) == 0) {
            clickme.setVisibility(View.VISIBLE);
        } else {
            hand.postDelayed(run, 1000);
        }
    }
    public void clicker(View view) {
        hand.postDelayed(run, 1000);
        timer.setText("10");
        clickme.setVisibility(View.INVISIBLE);
    }
}
```

OUTPUT:





RESULT:

Thus the multithreading concept is executed successfully in android studio.

EX.NO : 7

GPS Location Information

DATE :

AIM:

To develop a native application that uses GPS location information.

PROCEDURE:

1)Open android studio and select new android project
2)Give project name and select next
3) Choose the android version. Choose the lowest android version(Android 2.2) andselect next
4) Enter the package name. Package name must be two word separated by comma andclick finish
5) Go to package explorer in the left hand side and select our project
6) Go to res folder and select layout and double click on activity_main.xml.
7) Now select mainactivity.java file and type the following code. In my coding mainactivity name is GPSlocationActivity.

PROGRAM

activity_main.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:paddingBottom="@dimen/activity_vertical_margin"
        android:paddingLeft="@dimen/activity_horizontal_margin"
        android:paddingRight="@dimen/activity_horizontal_margin"
        android:paddingTop="@dimen/activity_vertical_margin"
        tools:context=".MainActivity" >
        <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_alignParentTop="true"
        android:layout_marginLeft="100dp"
        android:layout_marginTop="139dp"
        android:text="Show Location" />
</RelativeLayout>
```

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
  package="com.example.gpslocation"
  android:versionCode="1"
  android:versionName="1.0" >
  <uses-sdk
  android:minSdkVersion="8"
  android:targetSdkVersion="18" />
     <uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION"/>
     <uses-permission android:name="android.permission.ACCESS_FINE_LOCATION"/>
     <uses-permission android:name="android.permission.INTERNET"/>
  <application
  android:allowBackup="true"
  android:icon="@drawable/ic_launcher"
  android:label="@string/app_name"
  android:theme="@style/AppTheme" >
  <activity
                android:name="com.example.gpslocation.MainActivity"
                android:label="@string/app_name" >
                <intent-filter>
                <action android:name="android.intent.action.MAIN" />

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

Mainactivity.java

```
package com.example.gpslocation;

import android.app.Activity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;
public class MainActivity extends Activity {
Button btnShowLocation;
GPStrace gps;
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
btnShowLocation=(Button)findViewById(R.id.button1);
btnShowLocation.setOnClickListener(new View.OnClickListener() {
@Override
public void onClick(View V) {
// TODO Auto-generated method stub
gps=new GPStrace(MainActivity.this);
```

```
if(gps.canGetLocation()) {
double latitude=gps.getLatitude();
double longitude=gps.getLongitude();
Toast.makeText(getApplicationContext(), "your Location is \nLat:"+latitude+"\nLong"+longitude,
Toast.LENGTH_LONG).show();
}
else {
gps.showSettingAlert();
}
}
});
}
}
```

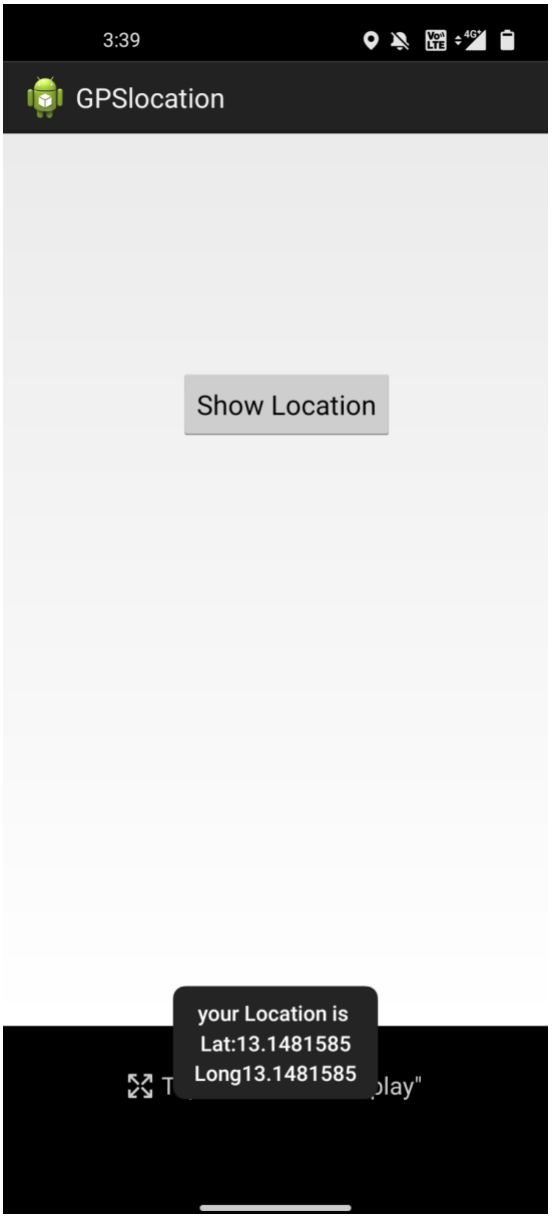
GPStrace.java

```
package com.example.gpslocation;
import android.app.AlertDialog;
import android.app.Service;
import android.content.Context;
import android.content.DialogInterface;
import android.content.Intent;
import android.location.Location;
import android.location.LocationListener;
import android.location.LocationManager;
import android.os.Bundle;
import android.os.IBinder;
public class GPStrace extends Service implements LocationListener{
private final Context context;
boolean isGPSEnabled=false;
boolean canGetLocation=false;
boolean isNetworkEnabled=false;
Location location;
double latitude;
double longtitude;
private static final long MIN_DISTANCE_CHANGE_FOR_UPDATES=1;
private static final long MIN_TIME_BW_UPDATES=3000;
protected LocationManager locationManager;
public GPStrace(Context context)
{
this.context=context;
getLocation();
}
public Location getLocation()
{
try {
locationManager=(LocationManager)context.getSystemService(LOCATION_SERVICE);
isGPSEnabled=locationManager.isProviderEnabled(LocationManager.GPS_PROVIDER);
isNetworkEnabled=locationManager.isProviderEnabled(LocationManager.NETWORK_PROVIDER);
```

```
if(!isGPSEnabled && !isNetworkEnabled) {
}else {
this.canGetLocation=true;
if(isNetworkEnabled) {
locationManager.requestLocationUpdates(LocationManager.NETWORK_PROVIDER,
MIN_TIME_BW_UPDATES, MIN_DISTANCE_CHANGE_FOR_UPDATES, this);
}
if(locationManager!=null) {
location=locationManager.getLastKnownLocation(LocationManager.NETWORK_PROVIDER);
if (location !=null) {
latitude=location.getLatitude();
longtitude=location.getLongitude();
}
}
}
if (isGPSEnabled) {
if (location==null) {
locationManager.requestLocationUpdates(LocationManager.GPS_PROVIDER,
MIN_TIME_BW_UPDATES, MIN_DISTANCE_CHANGE_FOR_UPDATES, this);
if (locationManager!=null) {
location=locationManager.getLastKnownLocation(LocationManager.GPS_PROVIDER);
if (location!=null) {
latitude=location.getLatitude();
longtitude=location.getLongitude();
}
}
}
}
}
catch(Exception e)
{
e.printStackTrace();
}
return location;
}
public void stopUsingGPS() {
if (locationManager!=null) {
locationManager.removeUpdates(GPStrace.this);
}
}
public double getLatitude() {
if (location!=null) {
latitude=location.getLatitude();
}
return latitude;
}
public double getLongitude(){
if (location!=null) {
longtitude=location.getLatitude();
}
```

```
return longtitude;
}
public boolean canGetLocation(){
return this.canGetLocation;
}
public void showSettingAlert(){
AlertDialog.Builder alertDialog=new AlertDialog.Builder(context);
alertDialog.setTitle("GPS is settings");
alertDialog.setMessage("GPS is not enabled.Do you want to go to setting menu?");
alertDialog.setPositiveButton("settings", new DialogInterface.OnClickListener() {
@Override
public void onClick(DialogInterface dialog, int which) {
// TODO Auto-generated method stubs
Intent viewIntent=new
Intent(android.provider.Settings.ACTION_LOCATION_SOURCE_SETTINGS);
startActivity(viewIntent);
}
});
alertDialog.setNegativeButton("cancel", new DialogInterface.OnClickListener() {
@Override
public void onClick(DialogInterface dialog, int which) {
// TODO Auto-generated method stub
dialog.cancel();
}
});
alertDialog.show();
}
@Override
public void onLocationChanged(Location location) {
// TODO Auto-generated method stub
}
@Override
public void onProviderDisabled(String provider) {
// TODO Auto-generated method stub
}
@Override
public void onProviderEnabled(String provider) {
// TODO Auto-generated method stub
}
@Override
public void onStatusChanged(String provider, int status , Bundle extras) {
//TODO Auto-generated method stub
}
@Override
public IBinder onBind(Intent intent) {
//TODO Auto-generated method stub
return null;
}
}
```

OUTPUT :



RESULT :

Thus an android application to display GPS location information has been developed and executed successfully.

EX.NO : 8

WRITE DATA TO THE SD CARD

DATE :

AIM:

To implement an application that writes data to the SD card.

PROCEDURE:

1)Open android studio and select new android project.
2)Give project name and select next
3) Choose the android version. Choose the lowest android version(Android 2.2) and select next
4) Enter the package name. package name must be two word seprated by comma and click finish
5)Go to package explorer in the left hand side , select our project.
6) Go to res folder and select layout, double click the main.xml file.
7) Now select mainactivity.java file and type the code.
8)Next step is to set permission to write data in sdcard , So go to AndroidManifest.xml file,Copy and paste the following coding. The code should come before <application> tab.

```
<uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE">
</uses-permission>
```

9)Now go to main.xml and right click .select run as option and select run configuration
10) Android output is present in the android emulator as shown in below.

PROGRAM:

activity_main.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:paddingBottom="@dimen/activity_vertical_margin"
   android:paddingLeft="@dimen/activity_horizontal_margin"
   android:paddingRight="@dimen/activity_horizontal_margin"
   android:paddingTop="@dimen/activity_vertical_margin"
   tools:context=".MainActivity" >
   <EditText
      android:id="@+id/editText"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_alignLeft="@+id/editText”
      android:layout_alignParentTop="true"
      android:layout_marginTop="83dp"
      android:ems="10"
      android:hint="Filename" >
```

```
    <requestFocus />
  </EditText>
  <EditText
    android:id="@+id/editText"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/editText1"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="36dp"
    android:ems="10" android:hint="Message"
    android:inputType="textMultiLine" />
  <Button
    android:id="@+id/button1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/editText”
    android:layout_centerHorizontal="true"
    android:layout_marginTop="26dp"
    android:text="Submit" />
</RelativeLayout>
```

MainActivity.java

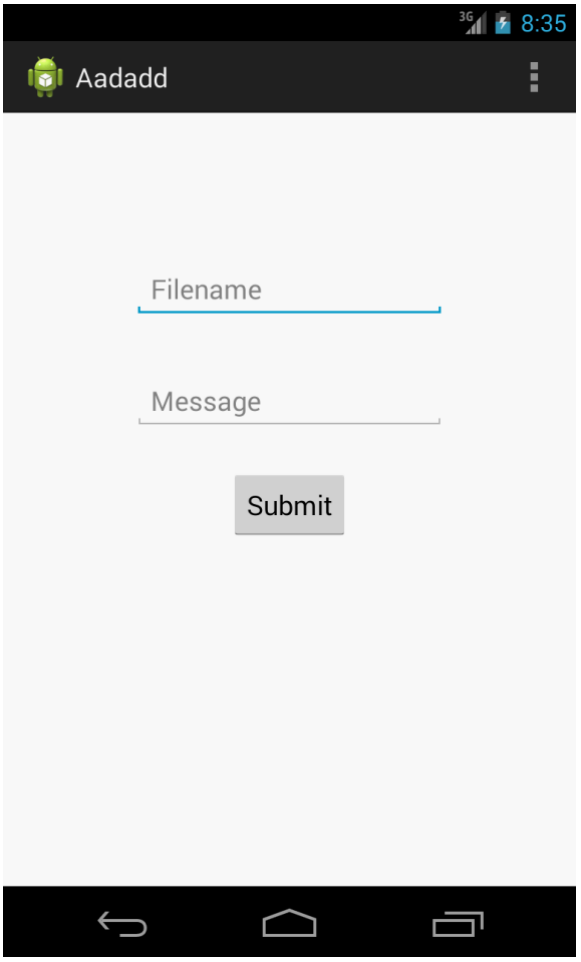
```
Package.com.example.filecreation;
import java.io.File;
import java io.FileOutputStream
import  android.os.Bundle;
import android.os.Environment;
import android.app.Activity;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
public class MainActivity extends Activity {EditText t1,t2;
        Button b;
        @Override
        protected void onCreate(Bundle savedInstanceState)
                {super.onCreate(savedInstanceState);
                setContentView(R.layout.activity_main);
                t1=(EditText)findViewById(R.id.editText1);
                t2=(EditText)findViewById(R.id.editText2);
                b=(Button)findViewById(R.id.button1);
                b.setOnClickListener(new OnClickListener() {
                        @Override
                        public void onClick(View arg0)
                                {File sdcard=new
File(Environment.getExternalStorageDirectory().getAbsolutePath()+"/Kughan");
```

```
                                    sdcard.mkdirs();
                                    File file=new
                                    File(sdcard,t1.getText().toString()+".txt");try {
                                            FileOutputStream fos= new
                                            FileOutputStream(file);
                                            fos.write(t2.getText().toString().getBytes());
                                            fos.close();
                                            Toast.makeText(getApplicationContext(), "File
CreatedSuccessfully :-)", Toast.LENGTH_SHORT).show();
                                    } catch (Exception e) {
                                            // TODO Auto-generated catch block
                                            Toast.makeText(getApplicationContext(), "Unable to
create File :-(", Toast.LENGTH_SHORT).show();
                                    }
                            }
                    });
            }
}
```

AndroidManifestFile.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest
   xmlns:android="http://schemas.android.com/apk/res/android"
   package="com.example.filecreation"
   android:versionCode="1"
   android:versionName="1.0" >
   <uses-sdk
      android:minSdkVersion="8"
      android:targetSdkVersion="19" />
   <uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE"/>
   <application android:allowBackup="true"
      android:icon="@drawable/ic_launcher
      "android:label="@string/app_name"
      android:theme="@style/AppTheme" >
      <activity
         android:name="com.example.filecreation.MainActivity
         "android:label="@string/app_name" >
         <intent-filter>
            <action android:name="android.intent.action.MAIN" />
            <category android:name="android.intent.category.LAUNCHER" />
         </intent-filter>
      </activity>
   </application>
</manifest>
```

OUTPUT



RESULT:

Thus implementation of a program such that data is written into a SD-card is executed successfully.

EX.NO : 9

SHORT MESSAGE SERVICE

DATE :

AIM:

To implement an application that creates an alert upon receiving a message.

PROCEDURE:

Step 1: Create a user interface and add textfields for the emulator id to send the message and the message content.

Step 2: Then open two emulators and launch the program in one of them.

Step 3: Then give the other emulator id or Mobile number in the textfield and message.

Step 4 : The message would be seen in the other emulator in top left corner.

PROGRAM :

Activitymain.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <EditText
        android:id="@+id/editTextTextPersonName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:text="Number"
        app:layout_constraintBottom_toTopOf="@+id/editTextTextPersonName2"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
    <EditText
        android:id="@+id/editTextTextPersonName2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="100dp"
        android:layout_marginBottom="208dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:text="Text"
        app:layout_constraintBottom_toTopOf="@+id/button"
        app:layout_constraintStart_toStartOf="parent" />
    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="156dp"
        android:layout_marginBottom="156dp"
```

```
        android:text="Send"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintStart_toStartOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

AndroidManifestfile.xml

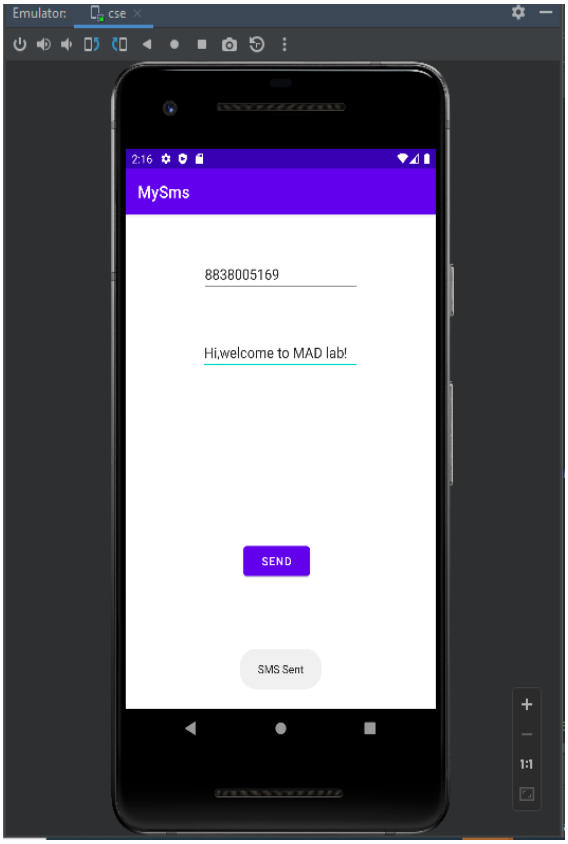
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.mysms">
    <uses-permission android:name="android.permission.SEND_SMS" />
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.MySms">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>
</manifest>
```

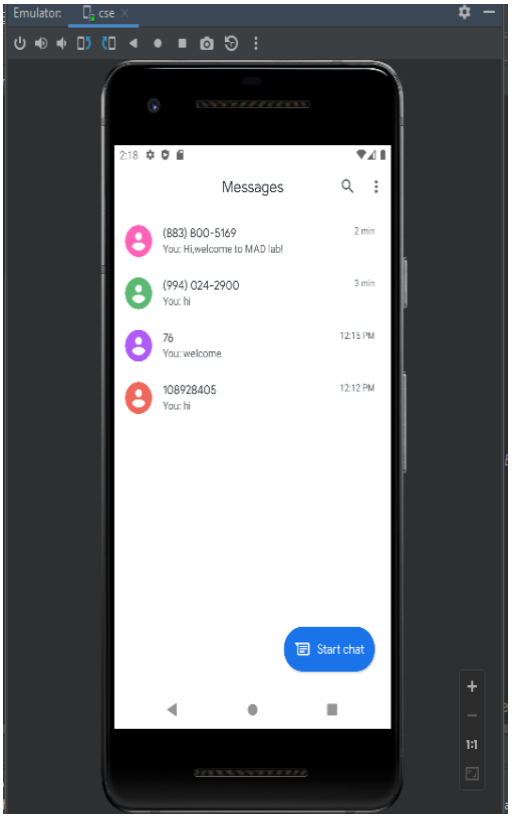
MainActivity.java

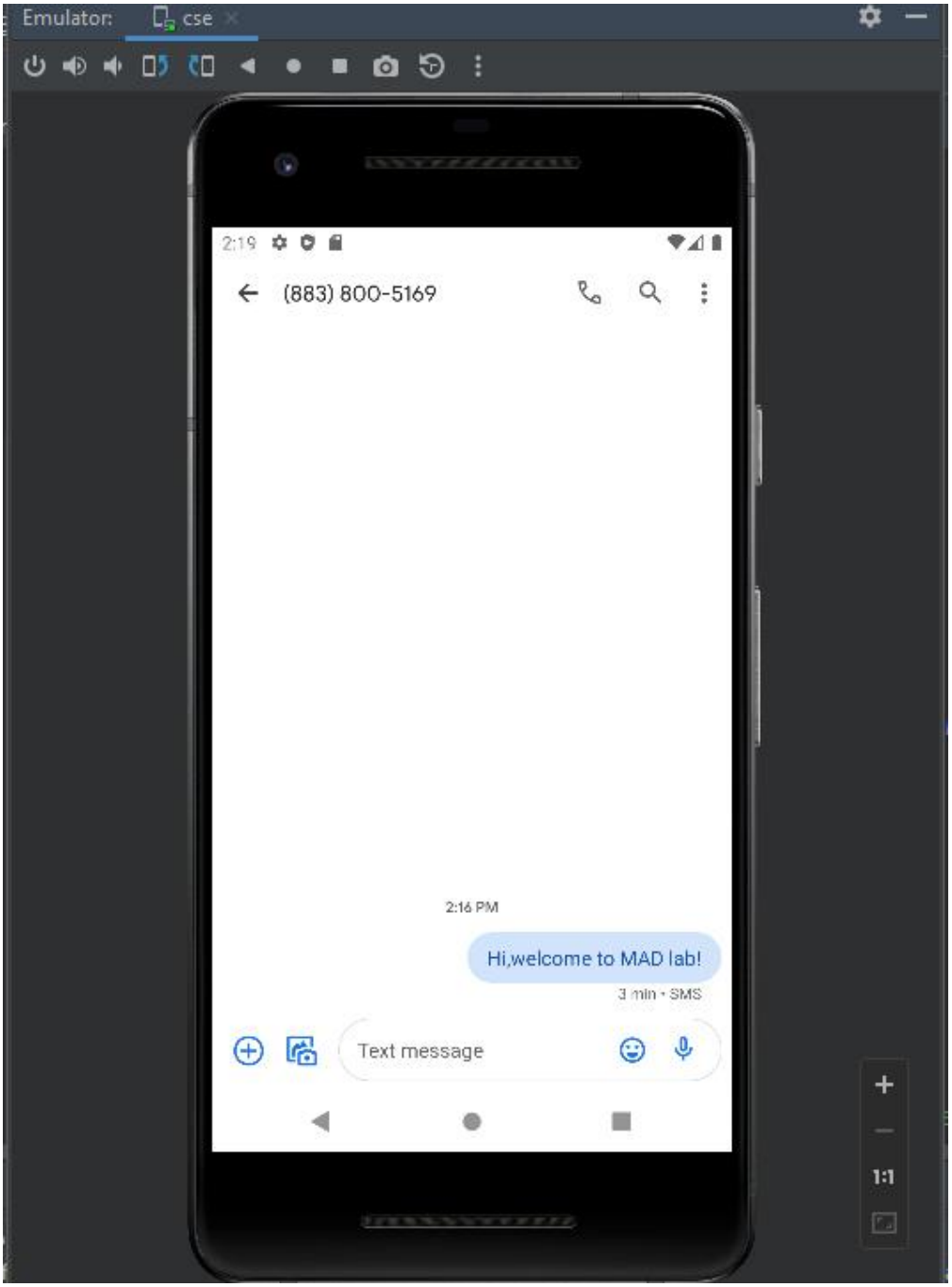
```
package com.example.mysms;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;
import android.Manifest;
import android.telephony.SmsManager;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.os.Bundle;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    private static final int MY_PERMISSIONS_REQUEST_SEND_SMS =0 ;
    private String phoneNo,message;
    private Button b;
    private EditText e1,e2;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
            e1 = findViewById(R.id.editTextTextPersonName);
            e2 = findViewById(R.id.editTextTextPersonName2);
            b = findViewById(R.id.button);
            SmsManager smsManager = SmsManager.getDefault();
```

```
        ActivityCompat.requestPermissions(this,new String[]{
           Manifest.permission.SEND_SMS},MY_PERMISSIONS_REQUEST_SEND_SMS);
        b.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
           phoneNo = e1.getText().toString();
           message = e2.getText().toString();
           try {
              SmsManager smsManager1 = SmsManager.getDefault();
              smsManager.sendTextMessage(phoneNo, null, message, null, null);
              Toast.makeText(getApplicationContext(),"SMS
Sent",Toast.LENGTH_LONG).show();
           }
           catch (Exception e)
           {
              Toast.makeText(getApplicationContext(),"SMS failed , Please try again
later!",Toast.LENGTH_LONG).show();
           }

        }
     });
  }
  }
```

OUTPUT :







RESULT :

Thus the Short Message Service (SMS) application to create an alert on receiving a message has been executed and verified successfully.

EX.NO : 10

RSS FEED

DATE :

AIM:

To develop an advertisement application that makes use of RSS Feed.

PROCEDURE:

Step 1: Create the FrameLayout.
Step 2 : Create a new layout named as fragment_layout.xml which has following components:
- a. ListView
- b. ProgressBar

Step 3 : Create another one layout named as rss_item.xml which has only one TextView.
Step 4 : Create the following additional classes for this application:
- a. Constants.java
- b. PcWorldRssParser.java
- c. RssAdapter.java
- d. RssFragement.java
- e. RssItem.java
- f. RssService.java

Step 5: Write appropriate actions for the created additional classes.
Step 6 : Get the following permission in AndroidManifest.xml file:
<uses-permission android:name="android.permission.INTERNET" />
Step 7 : Finally run the android application.

activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
        android:layout_width="fill_parent"
        android:id="@+id/fragment_container"
        android:layout_height="fill_parent" />
```

fragement_layout.xml:

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

        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical" >
    <ListView
        android:id="@+id/listView"
        android:layout_width="fill_parent"
        android:layout_height="fill_parent" >
    </ListView>
<ProgressBar
        android:id="@+id/progressBar"
        style="?android:attr/progressBarStyleLarge"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

```
        android:layout_centerInParent="true" />
</RelativeLayout>
```

rss_item.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<TextView xmlns:android="http://schemas.android.com/apk/res/android"
        xmlns:tools="http://schemas.android.com/tools"
        android:id="@+id/itemTitle"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="18dp"
        tools:ignore="SpUsage" />
```

MainActivity.java:

```
package com.example.ex_no_8;
import android.os.Bundle;
import android.support.v4.app.FragmentActivity;
import android.support.v4.app.FragmentManager;
import android.support.v4.app.FragmentTransaction;
public class MainActivity extends FragmentActivity {
        @Override
        public void onCreate(Bundle savedInstanceState) {
                super.onCreate(savedInstanceState);
                setContentView(R.layout.activity_main);
                if (savedInstanceState == null) {
                        addRssFragment();
                }
        }
        private void addRssFragment() {
                FragmentManager manager = getSupportFragmentManager();
                FragmentTransaction transaction = manager.beginTransaction();
                RssFragment fragment = new RssFragment();
                transaction.add(R.id.fragment_container, fragment);
                transaction.commit();
        }
        @Override
        protected void onSaveInstanceState(Bundle outState) {
                super.onSaveInstanceState(outState);
                outState.putBoolean("fragment_added", true);
        }
  }
```

Constants.java

```
package com.example.ex_no_8;
public class Constants {
        public static final String TAG = "RssApp";
}
```

PcWorldRssParser.java

```
package com.example.ex_no_8;
```

```
import java.io.IOException;
import java.io.InputStream;
import java.util.ArrayList;
import java.util.List;
import org.xmlpull.v1.XmlPullParser;
import org.xmlpull.v1.XmlPullParserException;
import android.util.Xml;
public class PcWorldRssParser {
	// We don't use namespaces
	private final String ns = null;
	public List<RssItem> parse(InputStream inputStream) throws XmlPullParserException,
IOException {
	try {
		XmlPullParser parser = Xml.newPullParser();

		parser.setFeature(XmlPullParser.FEATURE_PROCESS_NAMESPACS , false);
		parser.setInput(inputStream, null);
		parser.nextTag();
		return readFeed(parser);
	} finally {
		inputStream.close();
	}
  }
  private List<RssItem> readFeed(XmlPullParser parser) throws
XmlPullParserException, IOException {
	parser.require(XmlPullParser.START_TAG, null, "rss");
	String title = null;
	String link = null;
	List<RssItem> items = new ArrayList<RssItem>();
	while (parser.next() != XmlPullParser.END_DOCUMENT) {
		if (parser.getEventType() != XmlPullParser.START_TAG) {
			continue;
	}
	String name = parser.getName();
	if (name.equals("title")) {
		title = readTitle(parser);
	} else if (name.equals("link")) {
		link = readLink(parser);
	}
	if (title != null && link != null) {
		RssItem item = new RssItem(title, link);
		items.add(item);
		title = null;
		link = null;
	}
	}
	return items;
  }
  private String readLink(XmlPullParser parser) throws XmlPullParserException, IOException
{
```

```
        parser.require(XmlPullParser.START_TAG, ns, "link");
        String link = readText(parser);
        parser.require(XmlPullParser.END_TAG, ns, "link");
        return link;
  }
private String readTitle(XmlPullParser parser) throws XmlPullParserException,
IOException {
        parser.require(XmlPullParser.START_TAG, ns, "title");
        String title = readText(parser);
        parser.require(XmlPullParser.END_TAG, ns, "title");
        return title;
  }
// For the tags title and link, extract their text values.
private String readText(XmlPullParser parser) throws IOException, XmlPullParserException
{
        String result = "";
        if (parser.next() == XmlPullParser.TEXT) {
                result = parser.getText();
                parser.nextTag();
        }
        return result;
  }
}
```

RssAdapter.java

```
package com.example.ex_no_8;
import java.util.List;
import android.content.Context;
import android.view.View;
import android.view.ViewGroup;
import android.widget.BaseAdapter;
import android.widget.TextView;
public class RssAdapter extends BaseAdapter {
        private final List<RssItem> items;
        private final Context context;
        public RssAdapter(Context context, List<RssItem> items) {
                this.items = items;
                this.context = context;
        }
        @Override
        public int getCount() {
                return items.size();
        }
        @Override
        public Object getItem(int position) {
                return items.get(position);
        }
        @Override
        public long getItemId(int id) {
                return id;
        }
        @Override
        public View getView(int position, View convertView, ViewGroup parent) {
```

```
		ViewHolder holder;
		if (convertView == null) {
			convertView = View.inflate(context, R.layout.rss_item, null);
			holder = new ViewHolder();
			holder.itemTitle = (TextView) convertView.findViewById(R.id.itemTitle);
			convertView.setTag(holder);
		} else {
			holder = (ViewHolder) convertView.getTag();
		}
		holder.itemTitle.setText(items.get(position).getTitle());
		return convertView;
	}
	static class ViewHolder {
		TextView itemTitle;
	}
}
```

RssFragement.java

```
package com.example.ex_no_8;
import java.util.List;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.os.Handler;
import android.os.ResultReceiver;
import android.support.v4.app.Fragment;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ListView;
import android.widget.ProgressBar;
import android.widget.Toast;
public class RssFragment extends Fragment implements OnItemClickListener {
	private ProgressBar progressBar;
	private ListView listView;
	private View view;
	@Override
	public void onCreate(Bundle savedInstanceState) {
		super.onCreate(savedInstanceState);
		setRetainInstance(true);
	}
	@Override
	public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle
savedInstanceState) {
	if (view == null) {
		view = inflater.inflate(R.layout.fragment_layout, container, false);
		progressBar = (ProgressBar) view.findViewById(R.id.progressBar);
		listView = (ListView) view.findViewById(R.id.listView);
		listView.setOnItemClickListener(this);
		startService();
	} else {
		ViewGroup parent = (ViewGroup) view.getParent()
```

```
                        parent.removeView(view);

        }
        return view;
}
private void startService() {
        Intent intent = new Intent(getActivity(), RssService.class);
        intent.putExtra(RssService.RECEIVER, resultReceiver);
        getActivity().startService(intent);
}
private final ResultReceiver resultReceiver = new ResultReceiver(new Handler()) {
        @SuppressWarnings("unchecked")
        @Override
        protected void onReceiveResult(int resultCode, Bundle resultData) {
                progressBar.setVisibility(View.GONE);
                List<RssItem> items = (List<RssItem>)
resultData.getSerializable(RssService.ITEMS);
                if (items != null) {
                        RssAdapter adapter = new RssAdapter(getActivity(), items);
                        listView.setAdapter(adapter);
                } else {
                        Toast.makeText(getActivity(), "An error occured while downloading
the rss feed.",
                        Toast.LENGTH_LONG).show();
                }
        };
};
@Override
public void onItemClick(AdapterView<?> parent, View view, int position, long id) {
        RssAdapter adapter = (RssAdapter) parent.getAdapter();
        RssItem item = (RssItem) adapter.getItem(position);
        Uri uri = Uri.parse(item.getLink());
        Intent intent = new Intent(Intent.ACTION_VIEW, uri);
        startActivity(intent);
  }
}
```

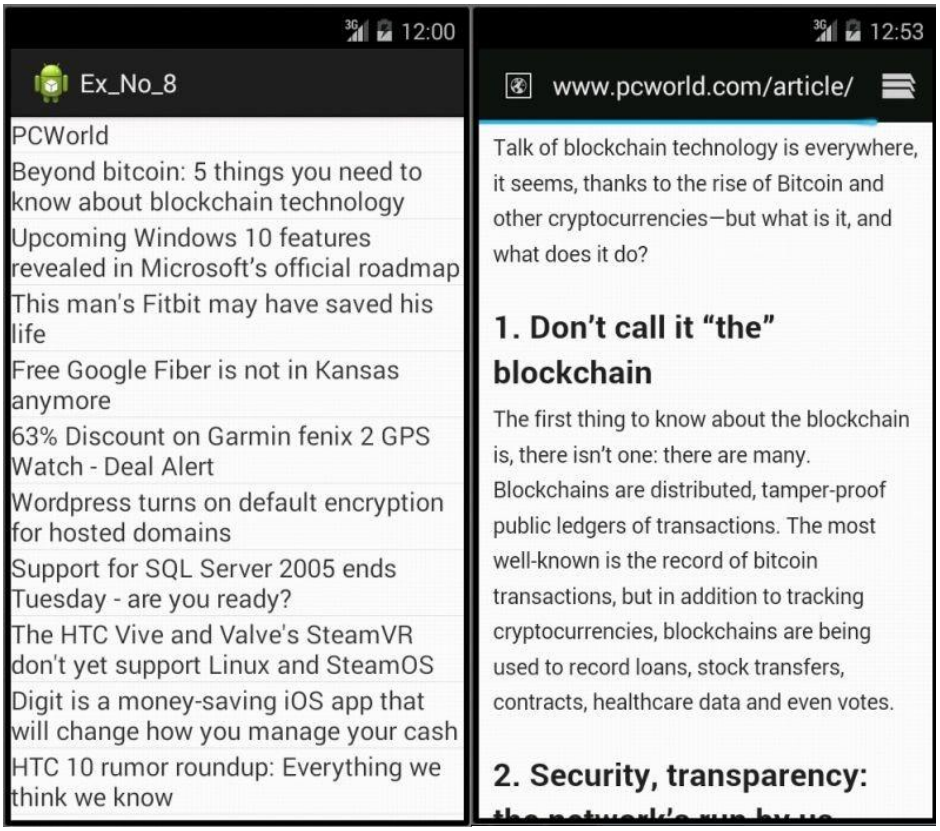
RssItem.java

```
package com.example.ex_no_8;
public class RssItem {
        private final String title;
        private final String link;
        public RssItem(String title, String link) {
                this.title = title;
                this.link = link;
        }
        public String getTitle() {
                return title;
        }
        public String getLink() {
                return link;
        }
}
```

RssService.java

```
package com.example.ex_no_8;
import java.io.IOException;
import java.io.InputStream;
import java.io.Serializable;
import java.net.URL;
import java.util.List;
import org.xmlpull.v1.XmlPullParserException;
import android.app.IntentService;
import android.content.Intent;
import android.os.Bundle;
import android.os.ResultReceiver;
import android.util.Log;
public class RssService extends IntentService {
	private static final String RSS_LINK = "http://www.pcworld.com/index.rss";
	public static final String ITEMS = "items";
	public static final String RECEIVER = "receiver";
	public RssService() {
		super("RssService");
	}
	@Override
	protected void onHandleIntent(Intent intent) {
	Log.d(Constants.TAG, "Service started");
	List<RssItem> rssItems = null;
	try {
		PcWorldRssParser parser = new PcWorldRssParser();
		rssItems = parser.parse(getInputStream(RSS_LINK));
	} catch (XmlPullParserException e) {
		Log.w(e.getMessage(), e);
	} catch (IOException e) {
		Log.w(e.getMessage(), e);
	}
	Bundle bundle = new Bundle();
	bundle.putSerializable(ITEMS, (Serializable) rssItems);
	ResultReceiver receiver = intent.getParcelableExtra(RECEIVER);
	receiver.send(0, bundle);
}
public InputStream getInputStream(String link) {
	try {
		URL url = new URL(link);
		return url.openConnection().getInputStream();
	} catch (IOException e) {
		Log.w(Constants.TAG, "Exception while retrieving the input stream", e);
		return null;
	}
  }
}
```

OUTPUT:



RESULT:

Thus the advertisement application that makes use of RSS Feed has been developed and the output was verified successfully.

EX.NO : 11

SEND AN E - MAIL

DATE :

AIM:

To create a mobile application to send an e-mail.

PROCEDURE:

Step 1 : Create a graphical user interface with button email.
Step 2 : Add My EmailClientOpeningApp string to the string.xml file.
Step 3 : Go to mainactivity.java type the following code.
Step 4 : Then run the program and configure your email details to send mail.

PROGRAM :

activitymain.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   tools:context=".MainActivity">

   <Button
      android:id="@+id/button"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_marginStart="158dp"
      android:layout_marginTop="284dp"
      android:onClick="EmailButton"
      android:text="Email"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Strings.xml

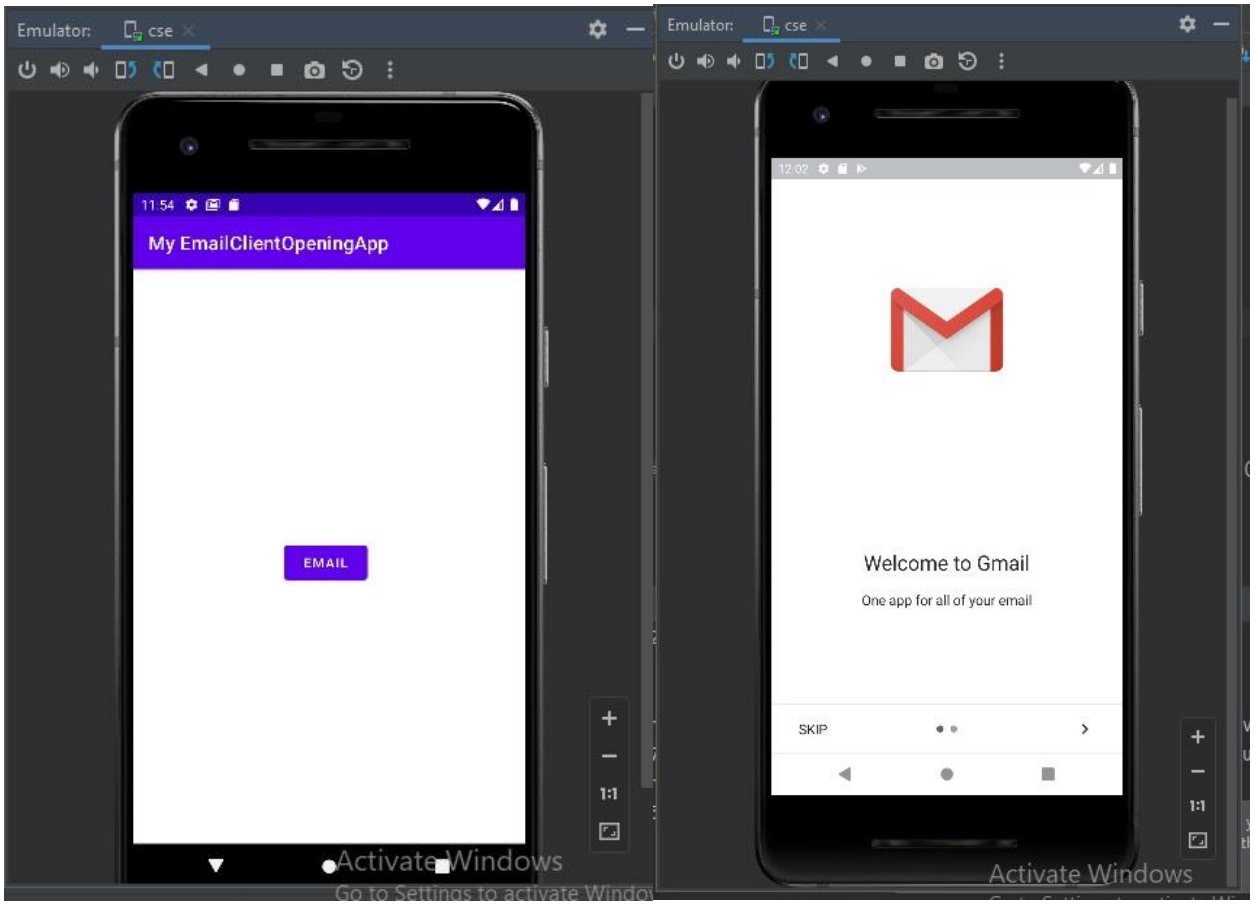
```
<resources>
        <string name="app_name">My EmailClientOpeningApp</string>
        <string name="button">Button</string>
</resources>
```

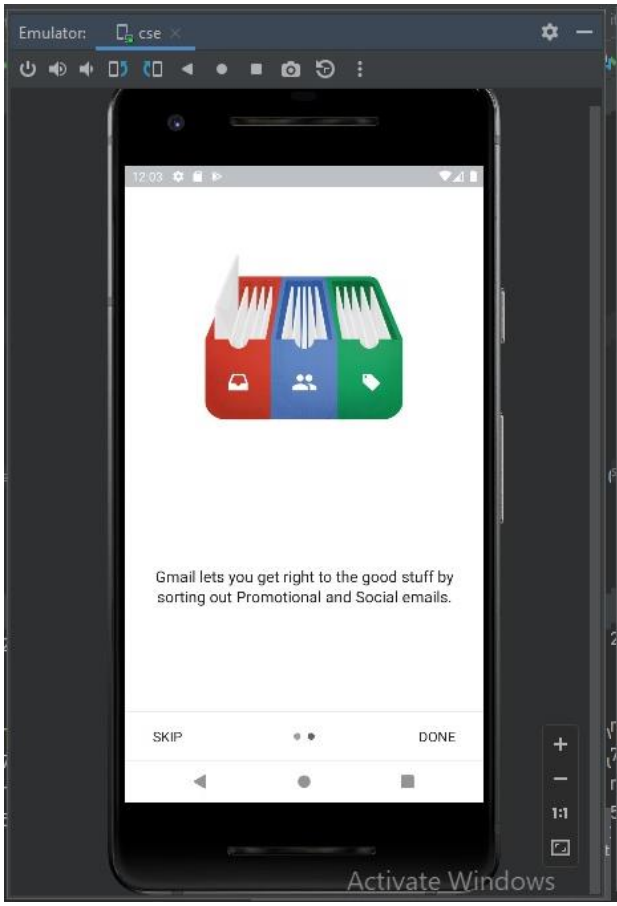
MainActivity.java

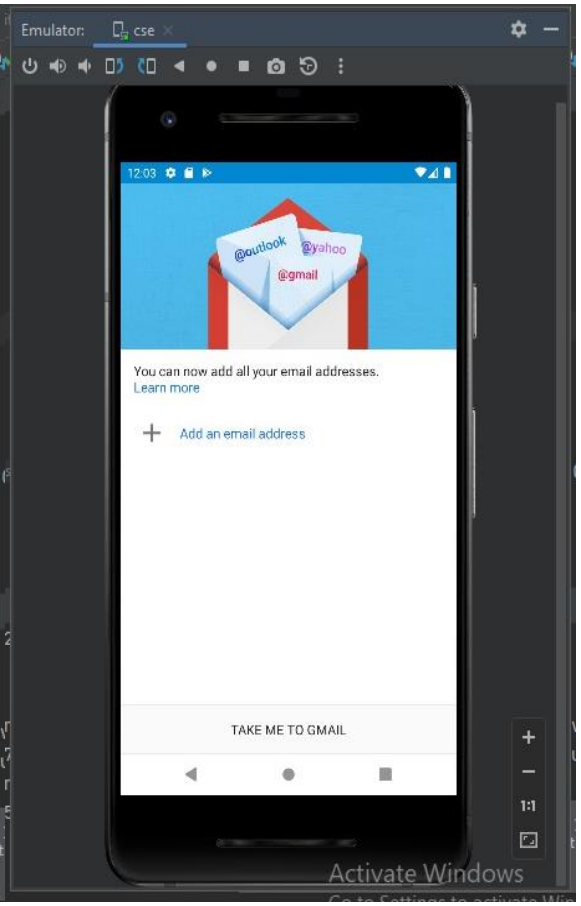
```
package com.example.myemailclientopeningapp;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
```

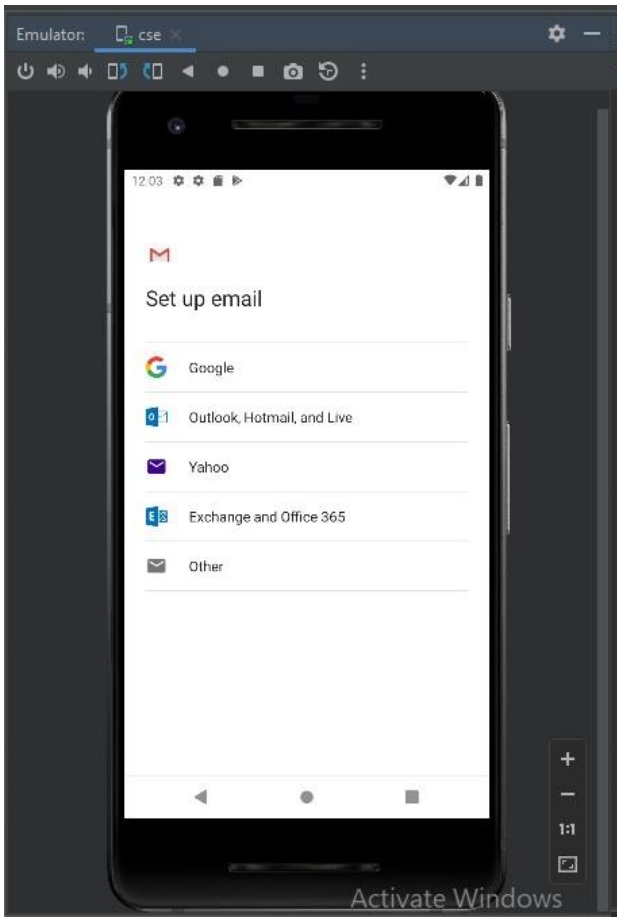
```
import android.view.View;
public class MainActivity extends AppCompatActivity {
@Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
   }
   public void EmailButton(View view) {

      Uri uriEmail = Uri.parse("mailto:jeni10rose@gmail.com" + "?subject=" +
Uri.encode("request to send MAD Lab Manual")+"&body=" + Uri.encode("Hi Jeni,\n I need your
help as you know that I was absent yesterday and has not executed the lab Experiment.I just need
the MAD Lab manual , if have it please do forward me. I would be highly thankful to you if you
help.\n Thank You. \n\n"));

      Intent intentEmail = new Intent(Intent.ACTION_SENDTO);
      intentEmail.setData(uriEmail);
      startActivity(intentEmail);
   }
}
```

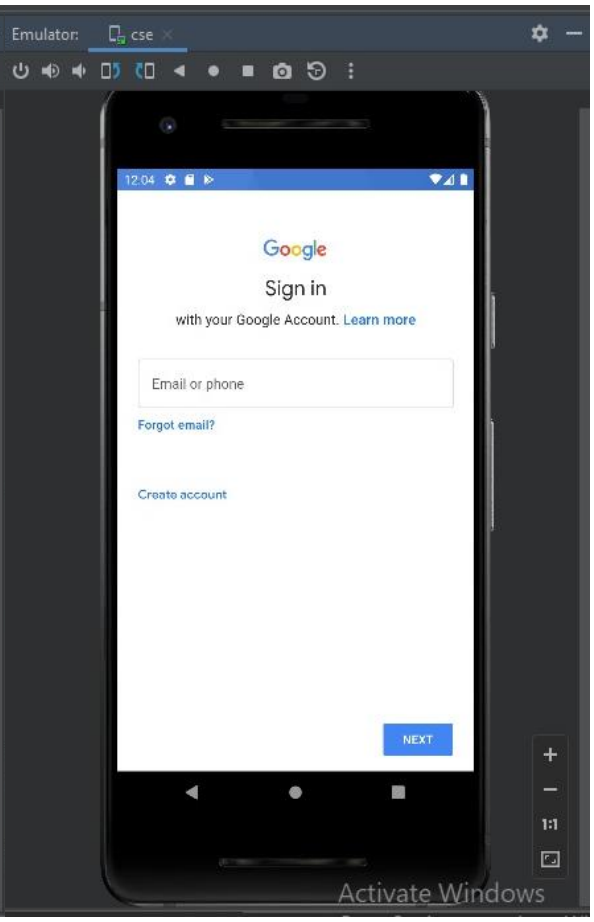
OUTPUT :

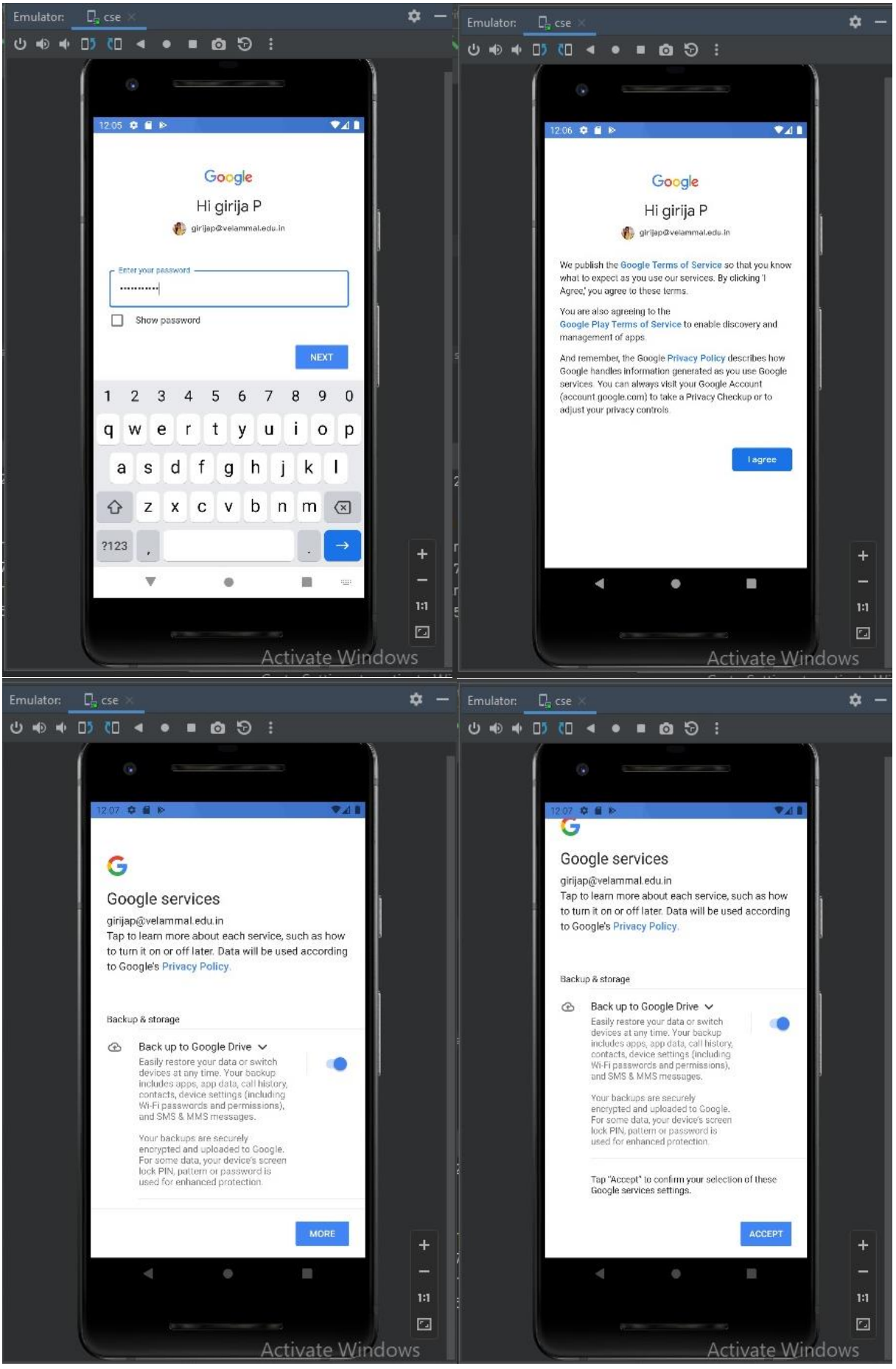


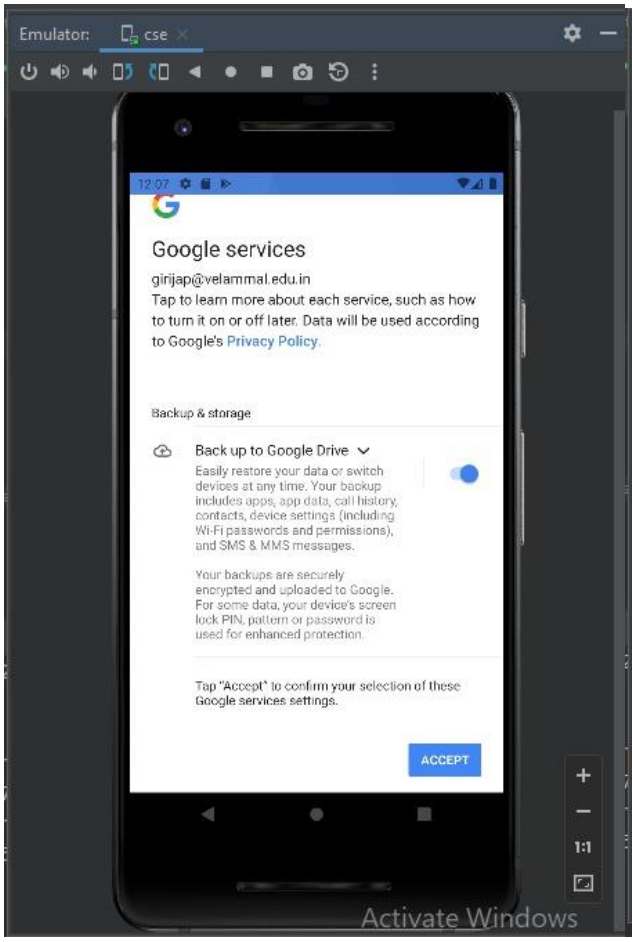

Emulator: cse
12:03
Gmail lets you get right to the good stuff by sorting out Promotional and Social emails.
SKIP
DONE
1:1
Activate Windows

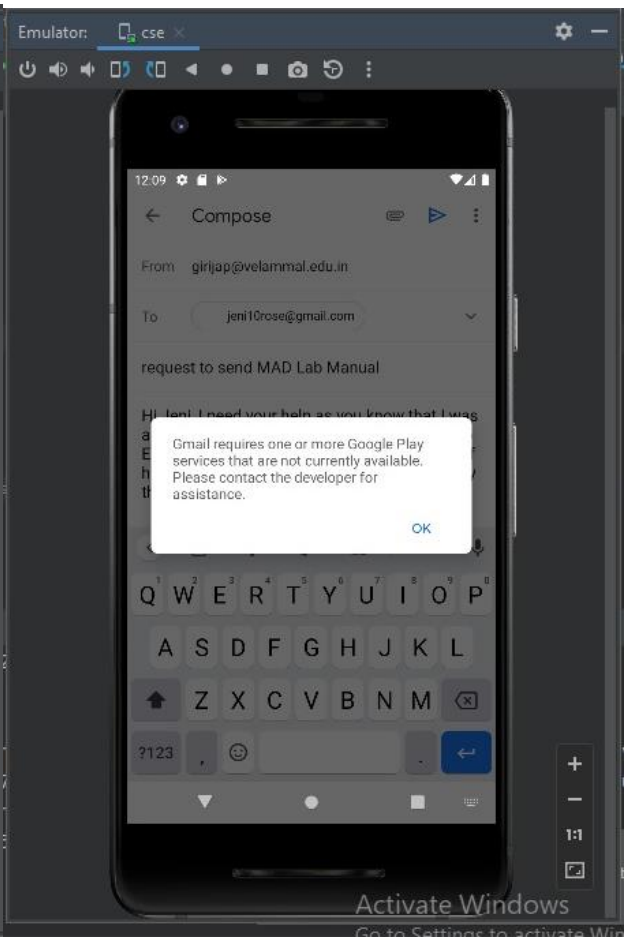

Emulator: cse
12:03
@outlook
@yahoo
@gmail
You can now add all your email addresses.
Learn more
Add an email address
TAKE ME TO GMAIL
1:1
Activate Windows

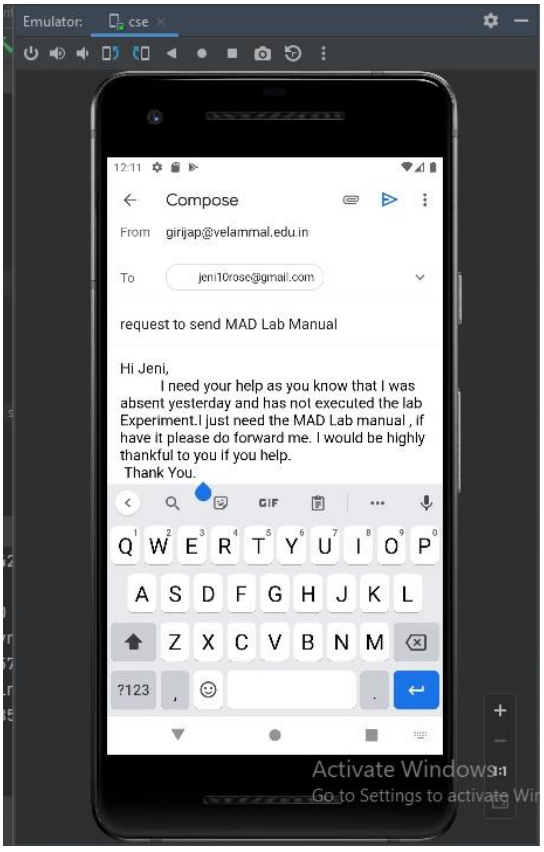

Emulator: cse
12:03
Set up email
Google
Outlook, Hotmail, and Live
Yahoo
Exchange and Office 365
Other
1:1
Activate Windows

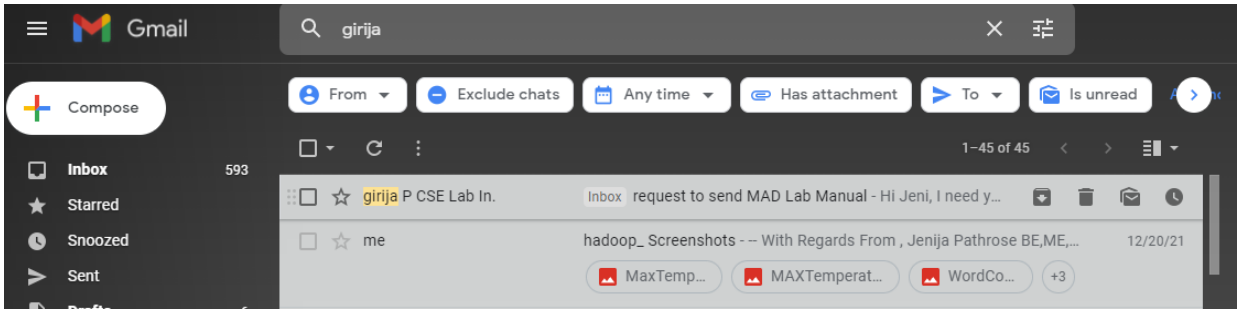

Emulator: cse
12:04
Google
Sign in
with your Google Account. Learn more
Email or phone
Forgot email?
Create account
NEXT
1:1
Activate Windows

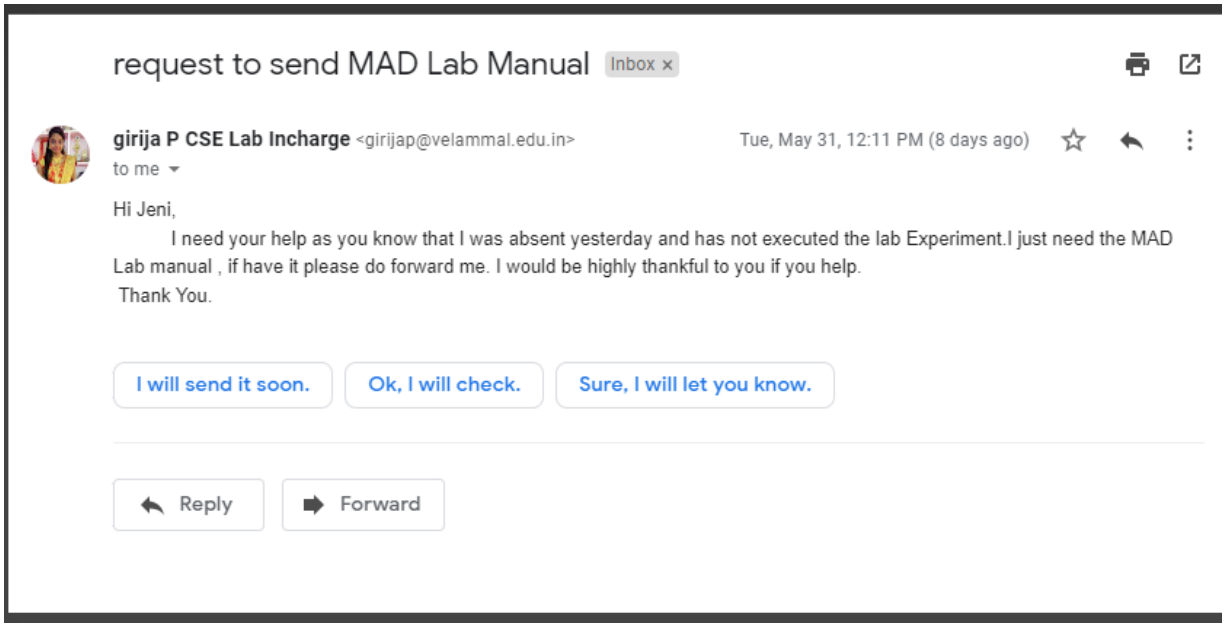

Emulator: cse
12:05
Google
Hi girija P
girijap@velammal.edu.in
Enter your password
Show password
NEXT
Emulator: cse
12:06
Google
Hi girija P
girijap@velammal.edu.in
We publish the Google Terms of Service so that you know what to expect as you use our services. By clicking 'I Agree,' you agree to these terms.
You are also agreeing to the Google Play Terms of Service to enable discovery and management of apps.
And remember, the Google Privacy Policy describes how Google handles information generated as you use Google services. You can always visit your Google Account (account.google.com) to take a Privacy Checkup or to adjust your privacy controls.
I agree
Emulator: cse
12:07
Google services
girijap@velammal.edu.in
Tap to learn more about each service, such as how to turn it on or off later. Data will be used according to Google's Privacy Policy.
Backup & storage
Back up to Google Drive
Easily restore your data or switch devices at any time. Your backup includes apps, app data, call history, contacts, device settings (including Wi-Fi passwords and permissions), and SMS & MMS messages.
Your backups are securely encrypted and uploaded to Google. For some data, your device's screen lock PIN, pattern or password is used for enhanced protection.
MORE
Emulator: cse
12:07
Google services
girijap@velammal.edu.in
Tap to learn more about each service, such as how to turn it on or off later. Data will be used according to Google's Privacy Policy.
Backup & storage
Back up to Google Drive
Easily restore your data or switch devices at any time. Your backup includes apps, app data, call history, contacts, device settings (including Wi-Fi passwords and permissions), and SMS & MMS messages.
Your backups are securely encrypted and uploaded to Google. For some data, your device's screen lock PIN, pattern or password is used for enhanced protection.
Tap "Accept" to confirm your selection of these Google services settings.
ACCEPT
Activate Windows


Emulator: cse
12:07
Google services
girijap@velammal.edu.in
Tap to learn more about each service, such as how to turn it on or off later. Data will be used according to Google's Privacy Policy.
Backup & storage
Back up to Google Drive
Easily restore your data or switch devices at any time. Your backup includes apps, app data, call history, contacts, device settings (including Wi-Fi passwords and permissions), and SMS & MMS messages.
Your backups are securely encrypted and uploaded to Google. For some data, your device's screen lock PIN, pattern or password is used for enhanced protection.
Tap "Accept" to confirm your selection of these Google services settings.
ACCEPT
Activate Windows


Emulator: cse
12:09
Compose
From girijap@velammal.edu.in
To jeni10rose@gmail.com
request to send MAD Lab Manual
Gmail requires one or more Google Play services that are not currently available. Please contact the developer for assistance.
OK
Activate Windows


Emulator: cse
12:11
Compose
From girijap@velammal.edu.in
To jeni10rose@gmail.com
request to send MAD Lab Manual
Hi Jeni,
I need your help as you know that I was absent yesterday and has not executed the lab Experiment.I just need the MAD Lab manual , if have it please do forward me. I would be highly thankful to you if you help.
Thank You.
Activate Windows
Go to Settings to activate Wi





RESULT :

Thus an android application to send an email has been created and implemented successfully.

EX.NO : 12

STOPWATCH APPLICATION

DATE :

AIM:

To create a mobile application that is used to display a basic Stopwatch.

PROCEDURE:

Step 1: Open eclipse or android studio and select new android project
Step 2: Go to res folder and select layout. Double click the main.xml file.
Step 3: Now you can see the Graphics layout window.
Step 4: Click the main.xml file and type the code
Step 5: Again click the graphics layout tab and screen layout is look like below
Step 6: Go to project explorer and select src folder. Now select mainactivity.java file and type the following code
Step 7: Now go to main.xml and right click .select run as option and select run configuration

PROGRAM :

ActivityMain.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
        xmlns:android="http://schemas.android.com/apk/res/android"
        xmlns:app="http://schemas.android.com/apk/res-auto"
        xmlns:tools="http://schemas.android.com/tools"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"

        android:background="#0F9D58"
        android:padding="16dp"
        tools:context="com.example.Stopwatch">

        <TextView
                android:id="@+id/time_view"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_gravity="center_horizontal"
                android:textAppearance="@android:style/TextAppearance.Large"
                android:textSize="56sp" />

        <Button
                android:id="@+id/start_button"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_gravity="center_horizontal"
                android:layout_marginTop="20dp"
                android:onClick="onClickStart"
                android:text="@string/start" />
```

```
        <Button
                android:id="@+id/stop_button"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_gravity="center_horizontal"
                android:layout_marginTop="8dp"
                android:onClick="onClickStop"
                android:text="@string/stop" />
        <Button
                android:id="@+id/reset_button"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_gravity="center_horizontal"
                android:layout_marginTop="8dp"
                <!-- calls the onClickReset() method. -->
                android:onClick="onClickReset"
                android:text="@string/reset" />
</LinearLayout>
```

MainActivity.java

```
package com.example.stopwatch;

import android.app.Activity;
import android.os.Handler;
import android.view.View;
import android.os.Bundle;
import java.util.Locale;
import android.widget.TextView;

public class MainActivity extends Activity {
        private int seconds = 0;
        private boolean running;

        private boolean wasRunning;

        @Override
        protected void onCreate(Bundle savedInstanceState)
        {
                super.onCreate(savedInstanceState);
                setContentView(R.layout.activity_stopwatch);
                if (savedInstanceState != null) {

                        seconds= savedInstanceState.getInt("seconds");
                        running= savedInstanceState.getBoolean("running");
                        wasRunning= savedInstanceState.getBoolean("wasRunning");
                }
                runTimer();
        }
```

```
@Override
public void onSaveInstanceState(Bundle savedInstanceState)
{
	savedInstanceState.putInt("seconds", seconds);
	savedInstanceState.putBoolean("running", running);
	savedInstanceState.putBoolean("wasRunning", wasRunning);
}

@Override
protected void onPause()
{
	super.onPause();
	wasRunning = running;
	running = false;
}

@Override
protected void onResume()
{
	super.onResume();
	if (wasRunning) {
		running = true;
	}
}

public void onClickStart(View view)
{
	running = true;
}
public void onClickStop(View view)
{
	running = false;
}
public void onClickReset(View view)
{
	running = false;
	seconds = 0;
}
private void runTimer()
{

	final TextView timeView= (TextView)findViewById(R.id.time_view);
	final Handler handler= new Handler();
handler.post(new Runnable() {
		@Override
```

```
                        public void run()
                        {
                                int hours = seconds / 3600;
                                int minutes = (seconds % 3600) / 60;
                                int secs = seconds % 60;
        String time = String.format(Locale.getDefault(),"%d:%02d:%02d", hours,minutes, secs);
                                timeView.setText(time);
                                if (running) {
                                        seconds++;
                                }
                                handler.postDelayed(this, 1000);
                        }
                });
        }
}
```

OUTPUT:

RESULT :

Thus an android application to display a basic stopwatch is executed successfully.