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Ex no.: 01

Date : 06/2/23

Develop an application for GPA calculator that uses GUI components, Font and Colors

Aim:

To develop an android application for GPA calculator that uses GUI Components, Font andcolors.

Algorithm:

- Start the process.
- Open an android project and name your application name
- Design the MainActivity and set the font and color of the application.
- Run the application in Android Virtual Device(AVD).
- Stop the process.

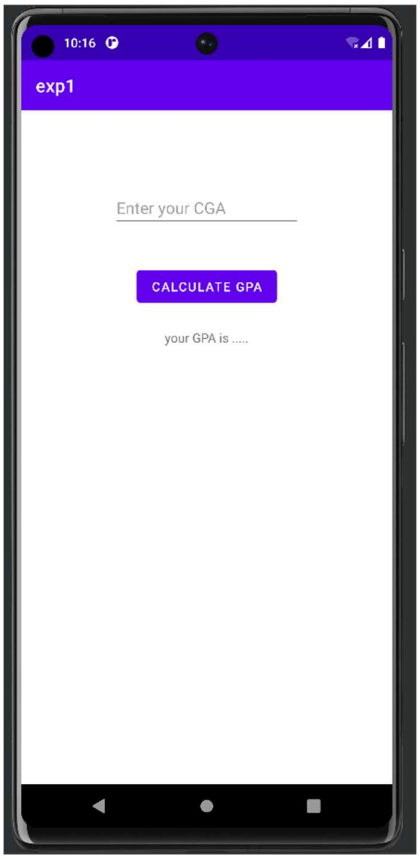
Program:

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">
   <EditText
      android:id="@+id/ip_gpa"
      android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"
        android:ems="10"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="300px"
        android:hint="Enter your CGA"
        android:inputType="text" />
    <Button
        android:id="@+id/cal"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="600px"
        android:text="Calculate GPA" />
    <TextView
        android:id="@+id/signUp"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="850px"
        android:text="your GPA is ....." />
</RelativeLayout>
```

Output:



Result:

Thus, the program for android for GPA calculator that 2 GUI Components, Font andcolors was executed successfully.

Ex no.: 02

Date : 11/2/23

Develop an application for GPA calculator that uses Layout Managers and Event Listeners

Aim:

To develop an android application for GPA calculator that uses Layout Managers and eventlisteners.

Algorithm:

- Start the process
- Open the existing android application.
- Create a sign up activity, with four TextView field which gets the input of username, email password and confirm password, a signup button and link to the MainActivity.
- In MainActivity, give a link to the login activity using Intent object.
- Run the application in Android Virtual Device(AVD).
- Stop the process.

Program:

MainActivity.java

```
package com.example.gpa.listener;

import android.content.Intent;

//import android.support.v7.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.ArrayAdapter;

import android.widget.Button;

import android.widget.EditText;

import android.widget.Spinner;
```

```
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 {
   EditText e1,e2;
   Button bt;
   Spinner s;
   //Data for populating in Spinner
   String [] dept_array={"O","A+","A","B","B+","B","RW"};
   String name,reg,dept;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      e1= (EditText) findViewById(R.id.editText);
      e2= (EditText) findViewById(R.id.editText2);
      bt= (Button) findViewById(R.id.button);
      s= (Spinner) findViewById(R.id.spinner);
      //Creating Adapter for Spinner for adapting the data from array to Spinner
      ArrayAdapter adapter= new
ArrayAdapter(MainActivity.this,android.R.layout.simple_spinner_item,dept_array);
      s.setAdapter(adapter);
      //Creating Listener for Button
      bt.setOnClickListener(new View.OnClickListener() {
         @Override
```

```
        public void onClick(View v) {
            //Getting the Values from Views(Edittext & Spinner)
            name=e1.getText().toString();
            reg=e2.getText().toString();
            dept=s.getSelectedItem().toString();
            //Intent For Navigating to Second Activity
            Intent i = new Intent(MainActivity.this,MainActivity2.class);
            //For Passing the Values to Second Activity
            i.putExtra("name_key", name);
            i.putExtra("reg_key",reg);
            i.putExtra("dept_key", dept);
            startActivity(i);
        }
    });
  }
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   tools:context=".MainActivity">
   <LinearLayout
      android:layout_width="match_parent"
      android:layout_height="100dp">
      <TextView
         android:id="@+id/textView"
         android:layout_width="match_parent"
```

```
        android:layout_height="wrap_content"
        android:layout_margin="30dp"
        android:text="Student GPA"
        android:textSize="25sp"
        android:gravity="center"/>
</LinearLayout>
<GridLayout
    android:id="@+id/gridLayout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_marginTop="100dp"
    android:layout_marginBottom="200dp"
    android:columnCount="2"
    android:rowCount="3">
    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
        android:layout_row="0"
        android:layout_column="0"
        android:text="kg"
        android:textSize="20sp"
        android:gravity="center"/>
    <EditText
        android:id="@+id/editText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
```

```
        android:layout_row="0"
        android:layout_column="1"
        android:ems="10"/>
    </GridLayout>
    <Button
      android:id="@+id/button"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_alignParentBottom="true"
      android:layout_centerInParent="true"
      android:layout_marginBottom="15dp"
      android:text="convert"/>
</RelativeLayout>
```

Activity_main2.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"
    tools:context="com.example.experiment2.MainActivity2"
    android:orientation="vertical"
    android:gravity="center">
<TextView
android:id="@+id/textView1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_margin="20dp"
android:text="New Text"
android:textSize="30sp"/>
```

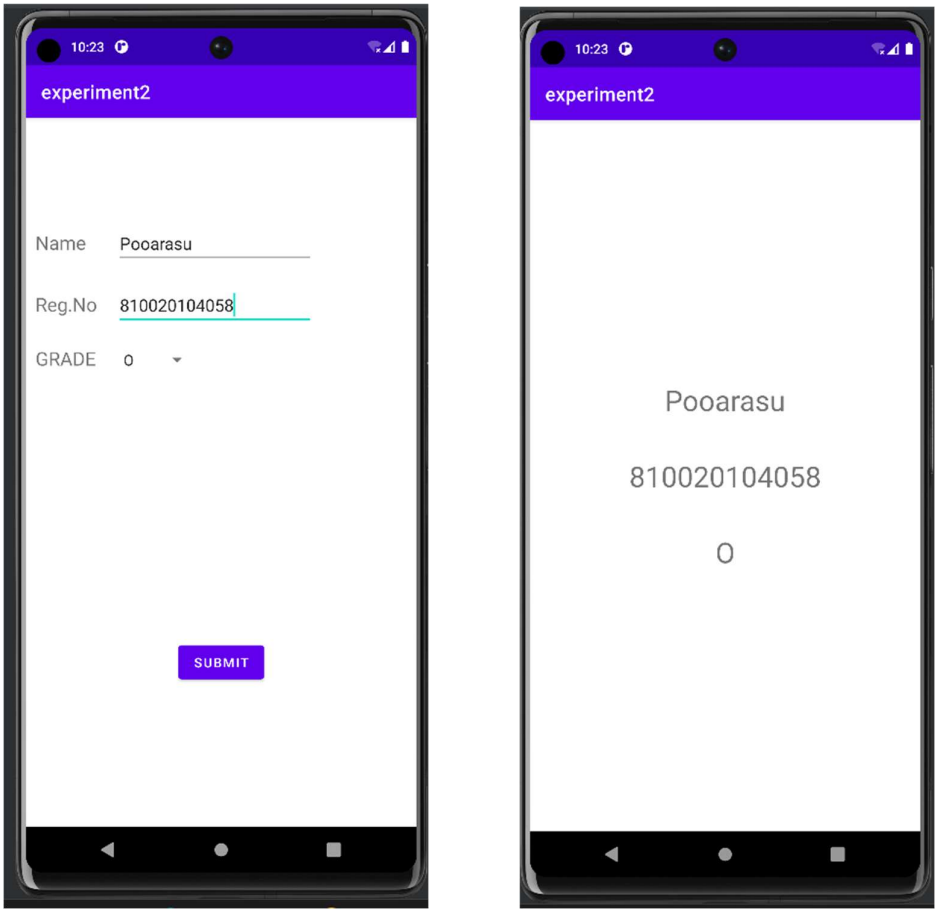
```
<TextView
android:id="@+id/textView2"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_margin="20dp"
android:text="New Text"
android:textSize="30sp"/>
<TextView
android:id="@+id/textView3"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_margin="20dp"
android:text="New Text"
android:textSize="30sp"/>
   </LinearLayout>
```

MainActivity2.xml:

```
package com.example.gpa.listener;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.widget.TextView;
import android.os.Bundle;

public class MainActivity2 extends AppCompatActivity {
   TextView t1,t2,t3;
   String name,reg,dept;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main2);
```

```
        t1= (TextView) findViewById(R.id.textView1);
        t2= (TextView) findViewById(R.id.textView2);
        t3= (TextView) findViewById(R.id.textView3);
        //Getting the Intent
        Intent i = getIntent();
        //Getting the Values from First Activity using the Intent received
        name=i.getStringExtra("name_key");
        reg=i.getStringExtra("reg_key");
        dept=i.getStringExtra("dept_key");
        //Setting the Values to Intent
        t1.setText(name);
        t2.setText(reg);
        t3.setText(dept);
    }
}
```

Output:



Result:

Thus, the program for android application for GPA calculator that uses layout managers and event listeners was executed successfully.

Ex no.: 03

Date : 13/2/23

Write an application for GPA calculator that draws basic graphical primitives on the screen

Aim:

To develop an android application for GPA calculator that draws basic graphical primitives onthe screen.

Algorithm:

- Start the process
- Open the existing android application project
- Try to use basic graphical primitives in the android application.
- A profile activity is created, which contains circular image view in which user can upload their profile image.
- Link the activity to the chat activity.
- Run the application in the Android Virtual Device(AVD).
- Stop the process.

Program:

Activity_main.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">
   <ImageView
      android:layout_width="match_parent"
      android:layout_height="match_parent"
      android:id="@+id/imageView" />
```

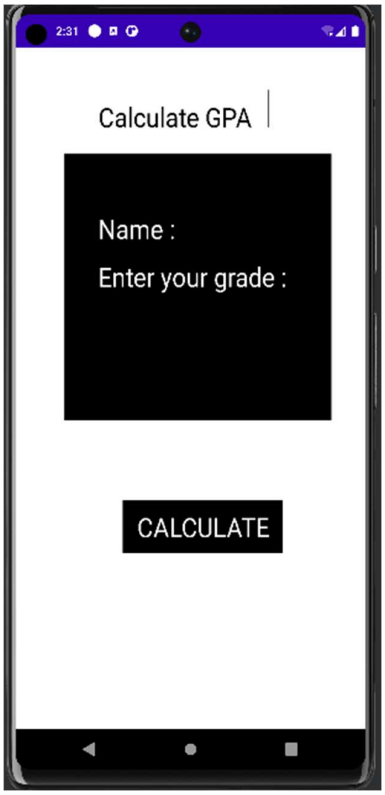
```
</RelativeLayout>
```

Activitymain.java:

```
package com.example.gpa.primitives;
import android.app.Activity;
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 Activity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        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.setBackgroundDrawable(new BitmapDrawable(bg));
        //Creating the Canvas Object
        Canvas canvas = new Canvas(bg);
        //Creating the Paint Object and set its color & TextSize
        Paint paint = new Paint();
        paint.setColor(Color.BLACK);
        paint.setTextSize(50);
        Paint paint1 = new Paint();
        paint1.setColor(Color.WHITE);
        paint1.setTextSize(50);
```

```
        //To draw a Rectangle
        canvas.drawText("Calculate GPA ", 170, 150, paint);
        canvas.drawRect(100, 200, 650, 700, paint);
        canvas.drawText("Name :", 170, 360, paint1);
        canvas.drawText("Enter your grade :", 170, 450, paint1);
        //To draw a Circle
//        canvas.drawText("Circle", 120, 150, paint);
//        canvas.drawCircle(200, 350, 150, paint);
        //To draw a Square
        canvas.drawRect(550, 850, 220, 950, paint);
        canvas.drawText("CALCULATE", 250, 920, paint1);
        //To draw a Line
//        canvas.drawText("Line", 480, 800, paint);
    }
}
```

Output:



Result:

Thus, the program for android application for GPA calculator that draws basic graphicalprimitives on the screen was executed successfully.

Ex no.: 04

Date : 20/2/23

Develop an application for GPA calculator that makes use of database

Aim:

To develop an android application for GPA calculator that makes use of database.

Algorithm:

- Start the process.
- Open the existing android project in the android studio.
- Create an account in the Google Firebase, and use this has the database for the application.
- Create a dashboard for the application in the firebase. Create authentication, real time database and cloud storage for the application.
- Connect the application with firebase by adding the correct dependencies in the gradle file.
- Build the project.
- Add the user information in the database.
- Run the application in the Android Virtual Device(AVD).
- Stop the process.

Program:
Activitymain.xml

```
<?xml version="1.0" encoding="utf-8"?>
<AbsoluteLayout xmlns:android="http://schemas.android.com/apk/res/android"
   android:layout_width="match_parent"
   android:layout_height="match_parent">
   <TextView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
```

```
    android:layout_x="50dp"
    android:layout_y="20dp"
    android:text="Student GPA"
    android:textSize="30sp" />
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_x="20dp"
    android:layout_y="110dp"
    android:text="Enter Rollno:"
    android:textSize="20sp" />
<EditText
    android:id="@+id/Rollno"
    android:layout_width="150dp"
    android:layout_height="wrap_content"
    android:layout_x="175dp"
    android:layout_y="100dp"
    android:inputType="number"
    android:textSize="20sp" />
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_x="20dp"
    android:layout_y="160dp"
    android:text="Enter Name:"
    android:textSize="20sp" />
<EditText
    android:id="@+id/Name"
    android:layout_width="150dp"
```

```
    android:layout_height="wrap_content"
    android:layout_x="175dp"
    android:layout_y="150dp"
    android:inputType="text"
    android:textSize="20sp" />
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_x="20dp"
    android:layout_y="210dp"
    android:text="Enter GPA:"
    android:textSize="20sp" />
<EditText
    android:id="@+id/Marks"
    android:layout_width="150dp"
    android:layout_height="wrap_content"
    android:layout_x="175dp"
    android:layout_y="200dp"
    android:inputType="number"
    android:textSize="20sp" />
<Button
    android:id="@+id/Insert"
    android:layout_width="150dp"
    android:layout_height="wrap_content"
    android:layout_x="25dp"
    android:layout_y="300dp"
    android:text="Insert"
    android:textSize="30dp" />
<Button
```

```
    android:id="@+id/Delete"
    android:layout_width="150dp"
    android:layout_height="wrap_content"
    android:layout_x="200dp"
    android:layout_y="300dp"
    android:text="Delete"
    android:textSize="30dp" />
<Button
    android:id="@+id/Update"
    android:layout_width="150dp"
    android:layout_height="wrap_content"
    android:layout_x="25dp"
    android:layout_y="400dp"
    android:text="Update"
    android:textSize="30dp" />
<Button
    android:id="@+id/View"
    android:layout_width="150dp"
    android:layout_height="wrap_content"
    android:layout_x="200dp"
    android:layout_y="400dp"
    android:text="View"
    android:textSize="30dp" />
<Button
    android:id="@+id/ViewAll"
    android:layout_width="200dp"
    android:layout_height="wrap_content"
    android:layout_x="100dp"
    android:layout_y="500dp"
```

```
        android:text="View All"
        android:textSize="30dp" />
</AbsoluteLayout>
```

MainActivity.java

```
package com.example.gpa.database;
import android.app.Activity;
import android.app.AlertDialog.Builder;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
public class MainActivity extends Activity implements OnClickListener {
    EditText Rollno,Name,Marks;
    Button Insert,Delete,Update,View,ViewAll;
    SQLiteDatabase db;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Rollno=(EditText)findViewById(R.id.Rollno);
        Name=(EditText)findViewById(R.id.Name);
        Marks=(EditText)findViewById(R.id.Marks);
        Insert=(Button)findViewById(R.id.Insert);
        Delete=(Button)findViewById(R.id.Delete);
```

```
        Update=(Button)findViewById(R.id.Update);
        View=(Button)findViewById(R.id.View);
        ViewAll=(Button)findViewById(R.id.ViewAll);
        Insert.setOnClickListener(this);
        Delete.setOnClickListener(this);
        Update.setOnClickListener(this);
        View.setOnClickListener(this);
        ViewAll.setOnClickListener(this);
        // Creating database and table
        db=openOrCreateDatabase("StudentDB", Context.MODE_PRIVATE, null);
        db.execSQL("CREATE TABLE IF NOT EXISTS student(rollno
VARCHAR,name VARCHAR,marks VARCHAR);");
    }
    public void onClick(View view)
    {
        // Inserting a record to the Student table
        if(view==Insert)
        {
            // Checking for empty fields
            if(Rollno.getText().toString().trim().length()==0||
                    Name.getText().toString().trim().length()==0||
                    Marks.getText().toString().trim().length()==0)
            {
                showMessage("Error", "Please enter all values");
                return;
            }
            db.execSQL("INSERT INTO student
VALUES('"+Rollno.getText()+"','"+Name.getText()+
                    "','"+Marks.getText()+"');");
```

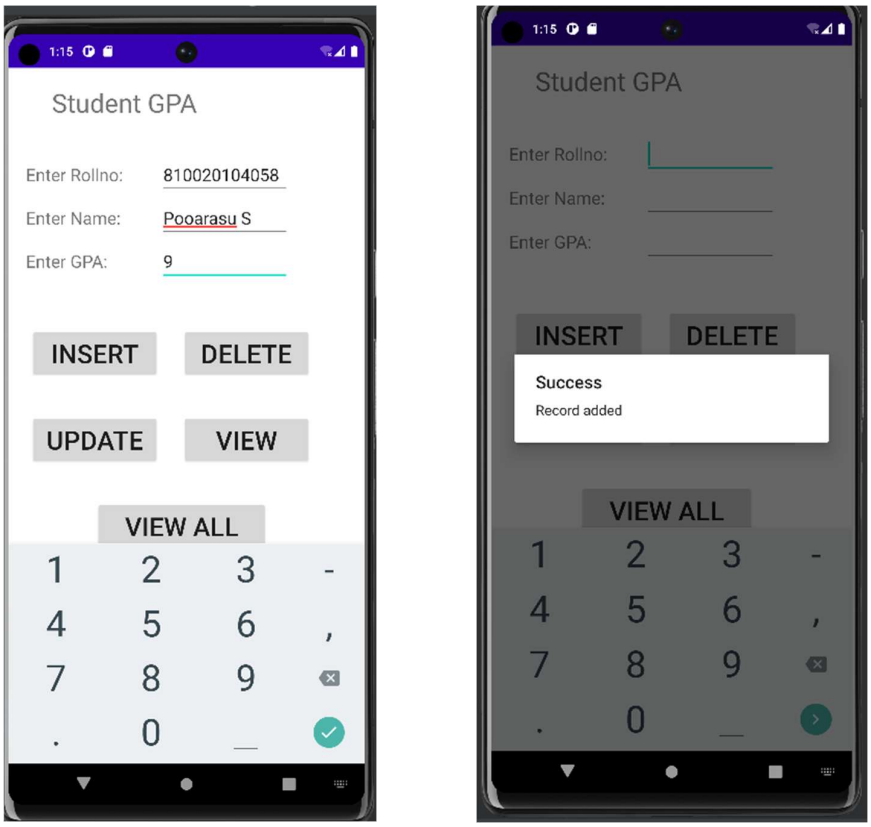
```
            showMessage("Success", "Record added");
            clearText();
        }
        // Deleting a record from the Student table
        if(view==Delete)
        {
            // Checking for empty roll number
            if(Rollno.getText().toString().trim().length()==0)
            {
                showMessage("Error", "Please enter Rollno");
                return;
            }
            Cursor c=db.rawQuery("SELECT * FROM student WHERE
rollno='"+Rollno.getText()+"'", null);
            if(c.moveToFirst())
            {
                db.execSQL("DELETE FROM student WHERE
rollno='"+Rollno.getText()+"'");
                showMessage("Success", "Record Deleted");
            }
            else
            {
                showMessage("Error", "Invalid Rollno");
            }
            clearText();
        }
        // Updating a record in the Student table
        if(view==Update)
        {
```

```
        // Checking for empty roll number
        if(Rollno.getText().toString().trim().length()==0)
        {
           showMessage("Error", "Please enter Rollno");
           return;
        }
        Cursor c=db.rawQuery("SELECT * FROM student WHERE
rollno='"+Rollno.getText()+"'", null);
        if(c.moveToFirst()) {
           db.execSQL("UPDATE student SET name='" + Name.getText() +
"',marks='" + Marks.getText() +
                 "' WHERE rollno='"+Rollno.getText()+"'");
           showMessage("Success", "Record Modified");
        }
        else {
           showMessage("Error", "Invalid Rollno");
        }
        clearText();
     }
     // Display a record from the Student table
     if(view==View)
     {
        if(Rollno.getText().toString().trim().length()==0)
        {
           showMessage("Error", "Please enter Rollno");
           return;
        }
        Cursor c=db.rawQuery("SELECT * FROM student WHERE
rollno='"+Rollno.getText()+"'", null);
```

```
    if(c.moveToFirst())
    {
        Name.setText(c.getString(1));
        Marks.setText(c.getString(2));
    }
    else
    {
        showMessage("Error", "Invalid Rollno");
        clearText();
    }
}
// Displaying all the records
if(view==ViewAll)
{
    Cursor c=db.rawQuery("SELECT * FROM student", null);
    if(c.getCount()==0)
    {
        showMessage("Error", "No records found");
        return;
    }
    StringBuffer buffer=new StringBuffer();
    while(c.moveToNext())
    {
        buffer.append("Rollno: "+c.getString(0)+"\n");
        buffer.append("Name: "+c.getString(1)+"\n");
        buffer.append("Marks: "+c.getString(2)+"\n\n");
    }
    showMessage("Student Details", buffer.toString());
}
```

```
    }
    public void showMessage(String title,String message)
    {
        Builder builder=new Builder(this);
        builder.setCancelable(true);
        builder.setTitle(title);
        builder.setMessage(message);
        builder.show();
    }
    public void clearText()
    {
        Rollno.setText("");
        Name.setText("");
        Marks.setText("");
        Rollno.requestFocus();
    }
}
```

Output:



Result:

Thus, the program for android application for GPA calculator that makes use of database wasexecuted successfully.

Ex no.: 05

Date : 27/2/23

Develop an application for GPA calculator that make uses of Notification Manager

Aim:

To develop an Android Application for GPA calculator that that makes use of NotificationManager.

Algorithm:

- Start the process.
- Open the existing project in the android studio.
- With help of Notification manager create a notification when the user try to logout the application.
- Edit the ProfileActivity.java to create notification.
- Run the application in the Android Virtual Device(AVD).
- Stop the process.

Program:

MainActivity.java

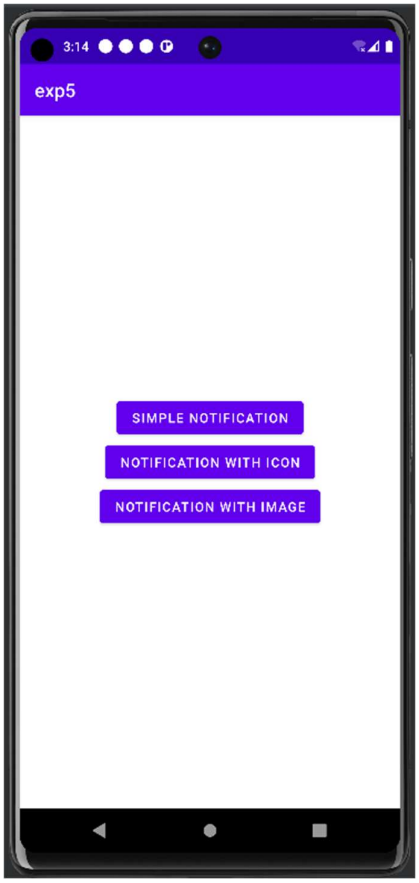
```
package com.example.gpa.notification;
import android.app.NotificationChannel;
import android.app.NotificationManager;
//import android.app.PendingIntent;
import android.content.Context;
//import android.content.Intent;
import android.net.Uri;
import androidx.core.app.NotificationCompat;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.Person;
import androidx.core.graphics.drawable.IconCompat;
```

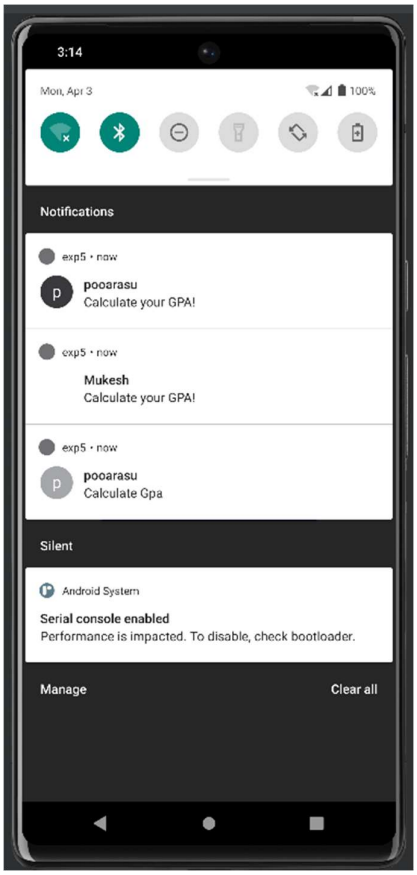
```
import android.os.Build;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;
import java.util.Date;
public class MainActivity extends AppCompatActivity implements
View.OnClickListener{
    NotificationManager notificationManager;
    NotificationCompat.Builder builder;
    NotificationChannel channel;
    CharSequence charSequence = "";
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Button btnSimpleNotification = findViewById(R.id.btnSimpleNotification);
        Button btnNotificationIcon = findViewById(R.id.btnNotificationIcon);
        Button btnNotificationImage = findViewById(R.id.btnNotificationImage);
        charSequence = btnNotificationIcon.getText();
        btnSimpleNotification.setOnClickListener(this);
        btnNotificationIcon.setOnClickListener(this);
        btnNotificationImage.setOnClickListener(this);
        notificationManager = (NotificationManager)
getSystemService(Context.NOTIFICATION_SERVICE);
        CharSequence name = "My Notification";
        String description = "yadda yadda";
        int importance = NotificationManager.IMPORTANCE_DEFAULT;
        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.O) {
            channel = new NotificationChannel("1", name, importance);
```

```
    }
    if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.O) {
        channel.setDescription(description);
    }
    builder = new NotificationCompat.Builder(MainActivity.this, channel.getId())
            .setSmallIcon(R.mipmap.ic_launcher);
    if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.O) {
        notificationManager.createNotificationChannel(channel);
    }
}
@Override
public void onClick(View v) {
    switch (v.getId()) {
        case R.id.btnSimpleNotification:
            simpleNotification();
            break;
        case R.id.btnNotificationIcon:
            notificationWithIcon();
            break;
        case R.id.btnNotificationImage:
            notificationWithImage();
            break;

    }
}
private void simpleNotification() {
    Person jd = new Person.Builder().setName("alarm") .setImportant(true) .build();
    new NotificationCompat.MessagingStyle(jd)
            .addMessage("wake up ", new Date().getTime(), jd) .setBuilder(builder);
    notificationManager.notify(1, builder.build());
```

```
    }
    private void notificationWithIcon() {
        Person anupam = new Person.Builder()
                .setName("alarm ")
                .setIcon(IconCompat.createWithResource(this, R.drawable.index))
                .setImportant(true) .build();
        new NotificationCompat.MessagingStyle(anupam)
                .addMessage("stop", new Date().getTime(), anupam)
                .setBuilder(builder);
        notificationManager.notify(2, builder.build());
    }
    private void notificationWithImage() {
        Person bot = new Person.Builder()
                .setName("alarm") .setImportant(true)
                .setBot(true) .build();
        Uri uri =
Uri.parse("android.resource://com.journaldev.androidpnotifications/drawable/"+R.drawab
le.bg);
        NotificationCompat.MessagingStyle.Message message = new
                NotificationCompat.MessagingStyle.Message("wake up!", new
Date().getTime(), bot);
        message.setData("image/*",uri);
        new NotificationCompat.MessagingStyle(bot)
                .addMessage(message) .setGroupConversation(true).setBuilder(builder);
        notificationManager.notify(3, builder.build());
    }
}
```

Output:





Result:

Thus, Android Application for GPA calculator that makes use of Notification Manager isdeveloped and executed successfully.

Ex no.: 06

Date : 6/3/23

Implement an application for GPA calculator that implements Multithreading

Aim:

To develop an android application for GPA calculator that implements multithreading.

Algorithm:

- Start the process.
- Open the existing project in the android studio.
- Glide helps us to load image in a separate thread.
- With Glide we can upload the images effectively in the Cloud and real time database in Firebase.
- By this we can achieve multithreading in our project
- Run the application in the Android Virtual Device(AVD).
- Stop the process.

Program:

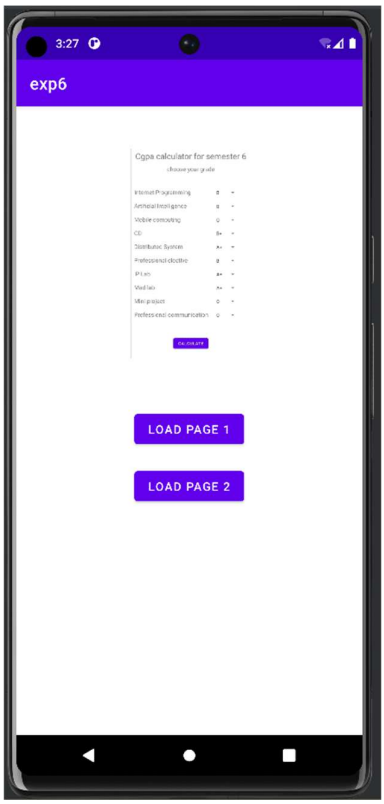
MainActvity.java

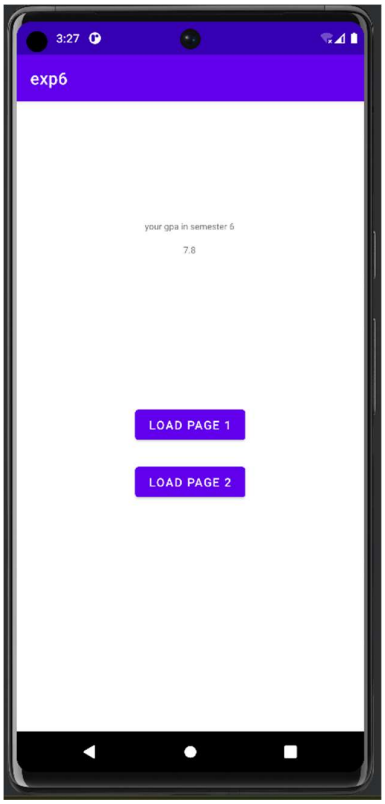
```
package com.example.gpa.multithread;
import android.os.Bundle;
//import android.support.v7.app.AppCompatActivity;
import android.view.View;
import android.widget.Button;
import android.widget.ImageView;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
```

```
ImageView img;
Button bt1,bt2;
@Override
protected void onCreate(Bundle savedInstanceState) {
   super.onCreate(savedInstanceState);
   setContentView(R.layout.activity_main);
   bt1 = (Button)findViewById(R.id.button);
   bt2= (Button) findViewById(R.id.button2);
   img = (ImageView)findViewById(R.id.imageView);
   bt1.setOnClickListener(new View.OnClickListener()
   {
      @Override
      public void onClick(View v)
      {
         new Thread(new Runnable()
         {
            @Override
            public void run()
            {
               img.post(new Runnable()
               {
                  @Override
                  public void run()
                  {
                     img.setImageResource(R.drawable.pic1);
                  }
               });
            }
         }).start();
```

```
        }
    });
    bt2.setOnClickListener(new View.OnClickListener()
    {
        @Override
        public void onClick(View v)
        {
            new Thread(new Runnable()
            {
                @Override
                public void run()
                {
                    img.post(new Runnable()
                    {
                        @Override
                        public void run()
                        {
                            img.setImageResource(R.drawable.pic2);
                        }
                    });
                }
            }).start();
        }
    });
  }
}
```

Output:





Result:

Thus, the program for android application for GPA calculator that makes use of multithreading was executed successfully.

Ex no.: 07

Date : 13/3/23

Develop a native application for GPA calculator that uses GPS location information

Aim:

To develop an android application for GPA calculator that uses GPS location information.

Algorithm:

- Start the process
- Open the existing project in the android studio.
- LocationManager is class which help us to track the user's location while using the application,
- The location is tracked when the user logged into the application. The application will be used only when the location sharing is accepted by the user.
- In ChatScreenActivity.java is edit to know the location.
- Run the application in the Android Virtual Device(AVD).
- Stop the process.

Program:

ChatScreenActivity.java

```
package com.example.gpa.gps;

import androidx.annotation.NonNull;

import androidx.appcompat.app.AppCompatActivity;

import androidx.core.app.ActivityCompat;

import androidx.recyclerview.widget.LinearLayoutManager;

import androidx.recyclerview.widget.RecyclerView;

import android.Manifest;
import android.content.ClipData;
```

```
import android.content.Context;
import android.content.Intent;
import android.content.pm.PackageManager;
import android.location.Criteria;
import android.location.Location;
import  android.location.LocationListener;
import android.location.LocationManager;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.view.View;
import android.widget.Toast;
import android.widget.Toolbar;
import com.example.talkonline.Adapter.UserAdapter;
import com.google.firebase.auth.FirebaseAuth;
import  com.google.firebase.auth.FirebaseUser;
import com.google.firebase.database.DataSnapshot;
import com.google.firebase.database.DatabaseError;
import com.google.firebase.database.DatabaseReference;
import com.google.firebase.database.FirebaseDatabase;
import com.google.firebase.database.ValueEventListener;
import java.util.ArrayList;
import java.util.List;

public class ChatScreenActivity extends AppCompatActivity implements
LocationListener{
    private RecyclerView recyclerView;
    private UserAdapter userAdapter;
```

```
    private List<User> mUsers;
    LoadingClass load;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_chat_screen);
        load = new LoadingClass(ChatScreenActivity.this);
        load.startLoading();
        recyclerView = findViewById(R.id.recycle_view);
        recyclerView.setHasFixedSize(true);
        recyclerView.setLayoutManager(new LinearLayoutManager(this));
        LocationManager locationManager = (LocationManager)
getSystemService(Context.LOCATION_SERVICE);
        if(ActivityCompat.checkSelfPermission(ChatScreenActivity.this,
Manifest.permission.ACCESS_FINE_LOCATION)!=
PackageManager.PERMISSION_GRANTED){
            ActivityCompat.requestPermissions(ChatScreenActivity.this,new
String[]{Manifest.permission.ACCESS_FINE_LOCATION},100);
        }
locationManager.requestLocationUpdates(LocationManager.GPS_PROVIDER,
0,0,this);
        mUsers = new ArrayList<>();
        readUser();
        load.dismissLoading();
    }
    private void readUser(){
        FirebaseUser firebaseUser = FirebaseAuth.getInstance().getCurrentUser();
        DatabaseReference reference =
FirebaseDatabase.getInstance().getReference("user");
        reference.addValueEventListener(new ValueEventListener() {
            @Override
```

```
            public void onDataChange(@NonNull DataSnapshot snapshot) {
                mUsers.clear();
                for(DataSnapshot dataSnapshot : snapshot.getChildren()){
                    User user = dataSnapshot.getValue(User.class);
                    assert user!=null;
                    assert firebaseUser !=null;
                    if(!dataSnapshot.getKey().equals(firebaseUser.getUid())){
                        mUsers.add(user);
                    }
                }
                userAdapter = new UserAdapter(getApplicationContext(),mUsers);
                recyclerView.setAdapter(userAdapter);
            }
            @Override
            public void onCancelled(@NonNull DatabaseError error) {
            }
        });
    }
    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        MenuInflater inflater = getMenuInflater();
        inflater.inflate(R.menu.profilemenu,menu);
        return true;
    }
    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item) {
        item.setOnMenuItemClickListener(new
MenuItem.OnMenuItemClickListener() {
            @Override
```

```
            public boolean onMenuItemClick(@NonNull MenuItem item) {
                load.startLoading();
                Intent intent = new
Intent(ChatScreenActivity.this,ProfileActivity.class);
                startActivity(intent);
                load.dismissLoading();
                return true;
            }
        });
        return super.onOptionsItemSelected(item);
    }
    @Override
    public void onLocationChanged(@NonNull Location location) {
    }
    @Override
    public void onLocationChanged(@NonNull List<Location> locations) {
        LocationListener.super.onLocationChanged(locations);
    }
    @Override
    public void onFlushComplete(int requestCode) {
        LocationListener.super.onFlushComplete(requestCode);
    }
    @Override
    public void onStatusChanged(String provider, int status, Bundle extras) {
        LocationListener.super.onStatusChanged(provider, status, extras);
    }
    @Override
    public void onProviderEnabled(@NonNull String provider) {
        LocationListener.super.onProviderEnabled(provider);
```

```
    }
    @Override
    public void onProviderDisabled(@NonNull String provider) {
        LocationListener.super.onProviderDisabled(provider);
    }
    @Override
    public void onPointerCaptureChanged(boolean hasCapture) {
        super.onPointerCaptureChanged(hasCapture);
    }
}
```

Output:

Result:

Thus, the program for android application for GPA calculator that makes use of GPS information wasexecuted successfully.

Ex no.: 08

Date: 18/3/23

Implement an application for GPA calculator that writes data to the SD card

Aim:

To develop an android application for GPA calculator that writes data to the SD card.

Algorithm:

- Start the process.
- Open the existing project in the android studio.
- Store the login time in the SD card mounted in the android system.
- Seek the permission to access the SD card.
- Open a text file with application name and enter the login time and date.
- Close the file.
- Make a toast message to user as “SD card accessed successfully”
- Run the application in the Android Virtual Device(AVD).
- Stop the process.

Program:

MainActivity.java

```
package com.example.gpa.sdcard;
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;
import  android.Manifest;
import android.content.Intent;
import android.os.Bundle;
import android.os.Environment;
import android.view.View;
```

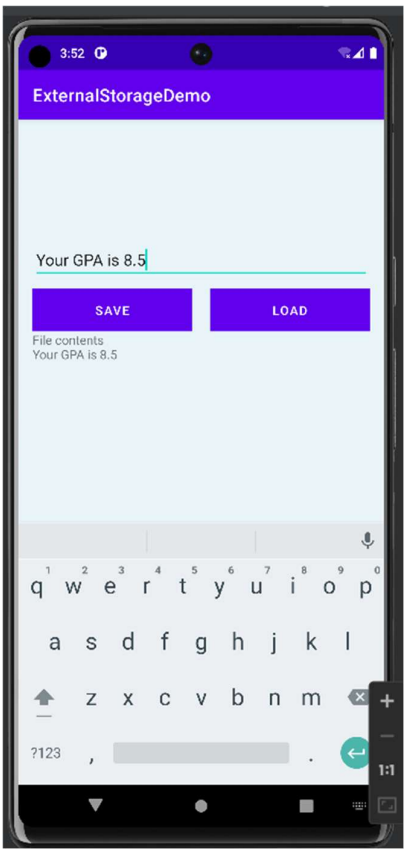
```
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;
import com.google.android.gms.tasks.OnCompleteListener;
import com.google.android.gms.tasks.Task;
import com.google.firebase.auth.AuthResult;
import com.google.firebase.auth.FirebaseAuth;
import java.io.File;
import java.io.FileOutputStream;
import java.io.IOException;
import java.util.Calendar;
public class MainActivity extends AppCompatActivity {
    private TextView signUpText;
    private Button blogin;
    private TextView email,password;
    LoadingClass load;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        load = new LoadingClass(MainActivity.this);
        signUpText = findViewById(R.id.signUp);
        blogin = findViewById(R.id.blogin);
        email = findViewById(R.id.email);
        password = findViewById(R.id.password);
        if(FirebaseAuth.getInstance().getCurrentUser()!=null){
            load.startLoading();
            Intent intent = new Intent(MainActivity.this,ChatScreenActivity.class);
            startActivity(intent);
```

```
            load.dismissLoading();
            finish();
        }
        signUpText.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent intent = new Intent(MainActivity.this,SignUpActivity.class);
                startActivity(intent);
            }
        });
        blogin.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                load.startLoading();
                String semail = String.valueOf(email.getText());
                String spassword = String.valueOf(password.getText());
FirebaseAuth.getInstance().signInWithEmailAndPassword(semail,spassword).a
ddOnCompleteListener(new OnCompleteListener<AuthResult>() {
                    @Override
                    public void onComplete(@NonNull Task<AuthResult> task) {
                        if(task.isSuccessful()){
                            load.dismissLoading();
                            Intent intent = new
Intent(MainActivity.this,ChatScreenActivity.class);
                            startActivity(intent);
                            Toast.makeText(MainActivity.this, "Logged In Successfully",
Toast.LENGTH_SHORT).show();
                            loginTimeStore();
                        }
                        else {
```

```
                    load.dismissLoading();
                    Toast.makeText(MainActivity.this, "Error in login",
Toast.LENGTH_SHORT).show();
                }
            }
        });
    }
});
}
void loginTimeStore(){
    String state = Environment.getExternalStorageState();
    if(Environment.MEDIA_MOUNTED.equals(state)){
        //Toast.makeText(MainActivity.this, "SD card",
Toast.LENGTH_SHORT).show();
        ActivityCompat.requestPermissions(this, new
String[]{Manifest.permission.READ_EXTERNAL_STORAGE},
            23);
        File folder =
Environment.getExternalStoragePublicDirectory(Environment.DIRECTORY_D
OCUMENTS);
        File file = new File(folder,"talkonline.txt");
        writeTextData(file, String.valueOf(Calendar.getInstance().getTime()));
    }
    else if(Environment.MEDIA_MOUNTED_READ_ONLY.equals(state)){
        Toast.makeText(this, "Can't access the sd card",
Toast.LENGTH_SHORT).show();
    }
    else{
        Toast.makeText(this, "No sd card mounted",
Toast.LENGTH_SHORT).show();
    }
```

```
    }
    private void writeTextData(File file, String data) {
        FileOutputStream fileOutputStream = null;
        try {
            fileOutputStream = new FileOutputStream(file);
            fileOutputStream.write(data.getBytes());
            Toast.makeText(this, "SD card accessed successfully",
Toast.LENGTH_SHORT).show();
        } catch (Exception e) {
            e.printStackTrace();
        } finally {
            if (fileOutputStream != null) {
                try {
                    fileOutputStream.close();
                } catch (IOException e) {
                    e.printStackTrace();
                }
            }
        }
    }
}
```

Output:



Result:

Thus, the program for android application for GPA calculator that writes data into the SD Cardwas executed successfully.

Ex no.: 09

Date: 3/4/23

Implement an application for GPA calculator that creates an alert upon receiving a message

Aim:

To develop an android application that creates an alert upon receiving a message.

Algorithm:

- Start the process.
- Open the existing project in the android studio.
- Toast is class which helps us to give alert message in the android application.
- These toast messages can be used while logging into the system, registering into the system, location access etc.,
- After adding the toast message, run the application in the Android Virtual Device(AVD).
- Stop the process.

Program:
MainActivity.java

```
package com.example.gpa.message;
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;
import  android.Manifest;
import android.content.Intent;
import android.os.Bundle;
import android.os.Environment;
```

```
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;
import com.google.android.gms.tasks.OnCompleteListener;
import com.google.android.gms.tasks.Task;
import com.google.firebase.auth.AuthResult;
import com.google.firebase.auth.FirebaseAuth;
import java.io.File;
import java.io.FileOutputStream;
import java.io.IOException;
import java.util.Calendar;
public class MainActivity extends AppCompatActivity {
    private TextView signUpText;
    private Button blogin;
    private TextView email,password;
    LoadingClass load;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        load = new LoadingClass(MainActivity.this);
        signUpText = findViewById(R.id.signUp);
        blogin = findViewById(R.id.blogin);
        email = findViewById(R.id.email);
        password = findViewById(R.id.password);
        if(FirebaseAuth.getInstance().getCurrentUser()!=null){
            load.startLoading();
            Intent intent = new Intent(MainActivity.this,ChatScreenActivity.class);
```

```
            startActivity(intent);
            load.dismissLoading();
            finish();
        }
        signUpText.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent intent = new Intent(MainActivity.this,SignUpActivity.class);
                startActivity(intent);
            }
        });
        blogin.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                load.startLoading();
                String semail = String.valueOf(email.getText());
                String spassword = String.valueOf(password.getText());
FirebaseAuth.getInstance().signInWithEmailAndPassword(semail,spassword).a
ddOnCompleteListener(new OnCompleteListener<AuthResult>() {
                    @Override
                    public void onComplete(@NonNull Task<AuthResult> task) {
                        if(task.isSuccessful()){
                            load.dismissLoading();
                            Intent intent = new
Intent(MainActivity.this,ChatScreenActivity.class);
                            startActivity(intent);
                            Toast.makeText(MainActivity.this, "Logged In Successfully",
Toast.LENGTH_SHORT).show();
                            loginTimeStore();
                        }
```

```
                else {
                    load.dismissLoading();
                    Toast.makeText(MainActivity.this, "Error in login",
Toast.LENGTH_SHORT).show();
                }
            }
        });
    }
});
}
void loginTimeStore(){
    String state = Environment.getExternalStorageState();
    if(Environment.MEDIA_MOUNTED.equals(state)){
        //Toast.makeText(MainActivity.this, "SD card",
Toast.LENGTH_SHORT).show();
        ActivityCompat.requestPermissions(this, new
String[]{Manifest.permission.READ_EXTERNAL_STORAGE},
                23);
        File folder =
Environment.getExternalStoragePublicDirectory(Environment.DIRECTORY_D
OCUMENTS);
        File file = new File(folder,"talkonline.txt");
        writeTextData(file, String.valueOf(Calendar.getInstance().getTime()));
    }
    else if(Environment.MEDIA_MOUNTED_READ_ONLY.equals(state)){
        Toast.makeText(this, "Can't access the sd card",
Toast.LENGTH_SHORT).show();
    }
    else{
        Toast.makeText(this, "No sd card mounted",
Toast.LENGTH_SHORT).show();
```

```
        }
    }
    private void writeTextData(File file, String data) {
        FileOutputStream fileOutputStream = null;
        try {
            fileOutputStream = new FileOutputStream(file);
            fileOutputStream.write(data.getBytes());
            Toast.makeText(this, "SD card accessed successfully",
Toast.LENGTH_SHORT).show();
        } catch (Exception e) {
            e.printStackTrace();
        } finally {
            if (fileOutputStream != null) {
                try {
                    fileOutputStream.close();
                } catch (IOException e) {
                    e.printStackTrace();
                }
            }
        }
    }
}
```

Output:

Result:

Thus, the program for android application for GPA calculator that creates an alert uponreceiving a message was executed successfully.

Ex no.: 10

Date : 17/4/23

Develop an application for GPA calculator that makes use of RSS Feed

Aim:

To develop an android application for GPA calculator that makes use of RSS (Rich SiteSummary) Feed**.**

Algorithm:

- Start the process.
- Open a new project in the android studio by selecting the empty activity.
- Create a list view in the activity_main.xml
- Get the feed from a website and display it in the list view.
- Run the application in the Android Virtual Studio(AVD).
- Stop the process.

Program:

MainActivity.java

```
Packagecom.example.gpa.rss;
import android.app.ListActivity;
import android.content.Intent;
import android.net.Uri;
import android.os.AsyncTask;
import android.os.Bundle;
import android.view.View;
import android.widget.ArrayAdapter;
import android.widget.ListView;
import org.xmlpull.v1.XmlPullParser;
import org.xmlpull.v1.XmlPullParserException;
```

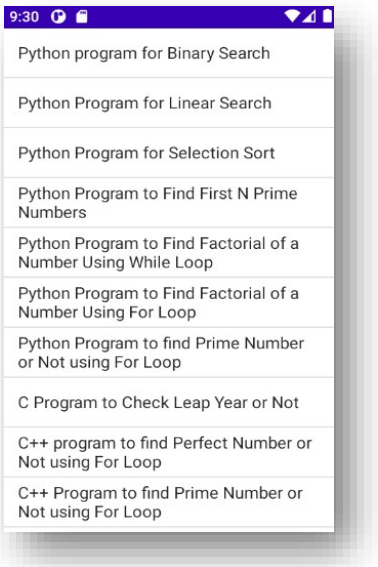
```
import org.xmlpull.v1.XmlPullParserFactory;
import java.io.IOException;
import java.io.InputStream;
import java.net.MalformedURLException;
import java.net.URL;
import java.util.ArrayList;
import java.util.List;
public class MainActivity extends ListActivity
{
   List headlines;
   List links;
   @Override
   protected void onCreate(Bundle savedInstanceState)
   {
      super.onCreate(savedInstanceState);
      new MyAsyncTask().execute();
   }
   class MyAsyncTask extends AsyncTask<Object,Void,ArrayAdapter>
   {
      @Override
      protected ArrayAdapter doInBackground(Object[] params)
      {
         headlines = new ArrayList();
         links = new ArrayList();
         try
         {
            URL url = new URL("https://codingconnect.net/feed");
            XmlPullParserFactory factory = XmlPullParserFactory.newInstance();
            factory.setNamespaceAware(false);
```

```
XmlPullParser xpp = factory.newPullParser();
xpp.setInput(getInputStream(url), "UTF_8");
boolean insideItem = false;
int eventType = xpp.getEventType();
while (eventType != XmlPullParser.END_DOCUMENT)
{
   if (eventType == XmlPullParser.START_TAG)
   {
      if (xpp.getName().equalsIgnoreCase("item"))
      {
         insideItem = true;
      }
      else if (xpp.getName().equalsIgnoreCase("title"))
      {
         if (insideItem)
            headlines.add(xpp.nextText()); //extract the headline
      }
      else if (xpp.getName().equalsIgnoreCase("link"))
      {
         if (insideItem)
            links.add(xpp.nextText()); //extract the link of article
      }
   }
   else if(eventType==XmlPullParser.END_TAG &&
xpp.getName().equalsIgnoreCase("item"))
   {
      insideItem=false;
   }
   eventType = xpp.next(); //move to next element
```

```
            }
        }
        catch (MalformedURLException e)
        {
            e.printStackTrace();
        }
        catch (XmlPullParserException e)
        {
            e.printStackTrace();
        }
        catch (IOException e)
        {
            e.printStackTrace();
        }
        return null;
    }
    protected void onPostExecute(ArrayAdapter adapter)
    {
        adapter = new ArrayAdapter(MainActivity.this,
android.R.layout.simple_list_item_1, headlines);
        setListAdapter(adapter);
    }
}
@Override
protected void onListItemClick(ListView l, View v, int position, long id)
{
    Uri uri = Uri.parse((links.get(position)).toString());
    Intent intent = new Intent(Intent.ACTION_VIEW, uri);
    startActivity(intent);
```

```
    }
    public InputStream getInputStream(URL url)
    {
        try
        {
            return url.openConnection().getInputStream();
        }
        catch (IOException e)
        {
            return null;
        }
    }
}
```

Output:



Result:

Thus, the program for android application for GPA calculator that makes use of RSS Feedwas executed successfully.

Ex no.: 11

Date : 24/4/23

Develop a mobile application for GPA calculator to send an email

Aim:

To develop an android application for GPA calculator that send an email.

Algorithm:

- Start the process.
- Open the existing project in the android studio.
- Create function in the SignupActivity which an email is send to the registered user.
- Email is sent with the help of Intent Class.
- Run the application in the Android Virtual Device(AVD).
- Stop the process.

Program:

MainActivity.java

```
package com.example.gpa.mail;
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import android.annotation.SuppressLint;
import android.content.Intent;
import  android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
```

```
import android.widget.Toast;
import com.google.android.gms.tasks.OnCompleteListener;
import com.google.android.gms.tasks.Task;
import com.google.firebase.auth.AuthResult;
import com.google.firebase.auth.FirebaseAuth;
import com.google.firebase.database.FirebaseDatabase;
public class SignUpActivity extends AppCompatActivity {
    private TextView loginText;
    private EditText username,email,password,cpassword;
    private Button signup;
    @SuppressLint("MissingInflatedId")
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_sign_up);
        //Getting the values from the sign up activity.
        loginText = findViewById(R.id.login);
        username = findViewById(R.id.username);
        email = findViewById(R.id.email1);
        password = findViewById(R.id.password1);
        cpassword = findViewById(R.id.confirmPassword1);
        signup = findViewById(R.id.bsignup);
        if(FirebaseAuth.getInstance().getCurrentUser()!=null){
            Intent intent = new
Intent(SignUpActivity.this,ChatScreenActivity.class);
            startActivity(intent);
            finish();
        }
        //Moving the activity to main activity.
```

```
        loginText.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent intent = new Intent(SignUpActivity.this,MainActivity.class);
                startActivity(intent);
            }
        });
        //signup check
        signup.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String semail = String.valueOf(email.getText());
                String spassword = String.valueOf(password.getText());
                String scpassword = String.valueOf(cpassword.getText());
                String susername = String.valueOf(username.getText());
                if(!semail.isEmpty() && !susername.isEmpty()) {
                    if(spassword.length()==7){
                        if(spassword.equals(scpassword)){
FirebaseAuth.getInstance().createUserWithEmailAndPassword(semail,spasswor
d).addOnCompleteListener(new OnCompleteListener<AuthResult>() {
                                @Override
                                public void onComplete(@NonNull Task<AuthResult>
task) {
                                    if(task.isSuccessful()){

FirebaseDatabase.getInstance().getReference("user/"+FirebaseAuth.getInstance(
).getCurrentUser().getUid()).setValue(new User(susername,semail,""));
                                        Intent intent = new
Intent(SignUpActivity.this,ChatScreenActivity.class);
                                        startActivity(intent);
```

```
                        Toast.makeText(SignUpActivity.this,"Signed Up
successfully",Toast.LENGTH_SHORT).show();
                        emailSend(semail);
                    }
                    else{
                        Toast.makeText(SignUpActivity.this,"Error in
signup",Toast.LENGTH_SHORT).show();
                    }
                }
            });
        }
        else
            Toast.makeText(SignUpActivity.this,"Password doesn't
match",Toast.LENGTH_SHORT).show();
      }
      else
        Toast.makeText(SignUpActivity.this,"Password length should be
7.",Toast.LENGTH_SHORT).show();
    }
  }
});
}
void emailSend(String email){
  Intent emailIntent = new Intent(Intent.ACTION_SEND);
  emailIntent.setData(Uri.parse("mailto:"));
  emailIntent.setType("text/plain");
  emailIntent.putExtra(Intent.EXTRA_EMAIL, email);
  emailIntent.putExtra(Intent.EXTRA_SUBJECT, "Hi hello user!");
  emailIntent.putExtra(Intent.EXTRA_TEXT, "Welcome to talkonline
application. Feel free to speak.");
```

```
        try {
            Toast.makeText(this, "Verify your mail please",
Toast.LENGTH_SHORT).show();
        }
        catch (android.content.ActivityNotFoundException e){
        }
    }
}
```

Output:

Result:

Thus, the program for android application for GPA calculator to send an email was executedsuccessfully.

Ex no.: 12

Date : 24/4/23

Develop a Mobile application for calculating GPA (Mini Project)

Aim:

To develop a mobile application for calculating GPA.

Algorithm:

- Start the process
- Open the existing project in the android application.
- Add the other features to the project.
- Add the required activity to the project.
- Run the application in the Android Virtual Device(AVD).
- Stop the process

Program:

Activitymain.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="100dp">
        <TextView
            android:id="@+id/textView"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
```

```
        android:layout_marginTop="20dp"
        android:text="Cgpa calculator for semester 6"
        android:textSize="28sp"
        android:gravity="center"/>

</LinearLayout>
<TextView
    android:id="@+id/textVi"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="70dp"
    android:text="choose your grade"
    android:textSize="20sp"
    android:gravity="center"/>

<GridLayout
    android:id="@+id/gridLayout"
    android:layout_width="match_parent"
    android:layout_height="630dp"
    android:layout_marginTop="140dp"
    android:layout_marginBottom="30dp"
    android:columnCount="2"
    android:rowCount="10">

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
```

```
    android:layout_row="0"
    android:layout_column="0"
    android:text="Internet Programming"
    android:textSize="20sp"
    android:gravity="center"/>
<Spinner
    android:id="@+id/ip"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="0"
    android:layout_column="1"
    android:spinnerMode="dropdown"/>
<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="1"
    android:layout_column="0"
    android:text="Artificial Intelligence"
    android:textSize="20sp"
    android:gravity="center"/>
<Spinner
    android:id="@+id/ai"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="1"
```

```
    android:layout_column="1"
    android:spinnerMode="dropdown"/>
<TextView
    android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="2"
    android:layout_column="0"
    android:text="Mobile computing"
    android:textSize="20sp"
    android:gravity="center"/>
<Spinner
    android:id="@+id/mc"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="2"
    android:layout_column="1"
    android:spinnerMode="dropdown"/>
<TextView
    android:id="@+id/textView4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="3"
    android:layout_column="0"
    android:text="CD"
    android:textSize="20sp"
```

```
    android:gravity="center"/>
<Spinner
    android:id="@+id/cd"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="3"
    android:layout_column="1"
    android:spinnerMode="dropdown"/>
<TextView
    android:id="@+id/textView5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="4"
    android:layout_column="0"
    android:text="Distributed System"
    android:textSize="20sp"
    android:gravity="center"/>
<Spinner
    android:id="@+id/ds"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="4"
    android:layout_column="1"
    android:spinnerMode="dropdown"/>
<TextView
    android:id="@+id/textView6"
```

```
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="5"
    android:layout_column="0"
    android:text="Professional elective"
    android:textSize="20sp"
    android:gravity="center"/>
<Spinner
    android:id="@+id/ele"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="5"
    android:layout_column="1"
    android:spinnerMode="dropdown"/>
<TextView
    android:id="@+id/textView7"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="6"
    android:layout_column="0"
    android:text="IP Lab"
    android:textSize="20sp"
    android:gravity="center"/>
<Spinner
    android:id="@+id/ipl"
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="6"
    android:layout_column="1"
    android:spinnerMode="dropdown"/>
<TextView
    android:id="@+id/textView8"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="7"
    android:layout_column="0"
    android:text="Mad lab"
    android:textSize="20sp"
    android:gravity="center"/>
<Spinner
    android:id="@+id/madlab"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="7"
    android:layout_column="1"
    android:spinnerMode="dropdown"/>
<TextView
    android:id="@+id/textView9"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="8"
```

```
    android:layout_column="0"
    android:text="Mini project"
    android:textSize="20sp"
    android:gravity="center"/>
<Spinner
    android:id="@+id/mini"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="8"
    android:layout_column="1"
    android:spinnerMode="dropdown"/>
<TextView
    android:id="@+id/textView10"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="9"
    android:layout_column="0"
    android:text="Professional communication"
    android:textSize="20sp"
    android:gravity="center"/>
<Spinner
    android:id="@+id/pc"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_row="9"
    android:layout_column="1"
```

```
            android:spinnerMode="dropdown"/>
        </GridLayout>
        <Button
            android:id="@+id/button"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_alignParentBottom="true"
            android:layout_centerInParent="true"
            android:layout_marginBottom="40dp"
            android:text="calculate"/>
    </RelativeLayout>
```

MainActivity.java:

```
package com.example.gpa.calculate;
import android.content.Intent;
//import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Spinner;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
   Spinner e1,e2,e3,e4,e5,e6,e7,e8,e9,e10;
   int ip=0,ai=0,mc=0,cd=0,ds=0,ele=0,iplab=0,madlab=0,mini=0,pc=0;
   float gpa=0;
   Button bt;
   Spinner s;
```

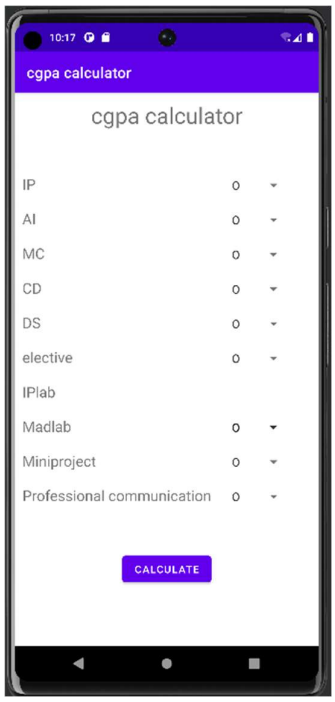
```
//Data for populating in Spinner
String [] dept_array={"O","A+","A","B+","B","RW"};
String name,reg,dept;
int toc=0;
public static int grade(String ch){
   int x=0;
   if (ch.equals("o")||ch.equals("O"))
      x= 10;
   else if(ch.equals("a+")||ch.equals("A+"))
      x= 9;
   else if(ch.equals("a")||ch.equals("A"))
      x= 8;
   else if(ch.equals("b+")||ch.equals("B+"))
      x= 7;
   else if(ch.equals("b")||ch.equals("B"))
      x= 6;
   else if(ch.equals("ra")||ch.equals("RA"))
      x= 0;
   else System.out.println("enter a valid grade!!!...");
   return x;
}

@Override
protected void onCreate(Bundle savedInstanceState) {
   super.onCreate(savedInstanceState);
   setContentView(R.layout.activity_main);
   e1= (Spinner) findViewById(R.id.ip);
   e2= (Spinner) findViewById(R.id.ai);
   e3= (Spinner) findViewById(R.id.mc);
```

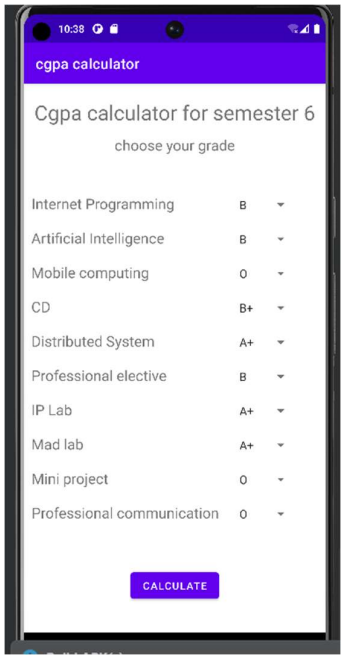
```
        e4= (Spinner) findViewById(R.id.cd);
        e5= (Spinner) findViewById(R.id.ds);
        e6= (Spinner) findViewById(R.id.ele);
        e7= (Spinner) findViewById(R.id.ipl);
        e8= (Spinner) findViewById(R.id.madlab);
        e9= (Spinner) findViewById(R.id.mini);
        e10= (Spinner) findViewById(R.id.pc);

        bt= (Button) findViewById(R.id.button);
        //Creating Adapter for Spinner for adapting the data from array to Spinner
        ArrayAdapter adapter= new

ArrayAdapter(MainActivity.this,android.R.layout.simple_spinner_item,dept_array);
        //s.setAdapter(adapter);
        e1.setAdapter(adapter);
        e2.setAdapter(adapter);
        e3.setAdapter(adapter);
        e4.setAdapter(adapter);
        e5.setAdapter(adapter);
        e6.setAdapter(adapter);
        e7.setAdapter(adapter);
        e8.setAdapter(adapter);
        e9.setAdapter(adapter);
        e10.setAdapter(adapter);

        //Creating Listener for Button
        bt.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
```

```
            //Getting the Values from Views(Edittext & Spinner)
//              name=e1.getText().toString();
//              reg=e2.getText().toString();
//              dept=s.getSelectedItem().toString();
            //Intent For Navigating to Second Activity
            Intent i = new Intent(MainActivity.this,MainActivity2.class);
            //For Passing the Values to Second Activity

            ip=grade(e1.getSelectedItem().toString());
            ai=grade(e2.getSelectedItem().toString());
            mc=grade(e3.getSelectedItem().toString());
            cd=grade(e4.getSelectedItem().toString());
            ds=grade(e5.getSelectedItem().toString());
            ele=grade(e6.getSelectedItem().toString());
            iplab=grade(e7.getSelectedItem().toString());
            madlab=grade(e8.getSelectedItem().toString());
            mini=grade(e9.getSelectedItem().toString());
            pc=grade(e10.getSelectedItem().toString());


gpa=(float)((ip*3)+(ai*3)+(mc*3)+(cd*4)+(ds*3)+(ele*3)+(iplab*2)+(madlab*2)+(mini*1)
+(pc*1))/25;

            String gp1=String.valueOf(gpa);
            i.putExtra("name_key","your gpa in semester 6");
            i.putExtra("reg_key",gp1);
            i.putExtra("dept_key", " ");
```

```
            startActivity(i);
            //dept=s.getSelectedItem().toString();
        }
    });
  }
}
```

Output:





Result:

Thus, the GPA calculation application was developed successfully and verified.