Ex.No:1a **DEVELOP AN APPLICATION THAT USES GUI COMPONENTS**

Date: **FONT AND COLOURS**

AIM:

To develop a Simple Android Application that uses GUI components, Front and Colours.

PROCEDURE:

Creating a New Project:

- Open Android Studio and then click on File -> New -> New project.
- Then type the Application name as "ex1a" and click Next
- Then select the Minimum SDK as shown below and click Next.
- Then select the Empty Activity and click Next.
- Finally click Finish.
- It will take some time to build and load the project.

Code for activity_main.xml:

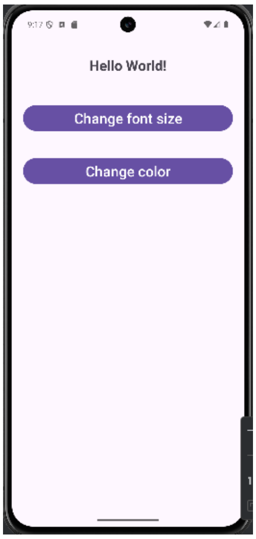
```
<?xml version="1.0" encoding="utf-8"?>

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

android:orientation="vertical"

android:layout width="match_parent"

android:layout height="match parent">

<TextView

android:id="@+id/textView" android:layout_width="match_parent"

android:layout_height="wrap_content" android:layout_margin="30dp"

android:gravity="center" android:text="Hello World!" android:textSize="25sp"

android:textStyle="bold" />

<Button

android:id="@+id/button1" android:layout_width="match_parent"

android:layout_height="wrap_content" android:layout_margin="20dp"

android:gravity="center" android:text="Change font size" android:textSize="25sp"

<Button android:id="@+id/button2" android:layout_width="match_parent"

android:layout_height="wrap_content" android:layout_margin="20dp"

android:gravity="center" android:text="Change color" android:textSize="25sp" />

</linear layout>
```

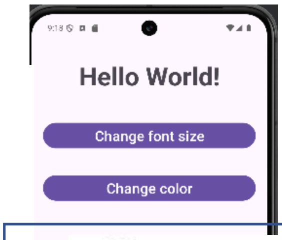
Main Activity.java

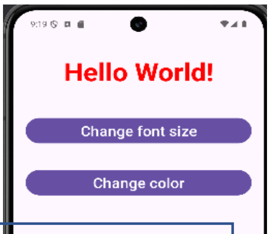
```
package com.example.ex1a;
import android.graphics.Color;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;

public class MainActivity extends AppCompatActivity {

   int ch=1;
   float font=30;
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      EdgeToEdge.enable(this);
      setContentView(R.layout.activity_main);
      final TextView t=(TextView)findViewById(R.id.textView) ;
      Button b1=(Button)findViewById(R.id.button1);
      b1.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            t.setTextSize(font);
            font=font+5;
            if(font==50)
               font=30;
         }
   });
   Button b2=(Button)findViewById(R.id.button2);
      b2.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View view) {
         switch(ch){
            case 1:
               t.setTextColor(Color.RED);
               break;
            case 2:
               t.setTextColor(Color.GREEN);
               break;
```

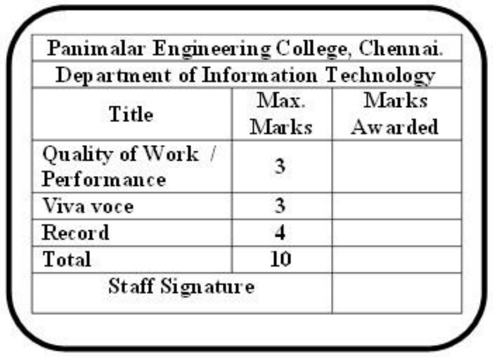
```
                case 3:
                    t.setTextColor(Color.BLUE);
                    break;
                case 4:
                    t.setTextColor(Color.CYAN);
                    break;
                case 5:
                    t.setTextColor(Color.YELLOW);
                    break;
                case 6:
                    t.setTextColor(Color.MAGENTA);
                    break;
            }
            ch++;
            if(ch==7)
                ch=1;
        }
    });
        ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, insets) ->
{
            Insets systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBars());
            v.setPadding(systemBars.left, systemBars.top, systemBars.right, systemBars.bottom);
            return insets;
        });
    }
}
```

OUTPUT:









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Department of Information Technology		
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Quality of Work / Performance	3	
Viva voce	3	
Record	4	
Total	10	
Staff Signature		

RESULT:

Thus a Simple Android Application that uses GUI components, Font and Colors is developed and executed successfully.

DEVELOP AN APPLICATION THAT USES LAYOUT AND MANAGERS EVENT LISTENERS

EX:NO:1(B)

DATE:

AIM:

To develop a Simple Android Application that uses Layout Managers and Event Listeners

PROCEDURE

- Creating a New project
- Open Android Studio and then click on File -> New -> New Project
- Then type the Application name as "exno1b" and click Next.
- Then select the Minimum SDK as shown below and click Next.
- Then select the Empty Activity and click Next.
- Finally click Finish.
- It will take some time to build and load the project.
- After completion it will look as given below.
- Creating Second Activity for the Android Application:
- Click on File -> New -> Activity → Empty Activity
- Type the Activity Name as Second Activity and click Finish button.
- Thus Second Activity For the application is created.

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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="169dp"
        android:layout_height="43dp"
        android:text="Details Form"
        android:textAlignment="center"
        android:textColor="@color/black"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.483"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.155" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="59dp"
        android:layout_height="28dp"
        android:text="Name"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.11"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.284" />

    <TextView
        android:id="@+id/textView3"
        android:layout_width="58dp"
        android:layout_height="25dp"
        android:text="Reg.No"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.11"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.376" />

    <TextView
        android:id="@+id/textView4"
        android:layout_width="52dp"
        android:layout_height="21dp"
        android:text="Dept"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.108"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.464" />



    <Button
        android:id="@+id/button"
        android:layout_width="121dp"
        android:layout_height="42dp"
        android:text="Submit"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.446"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.588" />

    <Spinner
        android:id="@+id/spinner"
        android:layout_width="217dp"
        android:layout_height="25dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.603"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.467" />

    <EditText
        android:id="@+id/editTextText"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="text"
        android:text=""
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.582"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.281" />

    <EditText
        android:id="@+id/editTextText2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="text"
        android:text=""
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.582"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.374" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Activitymain2.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:id="@+id/main"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  tools:context=".MainActivity2">

  <TextView
    android:id="@+id/textView5"
    android:layout_widtah="242dp"
    android:layout_height="55dp"
    android:text=""
    android:textAlignment="center"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.456"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.259" />

  <TextView
    android:id="@+id/textView6"
    android:layout_width="247dp"
    android:layout_height="56dp"
    android:text=""
    android:textAlignment="center"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.469"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.434" />



  <TextView
    android:id="@+id/textView7"
    android:layout_width="242dp"
    android:layout_height="55dp"
    android:text=""
    android:textAlignment="center"
```

```
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.455"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.578" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Main Activity.java

```
package com.example.ex1b;

import android.content.Intent;
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 android.widget.TextView;

import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable(this);
        setContentView(R.layout.activity_main);
        String dept_array[]={"Select","CSE","IT","EEE","MECH","ECE"};
        TextView t1=(TextView) findViewById(R.id.textView);
        TextView t2=(TextView) findViewById(R.id.textView2);

        EditText e1=(EditText) findViewById(R.id.editTextText);
        EditText e2=(EditText) findViewById(R.id.editTextText2);
        Spinner spinner=(Spinner) findViewById(R.id.spinner);
        ArrayAdapter adapter=new
ArrayAdapter(MainActivity.this,android.R.layout.simple_spinner_dropdown_item,dept_array
);
        spinner.setAdapter(adapter);
        Button b=(Button) findViewById(R.id.button);
        b.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent i=new Intent(MainActivity.this,MainActivity2.class);
                i.putExtra("name",e1.getText().toString());
                i.putExtra("regno",e2.getText().toString());
                i.putExtra("dept",spinner.getSelectedItem().toString());
                startActivity(i);
            }
        });

        ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, insets) ->
{
            Insets systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBars());
            v.setPadding(systemBars.left, systemBars.top, systemBars.right, systemBars.bottom);
            return insets;
        });
    }
}
```

MainActivity2.java

```
  package com.example.ex1b;
            import android.os.Bundle;
            import android.widget.TextView;
            import android.content.Intent;
            import androidx.activity.EdgeToEdge;
            import androidx.appcompat.app.AppCompatActivity;
            import androidx.core.graphics.Insets;
            import androidx.core.view.ViewCompat;
            import androidx.core.view.WindowInsetsCompat;
            public class MainActivity2 extends AppCompatActivity {
                String name,regno,dept;
                @Override
                protected void onCreate(Bundle savedInstanceState) {
                    super.onCreate(savedInstanceState);
                    EdgeToEdge.enable(this);
                    setContentView(R.layout.activity_main2);
                    TextView t5=(TextView) findViewById(R.id.textView5);
                    TextView t6=(TextView) findViewById(R.id.textView6);
                    TextView t7=(TextView) findViewById(R.id.textView7);
                    Intent i=getIntent();
                    name=i.getStringExtra("name");
                    regno=i.getStringExtra("regno");
                    dept=i.getStringExtra("dept");
                    t5.setText(name);
                    t6.setText(regno);
            if(dept.equals("Select")){
                t7.setText("Not Selected");
            }
            else {
                t7.setText(dept);
            }
            ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v,
        insets) -> {
                Insets systemBars =
        insets.getInsets(WindowInsetsCompat.Type.systemBars());
                v.setPadding(systemBars.left, systemBars.top, systemBars.right,
        systemBars.bottom);


    return insets;
            });
        }
    }
```

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Quality of Work / Performance	3	
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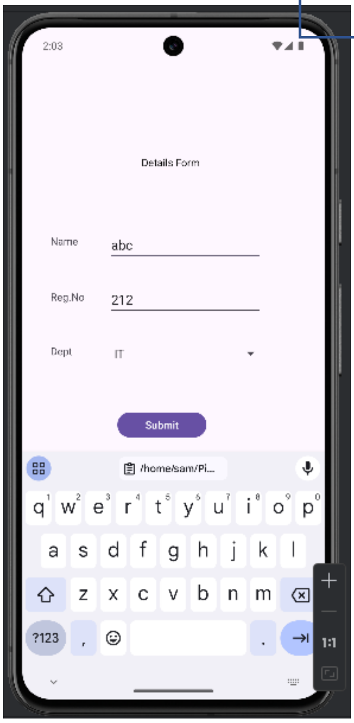
Total	10	
Staff Signature		

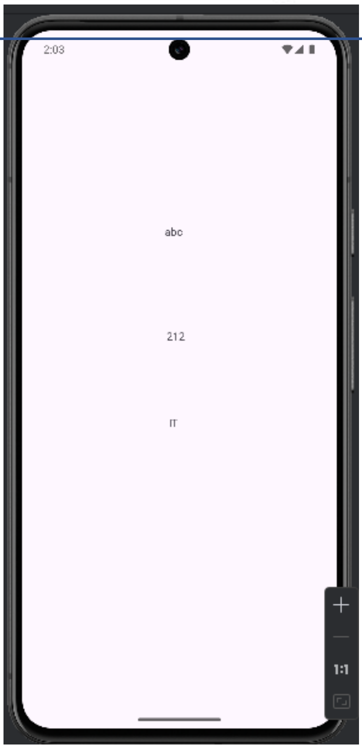
OUTPUT:


Details Form

Name abc

Reg.No 212

Dept IT


abc

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IT

RESULT:

Thus a Simple Android Application that uses Layout Managers and Event Listeners is developed and executed successfully.

Ex.No:2 DEVELOP AN APPLICATION THAT MAKES USE OF DATABASES

Date:

AIM:

To develop a Simple Android Application that makes use of databases.

PROCEDURE:

Creating a New Project:

- Open Android Studio and then click on File -> New -> New project.
- Then type the Application name as "exno2" and click Next
- Then select the Minimum SDK as shown below and click Next.
- Then select the Empty Activity and click Next.
- Finally click Finish.

Code for activity_main.xml:

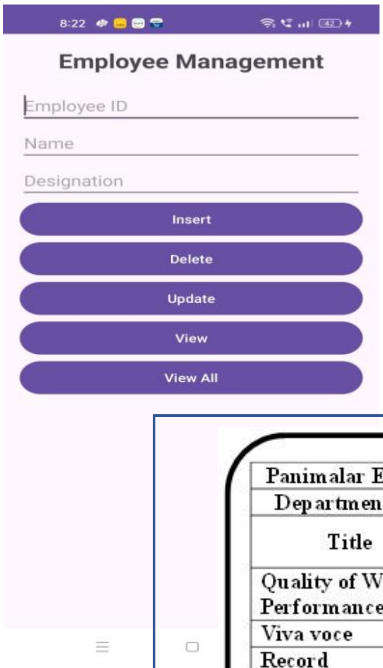
-
  ```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textViewTitle"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Employee Management"
        android:textSize="24sp"
        android:textStyle="bold"
        android:layout_gravity="center"
        android:paddingBottom="16dp" />
    <EditText
        android:id="@+id/editText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Employee ID" />
    <EditText
        android:id="@+id/editText2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Name" />
```

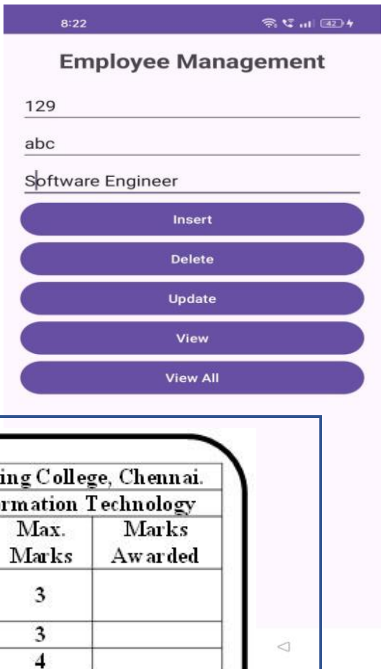
```
        <EditText
            android:id="@+id/editTextText2"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="Designation" />
        <Button
            android:id="@+id/buttonIns"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Insert" />
        <Button
            android:id="@+id/buttondel"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Delete" />
        <Button
            android:id="@+id/buttonupd"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Update" />
        <Button
            android:id="@+id/button4"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="View" />
        <Button
            android:id="@+id/buttonviewall"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="View All" />
    </LinearLayout>
```

Code for MainActivity.java:

```
package com.example.exno2;
package com.example.myapplication;
import android.app.AlertDialog;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    EditText emp_id, name, designation;
    Button Insert, Delete, Update, View, ViewAll;
    SQLiteDatabase db;

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

        emp_id = findViewById(R.id.editText);
        name = findViewById(R.id.editText2);
        designation = findViewById(R.id.editTextText2);
        Insert = findViewById(R.id.buttonIns);
        Delete = findViewById(R.id.buttondel);
        Update = findViewById(R.id.buttonupd);
        View = findViewById(R.id.button4);
        ViewAll = findViewById(R.id.buttonviewall);

        // Create or open the database
        db = openOrCreateDatabase("EmployeeDB", Context.MODE_PRIVATE, null);
        db.execSQL("CREATE TABLE IF NOT EXISTS Employee(emp_id VARCHAR, name
VARCHAR, designation VARCHAR);");

        // Insert Record
        Insert.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if (emp_id.getText().toString().trim().isEmpty() ||
                        name.getText().toString().trim().isEmpty() ||
                        designation.getText().toString().trim().isEmpty()) {
                    showMessage("Error", "Please enter all values");
                    return;
                }

                db.execSQL("INSERT INTO Employee VALUES('" + emp_id.getText() + "', '" +
name.getText() + "', '" + designation.getText() + "');");
                showMessage("Success", "Record added");
            }
        });

        // Delete Record
        Delete.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if (emp_id.getText().toString().trim().isEmpty()) {
                    showMessage("Error", "Please enter emp_id");
                    return;
                }

                Cursor c = db.rawQuery("SELECT * FROM Employee WHERE emp_id='" +
emp_id.getText() + "'", null);
                if (c.moveToFirst()) {
                    db.execSQL("DELETE FROM Employee WHERE emp_id='" +
emp_id.getText() + "'");
                    showMessage("Success", "Record deleted");
                } else {
                    showMessage("Error", "Invalid emp_id");
                }
            }
        });

        // Update Record
        Update.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if (emp_id.getText().toString().trim().isEmpty()) {
                    showMessage("Error", "Please enter emp_id");
                    return;
                }

                Cursor c = db.rawQuery("SELECT * FROM Employee WHERE emp_id='" +
emp_id.getText() + "'", null);
                if (c.moveToFirst()) {
                    db.execSQL("UPDATE Employee SET name='" + name.getText() + "',
designation='" + designation.getText() + "' WHERE emp_id='" + emp_id.getText() + "'");
                    showMessage("Success", "Record updated");
                } else {
                    showMessage("Error", "Invalid emp_id");
                }
            }
        });

        // View Record
        View.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if (emp_id.getText().toString().trim().isEmpty()) {
                    showMessage("Error", "Please enter emp_id");
                    return;
                }
                Cursor c = db.rawQuery("SELECT * FROM Employee WHERE emp_id='" +
emp_id.getText() + "'", null);
                if (c.moveToFirst()) {
                    name.setText(c.getString(1));
                    designation.setText(c.getString(2));
                } else {
                    showMessage("Error", "Invalid emp_id");
                }
            }
        });

        // View All Records
        ViewAll.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Cursor c = db.rawQuery("SELECT * FROM Employee", null);
                if (c.getCount() == 0) {
                    showMessage("Error", "No records found");
                    return;
                }

                StringBuilder buffer = new StringBuilder();
                while (c.moveToNext()) {
                    buffer.append("emp_id: ").append(c.getString(0)).append("\n");
                    buffer.append("Name: ").append(c.getString(1)).append("\n");
                    buffer.append("Designation: ").append(c.getString(2)).append("\n\n");
                }
                showMessage("Employee Details", buffer.toString());
            }
        });
    }

    // Function to show a message in a dialog
    public void showMessage(String title, String message) {
        AlertDialog.Builder builder = new AlertDialog.Builder(this);
        builder.setCancelable(true);
        builder.setTitle(title);
        builder.setMessage(message);
        builder.show();
    }
}
```

OUTPUT:





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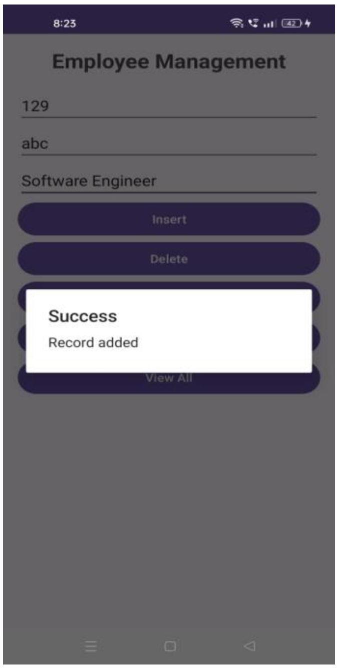
abc

Software Engineer



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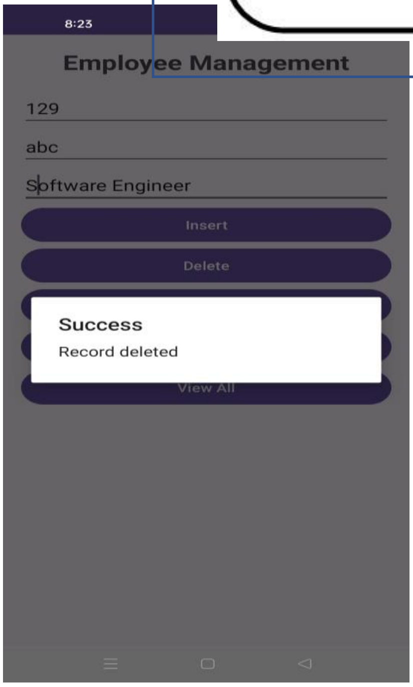
abc

Software Engineer

Success

Record added

Panimalar Engineering College, Chennai.		
Department of Information Technology		
Title	Max. Marks	Marks Awarded
Quality of Work / Performance	3	
Viva voce	3	
Record	4	
Total	10	
Staff Signature		



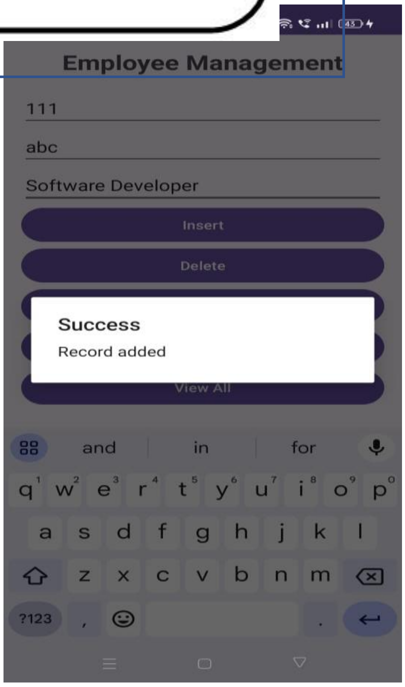
129

abc

Software Engineer

Success

Record deleted



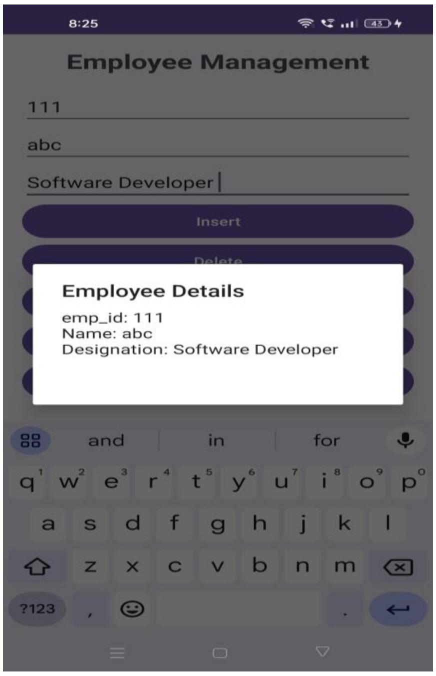
111

abc

Software Developer

Success

Record added



111

abc

Software Developer

Employee Details

emp_id: 111
Name: abc
Designation: Software Developer

RESULT:

Thus the Simple Android Application that makes use of Database is developed and executed successfully.

DEVELOP A NATIVE APPLICATION THAT USES GPS LOCATION INFORMATION

Ex.No: 3

Date:

AIM:

To develop an Android Application that creates an alert upon receiving a message using GPS location information.

PROCEDURE:

Creating a New Project:

- Open Android Studio and then click on File -> New -> New project.
- Then type the Application name as "gpsloc" and click Next
- Then select the Minimum SDK as shown below and click Next.
- Then select the Empty Activity and click Next.
- Finally click Finish.

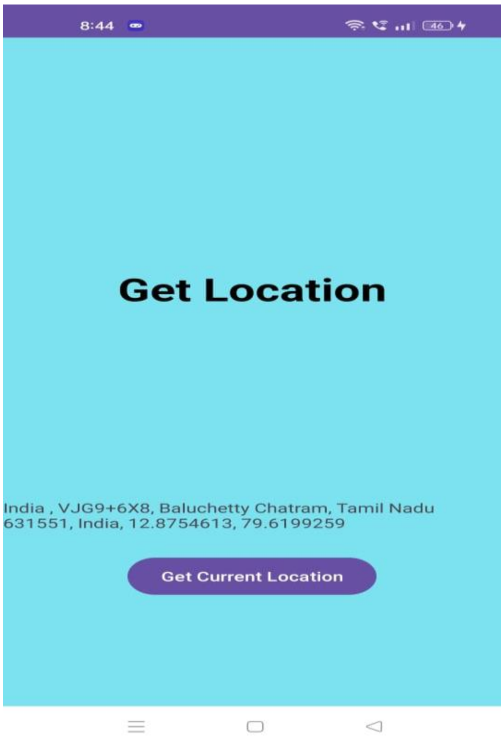
Code for activity_main.xml:

```
<?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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#7CE2EF"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Get Location"
        android:textSize="34sp"
        android:textColor="#000000"
        android:textStyle="bold"
        app:layout_constraintBottom_toTopOf="@+id/textView2"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        android:layout_marginTop="60dp"/>
    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@id/textView3"
        android:layout_marginTop="16dp" />

    <Button
        android:id="@+id/button_get_location"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Get Current Location"
        app:layout_constraintTop_toBottomOf="@id/textView2"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        android:layout_marginTop="24dp"/>

</androidx.constraintlayout.widget.ConstraintLayout>
```

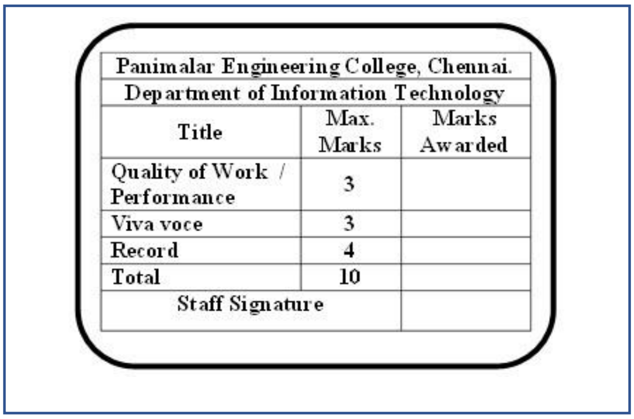
Code for MainActivity.java:

```
package com.example.gpsloc;

import android.Manifest;
import android.content.Context;
import android.content.pm.PackageManager;
import android.location.Address;
import android.location.Geocoder;
import android.location.Location;
import android.location.LocationManager;
import android.os.Build;
import android.os.Bundle;
import android.widget.TextView;
import android.widget.Toast;
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;
import java.util.List;
import java.util.Locale;
public class MainActivity extends AppCompatActivity {
    LocationManager locationManager;
    TextView tv;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        tv = findViewById(R.id.textView2);
        locationManager = (LocationManager)
getSystemService(Context.LOCATION_SERVICE);

        if (ActivityCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_FINE_LOCATION) !=
PackageManager.PERMISSION_GRANTED ||
                ActivityCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_COARSE_LOCATION) !=
PackageManager.PERMISSION_GRANTED) {
            requestLocationPermissions();
        } else {
            getLastKnownLocation();
        }
    }

    private void requestLocationPermissions() {
        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.M) {
            Toast.makeText(this, "Allow location access, please",
Toast.LENGTH_LONG).show();
            ActivityCompat.requestPermissions(this, new String[]{
                    Manifest.permission.ACCESS_FINE_LOCATION,
                    Manifest.permission.ACCESS_COARSE_LOCATION}, 5622);
        }
    }

    private void getLastKnownLocation() {
        if (ActivityCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_FINE_LOCATION) ==
PackageManager.PERMISSION_GRANTED ||
                ActivityCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_COARSE_LOCATION) ==
PackageManager.PERMISSION_GRANTED) {
            Location gpsLoc =
locationManager.getLastKnownLocation(LocationManager.GPS_PROVIDER);
            Location networkLoc =
locationManager.getLastKnownLocation(LocationManager.NETWORK_PROVIDER);
            Location finalLoc = gpsLoc != null ? gpsLoc : networkLoc;

            if (finalLoc != null) {
                double latitude = finalLoc.getLatitude();
                double longitude = finalLoc.getLongitude();
                getAddressFromLocation(latitude, longitude);
            } else {
                tv.setText("Location not available");
            }
        }
    }

    private void getAddressFromLocation(double latitude, double longitude) {
        try {
            Geocoder geocoder = new Geocoder(this, Locale.getDefault());
            List<Address> addresses = geocoder.getFromLocation(latitude, longitude, 1);
            if (addresses != null && !addresses.isEmpty()) {
                String userCountry = addresses.get(0).getCountryName();
                String userAddress = addresses.get(0).getAddressLine(0);
                tv.setText(userCountry + " , " + userAddress + ", " + latitude + ", " + longitude);
            } else {
                tv.setText("Unknown location");
            }
        } catch (Exception e) {
            e.printStackTrace();
            tv.setText("Error fetching address");
        }
    }

    @Override
    public void onRequestPermissionsResult(int requestCode, @NonNull String[] permissions,
@NonNull int[] grantResults) {
        super.onRequestPermissionsResult(requestCode, permissions, grantResults);
        if (requestCode == 5622) {
            if (grantResults.length > 0 && grantResults[0] ==
PackageManager.PERMISSION_GRANTED) {
                getLastKnownLocation();
            } else {
                Toast.makeText(this, "Permission denied", Toast.LENGTH_SHORT).show();
            }
        }
    }
}
```

OUTPUT:



India , VJG9+6X8, Baluchetty Chatram, Tamil Nadu 631551, India, 12.8754613, 79.6199259



Panimalar Engineering College, Chennai.		
Department of Information Technology		
Title	Max. Marks	Marks Awarded
Quality of Work / Performance	3	
Viva voce	3	
Record	4	
Total	10	
Staff Signature		

RESULT:

Thus the Android Application that creates a GPS location information is developed and executed successfully.

Ex.No:4 **IMPLEMENT AN APPLICATION THAT CREATES AN ALERT**

Date: **UPON RECEIVING A MESSAGE**

AIM:

To develop an Android Application that creates an alert upon receiving a message.

PROCEDURE:

Creating a New Project:

- Open Android Studio and then click on File -> New -> New project.
- Then type the Application name as "notification" and click Next
- Then select the Minimum SDK as shown below and click Next.
- Then select the Empty Activity and click Next.
- Finally click Finish.

Code for 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/textView"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:text="Message"
        android:textSize="20sp"
        app:layout_constraintBottom_toTopOf="@+id/editText1"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        android:layout_marginTop="32dp"
        android:layout_marginStart="16dp"
        android:layout_marginEnd="16dp"/>

    <EditText
        android:id="@+id/editText1"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginStart="16dp"
        android:layout_marginEnd="16dp"
        android:layout_marginTop="16dp"
        android:inputType="textMultiLine"
        android:ems="10"
        app:layout_constraintBottom_toTopOf="@+id/button"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Notify"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/editText1"
        android:layout_marginTop="32dp" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

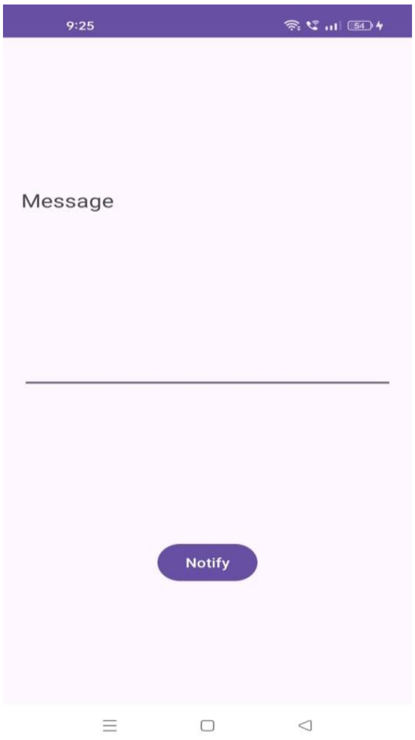
Code for AndroidManifest.xml:

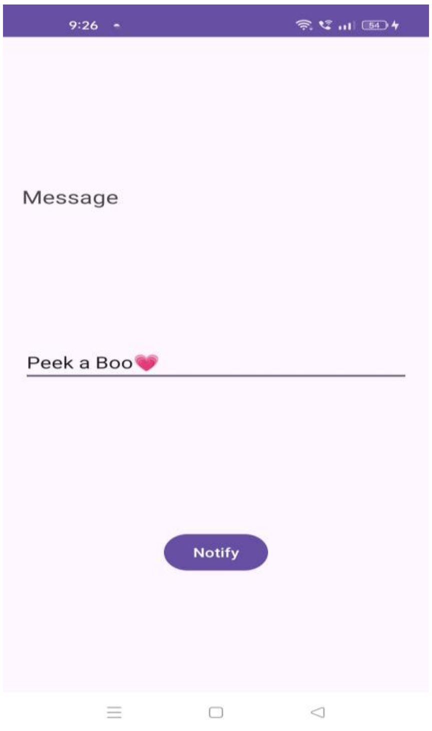
```
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.notification">

    <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.Notification">

        <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>
```

Code for MainActivity.java:

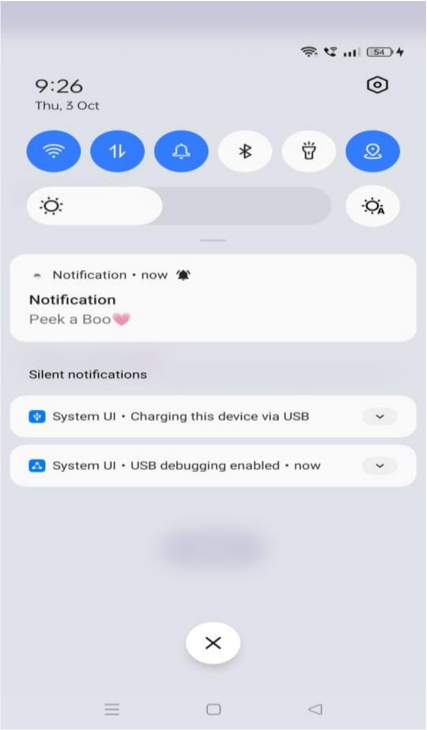
```
package com.example.notification;


import android.app.NotificationChannel;
import android.app.NotificationManager;
import android.app.PendingIntent;
import android.content.Context;
import android.content.Intent;
import android.os.Build;
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 androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.NotificationCompat;

public class MainActivity extends AppCompatActivity {
    private static final String CHANNEL_ID = "notify_channel";

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

        final EditText editText = findViewById(R.id.editText1);
        Button notifyButton = findViewById(R.id.button);

        // Create the notification channel
        createNotificationChannel();

        notifyButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String message = editText.getText().toString();
                if (!message.isEmpty()) {
                    showNotification(message);
                } else {
                    Toast.makeText(MainActivity.this, "Please enter a message",
Toast.LENGTH_SHORT).show();
                }
            }
        });
    }
    private void createNotificationChannel() {
        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.O) {
            CharSequence name = "Notification Channel";
            String description = "Channel for notifications";
            int importance = NotificationManager.IMPORTANCE_DEFAULT;
            NotificationChannel channel = new NotificationChannel(CHANNEL_ID, name,
importance);
            channel.setDescription(description);

            NotificationManager notificationManager =
getSystemService(NotificationManager.class);
            notificationManager.createNotificationChannel(channel);
        }
    }

    private void showNotification(String message) {
        NotificationCompat.Builder builder = new NotificationCompat.Builder(this,
CHANNEL_ID)
                .setSmallIcon(R.drawable.ic_launcher_foreground) // Your notification icon
                .setContentTitle("Notification")
                .setContentText(message)
                .setPriority(NotificationCompat.PRIORITY_DEFAULT);

        NotificationManager notificationManager = (NotificationManager)
getSystemService(Context.NOTIFICATION_SERVICE);
        notificationManager.notify(1, builder.build());
    }
}
```

OUTPUT:





Peek a Boo💗



Notification • now

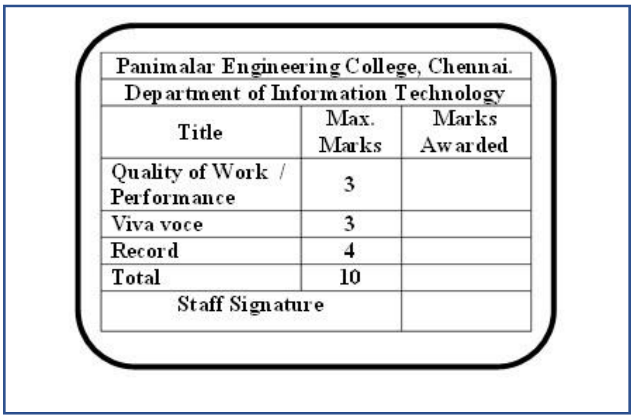
Notification

Peek a Boo💗

Silent notifications

System UI • Charging this device via USB

System UI • USB debugging enabled • now



Panimalar Engineering College, Chennai.		
Department of Information Technology		
Title	Max. Marks	Marks Awarded
Quality of Work / Performance	3	
Viva voce	3	
Record	4	
Total	10	
Staff Signature		

RESULT:

Thus the Android Application that creates an alert upon receiving a message is developed and executed successfully.

Ex.No:5 **DEVELOP AN APPLICATION THAT MAKES USE OF RSS FEED**

Date:

AIM:

To develop an Android Application that makes use of RSS Feed.

PROCEDURE:

Creating a New Project:

- Open Android Studio and then click on File -> New -> New project.
- Then type the Application name as "rss" and click Next
- Then select the Minimum SDK as shown below and click Next.
- Then select the Empty Activity and click Next.
- Finally click Finish.

Code for activity_main.xml:

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

   <!-- Use the standard Android ID for ListView -->
   <ListView
      android:id="@android:id/list"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"/>

</LinearLayout>
```

Code for AndroidManifest.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
   package="com.example.rss"> <!-- Make sure this matches your app's package structure -->

   <!-- Internet permission to allow the app to connect to the web -->
   <uses-permission android:name="android.permission.INTERNET"/>

   <application
      android:allowBackup="true"
```

```
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
        <!-- Define MainActivity as the launcher activity -->
        <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>
```

Code for MainActivity.java:

```
package com.example.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<String> headlines;
    List<String> links;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        new MyAsyncTask().execute(); // Start the AsyncTask to fetch RSS feed
    }

    class MyAsyncTask extends AsyncTask<Object, Void, ArrayAdapter<String>> {
        @Override
        protected ArrayAdapter<String> doInBackground(Object... params) {
            headlines = new ArrayList<>();
            links = new ArrayList<>();
            try {
                URL url = new URL("https://codingconnect.net/feed"); // RSS feed URL
                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; // Found an item
                        } else if (xpp.getName().equalsIgnoreCase("title") && insideItem) {
                            headlines.add(xpp.nextText()); // Extract the headline
                        } else if (xpp.getName().equalsIgnoreCase("link") && insideItem) {
                            links.add(xpp.nextText()); // Extract the link
                        }
                    } else if (eventType == XmlPullParser.END_TAG &&
xpp.getName().equalsIgnoreCase("item")) {
                        insideItem = false; // End of an item
                    }
                    eventType = xpp.next(); // Move to the next element
                }
            } catch (MalformedURLException e) {
                e.printStackTrace();
            } catch (XmlPullParserException e) {
                e.printStackTrace();
            } catch (IOException e) {
                e.printStackTrace();
            }
            return null; // Return null, but headlines and links are populated
        }
        @Override
        protected void onPostExecute(ArrayAdapter<String> adapter) {
            // Create and set the adapter with the fetched headlines
            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) {
        // Handle list item click by opening the corresponding link
        Uri uri = Uri.parse(links.get(position)); // Get the link
        Intent intent = new Intent(Intent.ACTION_VIEW, uri); // Create intent to view the link
        startActivity(intent); // Start the activity to view the link
    }
    public InputStream getInputStream(URL url) {
        try {
            return url.openConnection().getInputStream(); // Open connection and return input
stream
        } catch (IOException e) {
            e.printStackTrace(); // Print stack trace for debugging
            return null; // Return null if there's an error
        }
    }
}
```

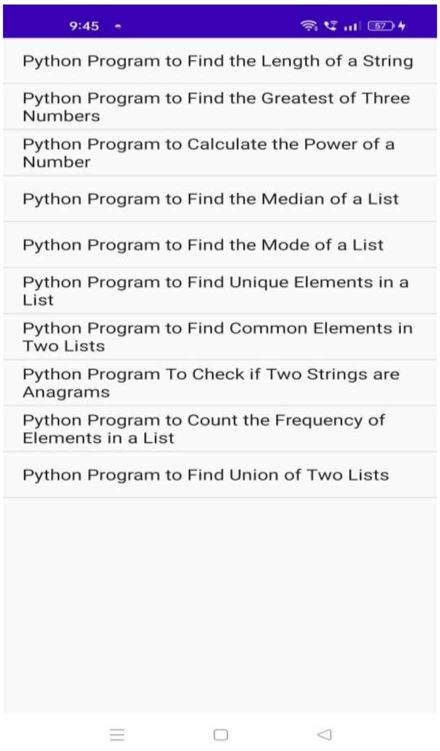
Code for Colors.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="colorPrimary">#6200EE</color> <!-- You can change this color code -->
    <color name="colorPrimaryDark">#3700B3</color> <!-- Change as needed -->
    <color name="colorAccent">#03DAC5</color> <!-- Change as needed -->
</resources>
```

Code for styles.xml:

```
<resources>
    <!-- Base application theme. -->
    <style name="AppTheme" parent="Theme.AppCompat.Light.DarkActionBar">
        <!-- Customize your theme here. -->
        <item name="colorPrimary">@color/colorPrimary</item>
        <item name="colorPrimaryDark">@color/colorPrimaryDark</item>
        <item name="colorAccent">@color/colorAccent</item>
    </style>
</resources>
```

OUTPUT:



9:45

Python Program to Find the Length of a String

Python Program to Find the Greatest of Three Numbers

Python Program to Calculate the Power of a Number

Python Program to Find the Median of a List

Python Program to Find the Mode of a List

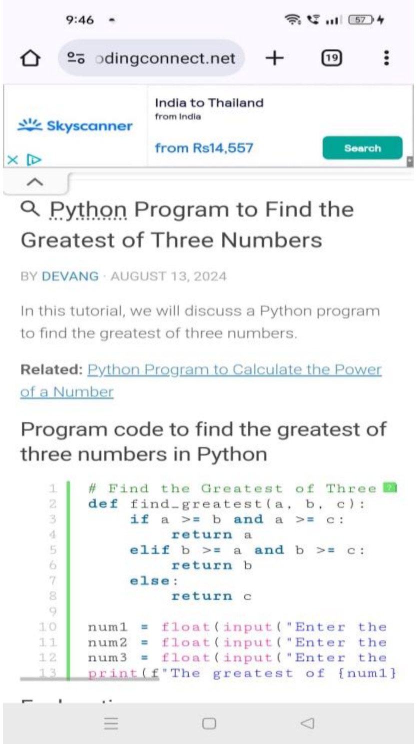
Python Program to Find Unique Elements in a List

Python Program to Find Common Elements in Two Lists

Python Program To Check if Two Strings are Anagrams

Python Program to Count the Frequency of Elements in a List

Python Program to Find Union of Two Lists



9:46

odingconnect.net

Python Program to Find the Greatest of Three Numbers

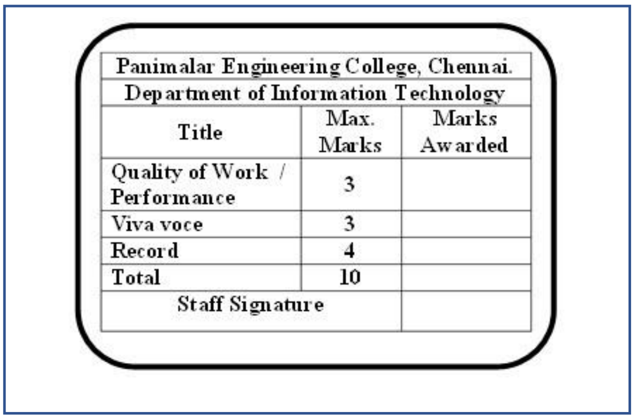
BY DEVANG · AUGUST 13, 2024

In this tutorial, we will discuss a Python program to find the greatest of three numbers.

Related: Python Program to Calculate the Power of a Number

Program code to find the greatest of three numbers in Python

```
# Find the Greatest of Three
def find_greatest(a, b, c):
    if a >= b and a >= c:
        return a
    elif b >= a and b >= c:
        return b
    else:
        return c

num1 = float(input("Enter the
num2 = float(input("Enter the
num3 = float(input("Enter the
print(f"The greatest of {num1}
```



Panimalar Engineering College, Chennai.		
Department of Information Technology		
Title	Max. Marks	Marks Awarded
Quality of Work / Performance	3	
Viva voce	3	
Record	4	
Total	10	
Staff Signature		

RESULT:

Thus Android Application that makes use of RSS Feed is developed and executed successfully.

Ex.No:6 **CREATE AN APPLICATION USING SENSOR MANAGER**

Date:

AIM:

To create an application using Sensor Manager.

PROCEDURE:

Creating a New Project:

- Open Android Studio and then click on File -> New -> New project.
- Then type the Application name as "sensor_manager" and click Next
- Then select the Minimum SDK as shown below and click Next.
- Then select the Empty Activity and click Next.
- Finally click Finish.
- It will take some time to build and load the project .
- Afier completion it will look as given below.

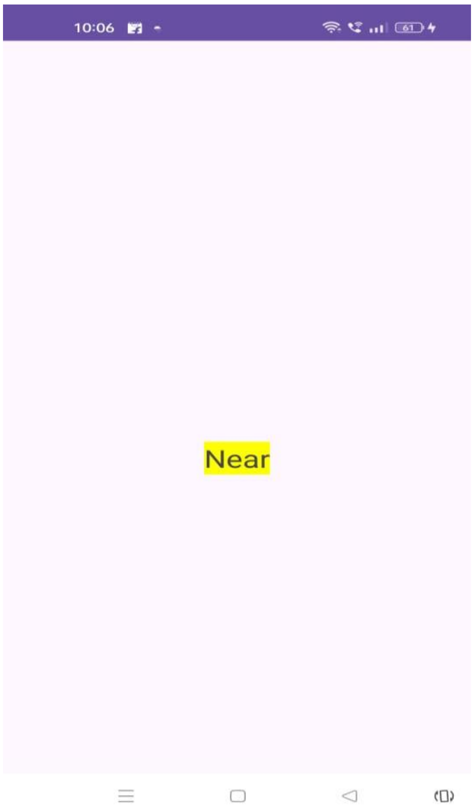
Code for activity_main.xml:

```
<?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/textview"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="Distance Status"
      android:textSize="24sp"
      android:layout_marginTop="100dp"
      app:layout_constraintBottom_toBottomOf="parent"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

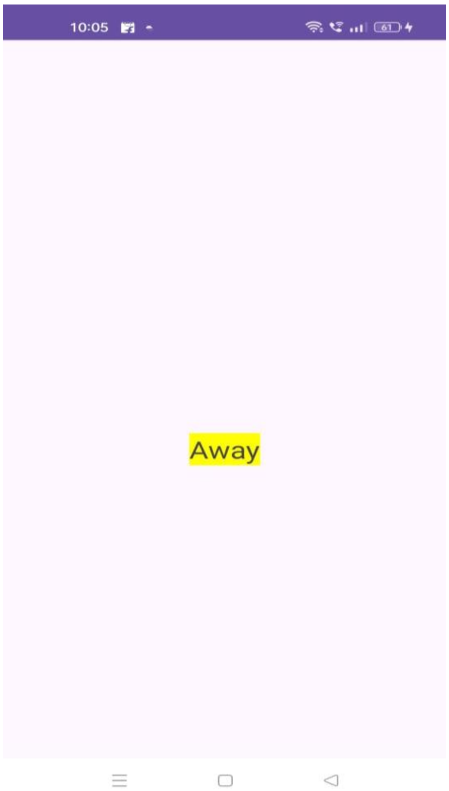
Code for MainActivity.java:

```
package com.example. sensor_manager;


import android.content.Context;
import android.graphics.Color;
import android.hardware.Sensor;
import android.hardware.SensorEvent;
import android.hardware.SensorEventListener;
import android.hardware.SensorManager;
import android.os.Bundle;
import android.widget.TextView;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity implements SensorEventListener {
    SensorManager sensorManager;
    Sensor proximitySensor;
    TextView tv1;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        tv1 = findViewById(R.id.textview);
        tv1.setBackgroundColor(Color.YELLOW);

        sensorManager = (SensorManager) getSystemService(Context.SENSOR_SERVICE);
        proximitySensor = sensorManager.getDefaultSensor(Sensor.TYPE_PROXIMITY);

        if (proximitySensor == null) {
            Toast.makeText(this, "No proximity sensor found in device.",
Toast.LENGTH_SHORT).show();
            finish();
        } else {
            sensorManager.registerListener(this, proximitySensor,
SensorManager.SENSOR_DELAY_NORMAL);
        }
    }

    @Override
    public void onSensorChanged(SensorEvent event) {
        if (event.sensor.getType() == Sensor.TYPE_PROXIMITY) {
            if (event.values[0] == 0) {
                tv1.setText("Near");
            } else {
                tv1.setText("Away");
            }
        }
    }

    @Override
    public void onAccuracyChanged(Sensor sensor, int accuracy) {
        // Can be left empty for this example
    }

    @Override
    protected void onResume() {
        super.onResume();
        sensorManager.registerListener(this, proximitySensor,
SensorManager.SENSOR_DELAY_NORMAL);
    }

    @Override
    protected void onPause() {
        super.onPause();
        sensorManager.unregisterListener(this);
    }
}
```

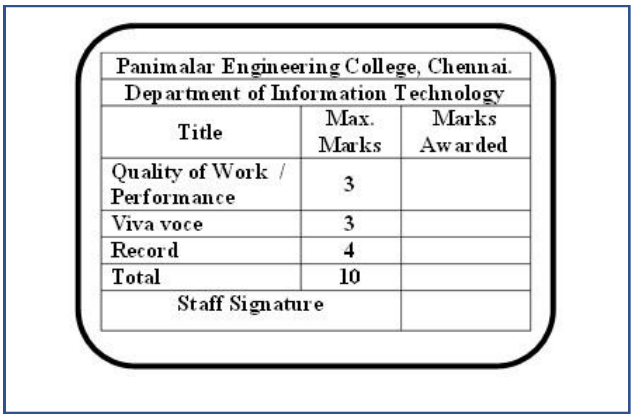
OUTPUT:



Near



Away



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Quality of Work / Performance	3	
Viva voce	3	
Record	4	
Total	10	
Staff Signature		

RESULT:

Thus Android Application that creates an application using Sensor Manager is developed and executed successfully.

Ex. No: 7 **CREATE AN ANDROID APPLICATION THAT CONVERTS**

Date: **THE USER INPUT TEXT TO VOICE**

AIM:

To create an Android application that converts the user input text to voice.

PROCEDURE:

Creating a New Project:

- Open Android Studio and then click on File -> New -> New project.
- Then type the Application name as "texttospeech and click Next
- Then select the Minimum SDK as shown below and click Next.
- Then select the Empty Activity and click Next.
- Finally click Finish.

Code for 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"
   android:paddingLeft="16dp"
   android:paddingRight="16dp"
   android:paddingTop="16dp"
   android:paddingBottom="16dp"
   tools:context=".MainActivity"
   android:transitionGroup="true">

   <TextView
      android:text="Text to Speech"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:id="@+id/textview"
      android:textSize="35sp"
      android:layout_alignParentTop="true"
      android:layout_centerHorizontal="true" />

   <ImageView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:id="@+id/imageView"
      android:src="@drawable/drawable"
   android:layout_below="@+id/textView"
   android:layout_centerHorizontal="true"
```

```
    android:theme="@style/Base.TextAppearance.AppCompat" />

    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/editText"
        android:layout_below="@+id/imageView"
        android:layout_marginTop="46dp"
        android:hint="Enter Text"
        android:textColor="#ff7aff10"
        android:textColorHint="#ffff23d1" />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Text to Speech"
        android:id="@+id/button"
        android:layout_below="@+id/editText"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="46dp" />
</RelativeLayout>
```

Code for AndroidMainfest.xml:

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

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:theme="@style/AppTheme">

        <activity
            android:name=".MainActivity"
            android:label="@string/app_name"
            android:exported="true"> <!-- Explicitly set exported -->
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>

    </application>
</manifest>
```

***Coding for styles.*xml:**

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

    <!-- Base application theme -->
    <style name="AppTheme" parent="Theme.AppCompat.Light.DarkActionBar">
        <!-- Customize your theme here -->
        <item name="colorPrimary">@color/colorPrimary</item>
        <item name="colorPrimaryDark">@color/colorPrimaryDark</item>
        <item name="colorAccent">@color/colorAccent</item>
    </style>

</resources>
```

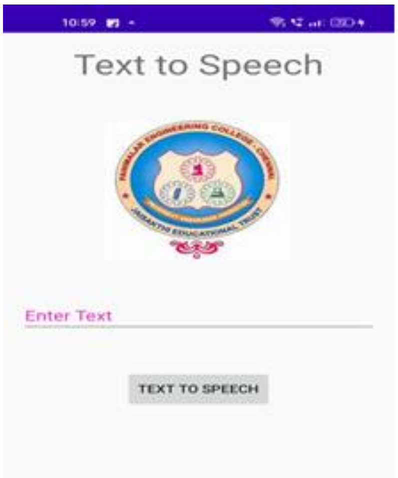
***Coding for colors.*xml:**

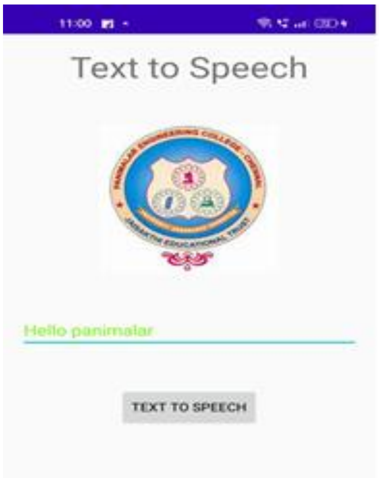
```
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="colorPrimary">#6200EE</color>      <!-- Default color -->
    <color name="colorPrimaryDark">#3700B3</color>  <!-- Darker shade -->
    <color name="colorAccent">#03DAC5</color>       <!-- Accent color -->
</resources>
```

Code for MainActivity.java:

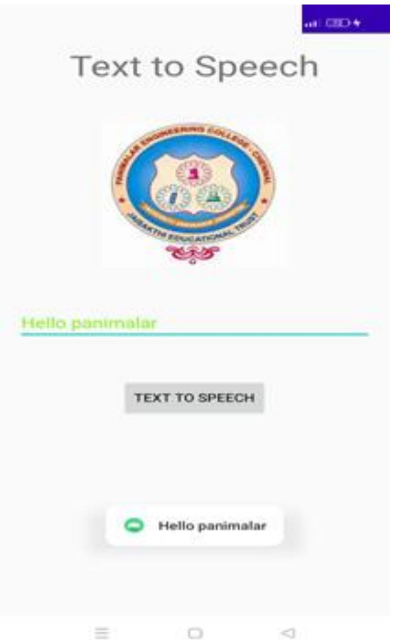
```
package com.example.texttospeech;

import android.app.Activity;
import android.os.Bundle;
import android.speech.tts.TextToSpeech;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
import java.util.Locale;

public class MainActivity extends Activity {
    TextToSpeech t1;
    EditText ed1;
    Button b1;

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

        ed1 = findViewById(R.id.editText);
        b1 = findViewById(R.id.button);
        // Initialize TextToSpeech
        t1 = new TextToSpeech(getApplicationContext(), new
TextToSpeech.OnInitListener() {
            @Override
            public void onInit(int status) {
                if (status != TextToSpeech.ERROR) {
                    t1.setLanguage(Locale.UK);
                } else {
                    Toast.makeText(getApplicationContext(), "TTS Initialization failed!",
Toast.LENGTH_SHORT).show();
                }
            }
        });

        // Button Click Listener
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String toSpeak = ed1.getText().toString();
                if (!toSpeak.isEmpty()) {
                    Toast.makeText(getApplicationContext(), toSpeak,
Toast.LENGTH_SHORT).show();
                    // Use four-parameter speak method for newer versions of Android
                    t1.speak(toSpeak, TextToSpeech.QUEUE_FLUSH, null, null);
                } else {
                    Toast.makeText(getApplicationContext(), "Please enter text",
Toast.LENGTH_SHORT).show();
                }
            }
        });
    }

    @Override
    protected void onPause() {
        if (t1 != null) {
            t1.stop();
            t1.shutdown();
        }
        super.onPause();
    }
}
```

OUTPUT:



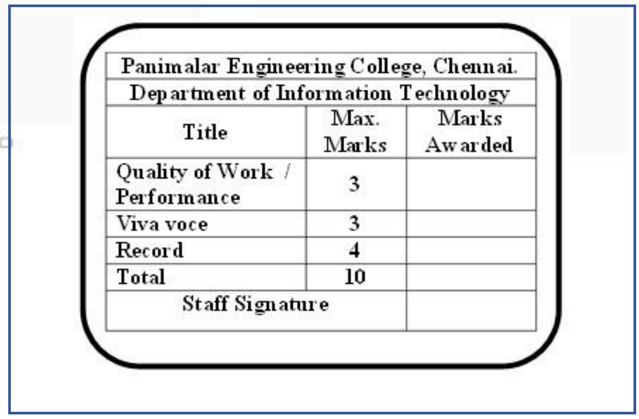


Hello panimalar



Hello panimalar

Hello panimalar



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Title	Max. Marks	Marks Awarded
Quality of Work / Performance	3	
Viva voce	3	
Record	4	
Total	10	
Staff Signature		

RESULT:

Thus Android Application that creates an application using Sensor Manager is developed and executed successfully.

DEVELOP A MOBILE APPLICATION FOR SIMPLE AND DAY TO DAY NEEDS (Mini Project) – CALCULATOR

Ex.No: 8

Date:

AIM:

To create an Android application for simple and day to day needs.

PROCEDURE:

Creating a New Project:

- Open Android Studio and then click on File -> New -> New project.
- Then type the Application name as "miniproject"nd click Next
- Then select the Minimum SDK as shown below and click Next.
- Then select the Empty Activity and click Next.
- Finally click Finish.

Code for 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"
   android:padding="16dp"
   tools:context=".MainActivity">

   <EditText
      android:id="@+id/num1EditText"
      android:layout_width="0dp"
      android:layout_height="48dp"
      android:layout_marginTop="44dp"
      android:hint="Enter number 1"
      android:inputType="numberDecimal"
      app:layout_constraintEnd_toEndOf="parent"
      app:layout_constraintStart_toStartOf="parent"
      app:layout_constraintTop_toTopOf="parent" />

   <EditText
      android:id="@+id/num2EditText"
      android:layout_width="0dp"
      android:layout_height="48dp"
```

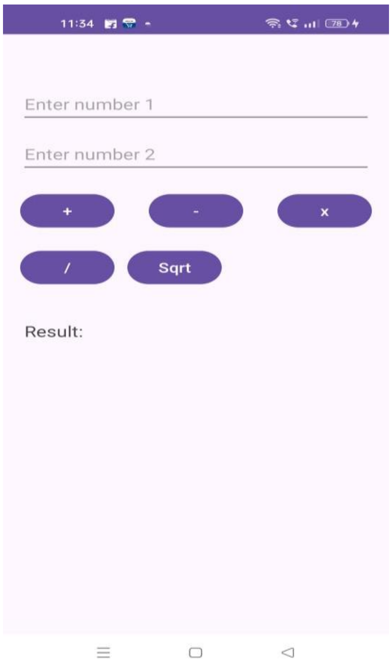
```
    android:layout_marginTop="12dp"
    android:hint="Enter number 2"
    android:inputType="numberDecimal"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.47"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@id/num1EditText" />

<Button
    android:id="@+id/addButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:text="+"
    android:textSize="16sp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@id/num2EditText" />

<Button
    android:id="@+id/subtractButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:text="-"
    android:textSize="16sp"
    app:layout_constraintEnd_toStartOf="@id/multiplyButton"
    app:layout_constraintStart_toEndOf="@id/addButton"
    app:layout_constraintTop_toBottomOf="@id/num2EditText" />

<Button
    android:id="@+id/multiplyButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:text="x"
    android:textSize="16sp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@id/num2EditText" />

<Button
    android:id="@+id/divideButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:text="/"
    android:textSize="16sp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@id/addButton" />

<Button
    android:id="@+id/sqrtButton"
```

```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:layout_marginEnd="140dp"
        android:text="Sqrt"
        android:textSize="16sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toBottomOf="@id/subtractButton" />

    <TextView
        android:id="@+id/resultTextView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="4dp"
        android:layout_marginTop="40dp"
        android:text="Result: "
        android:textSize="18sp"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@id/divideButton" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

Code for MainActivity.java:

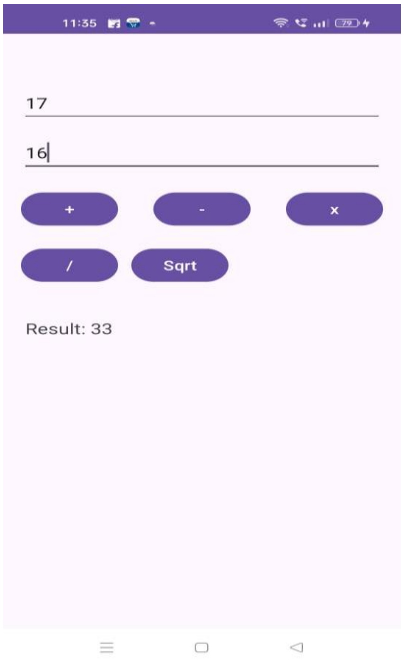
```
package com.example.miniproj;

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 androidx.appcompat.app.AppCompatActivity;

import java.text.DecimalFormat;

public class MainActivity extends AppCompatActivity {
    // Declare variables to hold references to UI elements
    private EditText num1EditText, num2EditText;
    private TextView resultTextView;

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

        // Initialize UI elements from the layout
        num1EditText = findViewById(R.id.num1EditText);
        num2EditText = findViewById(R.id.num2EditText);
        resultTextView = findViewById(R.id.resultTextView);

        // Set click listeners for arithmetic operation buttons
        setUpButtonListeners();
    }

    private void setUpButtonListeners() {
        Button addButton = findViewById(R.id.addButton);
        addButton.setOnClickListener(v -> performCalculation('+'));

        Button subtractButton = findViewById(R.id.subtractButton);
        subtractButton.setOnClickListener(v -> performCalculation('-'));

        Button multiplyButton = findViewById(R.id.multiplyButton);
        multiplyButton.setOnClickListener(v -> performCalculation('*'));

        Button divideButton = findViewById(R.id.divideButton);
        divideButton.setOnClickListener(v -> performCalculation('/'));

        Button sqrtButton = findViewById(R.id.sqrtButton);
        sqrtButton.setOnClickListener(v -> calculateSquareRoot());
    }

    private void performCalculation(char operator) {
        // Get the values entered in the input fields
        String num1Str = num1EditText.getText().toString();
        String num2Str = num2EditText.getText().toString();

        // Check if either input field is empty
        if (num1Str.isEmpty() || num2Str.isEmpty()) {
            Toast.makeText(this, "Please enter both numbers", Toast.LENGTH_SHORT).show();
            return; // Exit the method to prevent calculations with empty inputs
        }

        // Convert the input values to numeric format
        double num1 = Double.parseDouble(num1Str);
        double num2 = Double.parseDouble(num2Str);
        double result;

        // Perform the appropriate calculation based on the operator
        switch (operator) {
            case '+':
                result = num1 + num2;
                break;
            case '-':
                result = num1 - num2;
                break;
            case '*':
                result = num1 * num2;
                break;
            case '/':
                if (num2 != 0) {
                    result = num1 / num2;
                } else {
                    Toast.makeText(this, "Cannot divide by zero", Toast.LENGTH_SHORT).show();
                    return; // Exit the method if division by zero is attempted
                }
                break;
            default:
                return; // Exit if operator is invalid (should not happen)
        }

        // Format the result and display it
        displayResult(result);
    }

    private void calculateSquareRoot() {
        String num1Str = num1EditText.getText().toString();

        if (num1Str.isEmpty()) {
            Toast.makeText(this, "Please enter a number", Toast.LENGTH_SHORT).show();
            return; // Exit the method to prevent calculations with empty inputs
        }

        double num = Double.parseDouble(num1Str);
        double sqrtResult = Math.sqrt(num);

        // Format the square root result and display it
        displayResult(sqrtResult, "Square Root: ");
    }

    private void displayResult(double result) {
        displayResult(result, "Result: ");
    }

    private void displayResult(double result, String prefix) {
        DecimalFormat df = new DecimalFormat("#.##");
        resultTextView.setText(prefix + df.format(result));
    }
}
```

OUTPUT:


Enter number 1

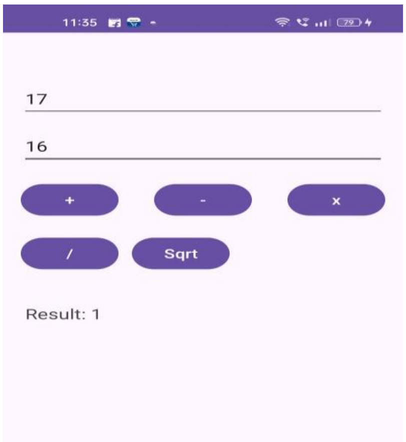
Enter number 2

Result:


17

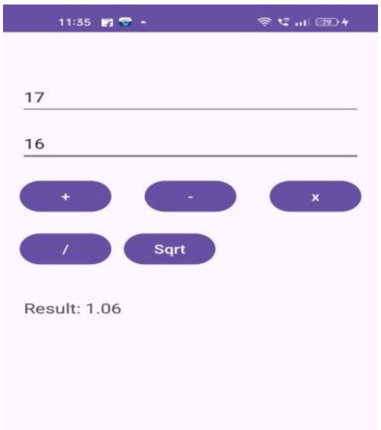
16

Result: 33


17

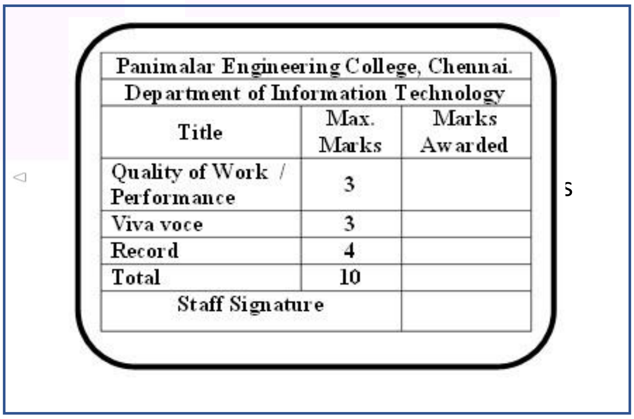
16

Result: 1


17

16

Result: 1.06



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Title	Max. Marks	Marks Awarded
Quality of Work / Performance	3	
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RESULT:

Thus Android Application that creates an application for simple and day to day needs are developed and executed successfully.