FEDERAL INSTITUTE OF
SCIENCE AND TECHNOLOGY
(FISAT)™

HORMIS NAGAR, MOOKKANNOOR

ANGAMALY-683577

'FOCUS ON EXCELLENCE'

MOBILE APPLICATION DEVELOPMENT LAB

....

LABORATORY RECORD

Name: NAINA VINCENT

Branch: MASTER OF COMPUTER APPLICATION

Semester: 3   Batch: B   Roll No: 21

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 Name   : NAINA VINCENT

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University Exam.Reg. No:

CERTIFICATE

*This is to certify that this is a Bonafide record of the Practical work done and submitted to Kerala Technological University in partial fulfillment for the award of the Master Of Computer Applications is a record of the original research work done by **NAINA VINCENT** in the **Mobile Application Development** Laboratory of the Federal Institute of Science and Technology during the academic year 2021-2022.*

Signature of Staff in Charge   Signature of H.O.D

Name: Name:

Date:

Date of University practical examination ………………………

Signature of   Signature of

Internal Examiner   External Examiner

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PROGRAM 1:
Create a Simple Calculator for demonstrating the basic arithmetic operations (+ , - , * , /)

PROCEDURE:

step 1: Start
step 2: Create the xml file .Drag and drop the 2 edittext and 4 button for the
        arithemetic calculation such as adition, subtraction,division, multiplication.then
        drag and drop the textview field to view the calculated result.
Step 3: Create the java code file to perform the calculation its initialize the edit
        Test,button and textview then create the object of each one.
Step 4: Read the two number and it pass to the switch case do the neccesoryoperation.
Step 5: Display the result on the textview field.Step
6: Stop.
MainActivity.java:

```
package com.example.calculator;

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



public class MainActivity extends AppCompatActivity implements View.OnClickListener{


    EditText etNum1;
    EditText etNum2;

    Button  btnAdd;
    Button  btnSub;
    Button btnMult;
    Button btnDiv;

    TextView tvResult;

    String oper = "";

    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
```

```java
        // find the elements
        etNum1 = (EditText) findViewById(R.id.etNum1);
        etNum2 = (EditText) findViewById(R.id.etNum2);

        btnAdd = (Button) findViewById(R.id.btnAdd);
        btnSub = (Button) findViewById(R.id.btnSub);
        btnMult = (Button) findViewById(R.id.btnMult);
        btnDiv = (Button) findViewById(R.id.btnDiv);

        tvResult = (TextView) findViewById(R.id.tvResult);

        // set a listener
        btnAdd.setOnClickListener(this);
        btnSub.setOnClickListener(this);
        btnMult.setOnClickListener(this);
        btnDiv.setOnClickListener(this);

    }

    @Override
    public void onClick(View v) {
        // TODO Auto-generated method stub
        float  num1  =  0;
        float  num2  =  0;
        float result = 0;

        // check if the fields are empty
        if (TextUtils.isEmpty(etNum1.getText().toString())
                || TextUtils.isEmpty(etNum2.getText().toString())) {
            return;
        }
        // read EditText and fill variables with numbers
        num1 = Float.parseFloat(etNum1.getText().toString());
        num2 = Float.parseFloat(etNum2.getText().toString());

        // defines the button that has been clicked and performs the corresponding
operation
        // write operation into oper, we will use it later for output
        switch (v.getId()) {
            case R.id.btnAdd:
                oper = "+";
                result = num1 + num2;
                break;
            case R.id.btnSub:
                oper = "-";
                result = num1 - num2;
                break;
            case R.id.btnMult:
                oper = "*";
                result = num1 * num2;
```

```
            break;
        case R.id.btnDiv:
            oper = "/";


            result = num1 / num2;
            break;
        default:
            break;
    }

    // form the output line
    tvResult.setText(num1 + " " + oper + " " + num2 + " = " + result);
    }
}
```

Activity_main.xml:

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical" android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:weightSum="1">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/linearLayout1"
        android:layout_marginLeft="10pt"
        android:layout_marginRight="10pt"
        android:layout_marginTop="3pt">
        <EditText
            android:layout_weight="1"
            android:layout_height="wrap_content"
            android:layout_marginRight="5pt"
            android:id="@+id/etNum1"
            android:layout_width="match_parent"
            android:inputType="numberDecimal">
        </EditText>
        <EditText
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:layout_marginLeft="5pt"
            android:id="@+id/etNum2"
            android:layout_width="match_parent"
            android:inputType="numberDecimal">
        </EditText>
    </LinearLayout>
    <LinearLayout
        android:layout_width="match_parent"
```

```xml
            android:layout_height="wrap_content"
            android:id="@+id/linearLayout2"
            android:layout_marginTop="3pt"
            android:layout_marginLeft="5pt"
            android:layout_marginRight="5pt">
            <Button
                android:layout_height="wrap_content"
                android:layout_width="match_parent"
                android:layout_weight="1"
                android:text="+" android:textSize="8pt"
                android:id="@+id/btnAdd">
            </Button>
            <Button
                android:layout_height="wrap_content"
                android:layout_width="match_parent"
                android:layout_weight="1" android:text="-
                " android:textSize="8pt"
                android:id="@+id/btnSub">
            </Button>
            <Button
                android:layout_height="wrap_content"
                android:layout_width="match_parent"
                android:layout_weight="1"
                android:text="*" android:textSize="8pt"
                android:id="@+id/btnMult">
            </Button>
            <Button
                android:layout_height="wrap_content"
                android:layout_width="match_parent"
                android:layout_weight="1"
                android:text="/" android:textSize="8pt"
                android:id="@+id/btnDiv">


            </Button>
        </LinearLayout>
        <TextView
            android:layout_height="wrap_content"
            android:layout_width="match_parent"
            android:layout_marginLeft="5pt"
            android:layout_marginRight="5pt"
            android:textSize="12pt"
            android:layout_marginTop="3pt"
            android:id="@+id/tvResult"
            android:gravity="center_horizontal"
            android:layout_weight="0.07">
```

```
    </TextView>
</LinearLayout>
```

OUTPUT:
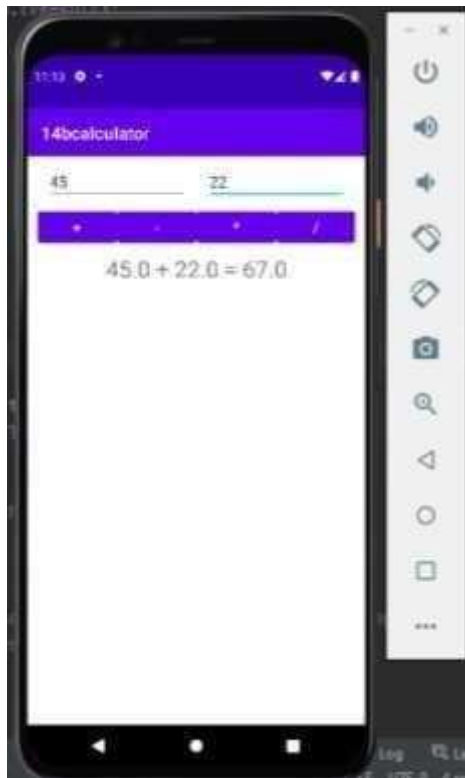
PROGRAM 2:

Create an application to concatenate two given Strings.
(Consider changing the color ofthe result string to GREEN*)

Procedure:

Step 1: Start.

Step 2: Create a XML file. Drag and drop 2 EditText to enter 2 strings and 1 Button to concatenate

the strings. Then drag and drop a TextView to view the concatenatedstring.

Step 3: Create a JAVA file to perform concatenation. First initialize the 2 EditText, Buttonand

TextView then create object for each one.

Step 4: Read 2 strings and perform concatenation ('+') operation with those strings.

Step 5: Display the concatenated string on the TextView field.Step 6:

Stop.

MainActivity.java:

```
package com.example.a14bstrconcat;
import android.os.Bundle;
import android.text.TextUtils;
import android.view.View; import
android.widget.Button; import
android.widget.EditText; import
android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity implements View.OnClickListener{EditText

    etNum11;
   EditText    etNum22;

   Button    btnconcat;

   TextView    tvResult;

   String oper = "";

   /** Called when the activity is first created. */
```

```java
    @Override

    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        // find the elements
        etNum11= (EditText) findViewById(R.id.etNum11);
        etNum22= (EditText) findViewById(R.id.etNum22);

        btnconcat = (Button) findViewById(R.id.btnconcat);tvResult =

        (TextView) findViewById(R.id.tvResult);

        // set a listener
        btnconcat.setOnClickListener(this);

    }

    @Override
    public void onClick(View v) {
        // TODO Auto-generated method stub
        String S1 = "";
        String S2 = "";

        // check if the fields are empty
        if (TextUtils.isEmpty(etNum11.getText().toString())
                || TextUtils.isEmpty(etNum22.getText().toString())) {
            return;
        }
        // read EditText and fill variables with numbersS1 =
        etNum11.getText().toString();
        S2 = etNum22.getText().toString();


        // form the output line
        tvResult.setText(S1 +" "+S2);
    }
}
```

Activity_main.xml:

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical" android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:weightSum="1">
```

```xml
<LinearLayout
    android:id="@+id/linearLayout11"
    android:layout_width="wrap_content"
    android:layout_height="159dp"
    android:layout_marginLeft="10pt"
    android:layout_marginTop="3pt"
    android:layout_marginRight="10pt"

    android:orientation="horizontal">

    <EditText android:id="@+id/etNum11"

        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:text="Name" />

    <EditText android:id="@+id/etNum22"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:text="Name" />

</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/linearLayout2"
    android:layout_marginTop="3pt"
    android:layout_marginLeft="5pt"
    android:layout_marginRight="5pt">
    <Button
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:text="+" android:textSize="8pt"
        android:id="@+id/btnconcat">
    </Button>
</LinearLayout>
<TextView
    android:layout_height="wrap_content"
    android:layout_width="match_parent"
    android:layout_marginLeft="5pt"
    android:layout_marginRight="5pt"
```

```
        android:textSize="12pt"
        android:layout_marginTop="3pt"
        android:id="@+id/tvResult"
        android:gravity="center_horizontal"

         android:layout_weight="0.07">
    </TextView>
 </LinearLayout>
```

OUTPUT:

PROGRAM 3:

Create an android application to find the factorial of a given number.

Procedure:

Step 1: Start

Step 2: Create a XML file. Drag and drop a EditText to enter the number, a Button to findfactorial

and a TextView to display the result.

Step 3: Create a JAVA file to find factorial. First initialize the the EditText, Button andTextView

then create object for each one.

Step 4: Read the number and perform necessary operations to find factorial.Step 5:

Display the result on the TextView field.

Step 6: Stop.

MainActivity.java

```java
package com.example.factorial;
import androidx.appcompat.app.AppCompatActivity;import android.view.View;import
android.widget.Button;
import android.widget.EditText;import android.widget.TextView;import
android.os.Bundle;

public class MainActivity extends AppCompatActivity implementsView.OnClickListener {EditText

    etNum1; Button btnAdd; TextView tvResult;String oper = "";
    /**

      * Called when the activity is first created.

      */

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

  // find the elements

        etNum1 = (EditText) findViewById(R.id.etNum1);

        btnAdd = (Button) findViewById(R.id.btnAdd); tvResult = (TextView)
        findViewById(R.id.tvResult);
```

```java
// set a listener

        btnAdd.setOnClickListener(this);


    }

    @Override
    public void onClick(View v) {
// TODO Auto-generated method stud

        float num1 = 0; float fact = 1; float result = 0;

// check if the fields are empty


        num1 = Float.parseFloat(etNum1.getText().toString());

// read EditText and fill variables with numbers


// defines the button that has been clicked and performs the correspondingoperation

// write operation into oper, we will use it later for output

        switch (v.getId()) { case R.id.btnAdd:
                oper = "+";
                for (int i = 1; i <= num1; i++) {fact = fact * i;
                }

                result = fact;break;
            default:
                break;
        }

// form the output line

        tvResult.setText("Factorial of" + " " + num1 + " = " + result);
    }
}
```

Activity_main.xml


```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"   android:layout_height="fill_parent"
    android:orientation="vertical" android:weightSum="1">

    <LinearLayout
        android:id="@+id/linearLayout1" android:layout_width="match_parent"
```

```xml
                android:layout_height="wrap_content" android:layout_marginLeft="10pt"
                android:layout_marginTop="3pt" android:layout_marginRight="10pt">

            <EditText
                android:id="@+id/etNum1" android:layout_width="wrap_content"
                android:layout_height="wrap_content" android:layout_marginRight="5pt"
                android:layout_weight="1" android:inputType="numberDecimal"></EditText>
        </LinearLayout>

        <LinearLayout
android:id="@+id/linearLayout2" android:layout_width="match_parent"
android:layout_height="wrap_content" android:layout_marginLeft="5pt" android:layout_marginTop="3pt"
android:layout_marginRight="5pt">
<Button
android:id="@+id/btnAdd" android:layout_width="match_parent" android:layout_height="wrap_content"
android:layout_weight="1" android:text="RESULT"android:textSize="8pt"></Button>
        </LinearLayout>
<TextView
android:id="@+id/tvResult" android:layout_width="match_parent" android:layout_height="wrap_content"
android:layout_marginLeft="5pt" android:layout_marginTop="3pt" android:layout_marginRight="5pt"
android:layout_weight="0.07" android:gravity="center_horizontal" android:textSize="12pt"></TextView>
  </LinearLayout>
```

OUTPUT :

PROGRAM 4:

Develop a canvas to draw different shapes and to fill the shapeswith different colors.

Procedure:

Step 1: Start.

Step 2: Create 2 JAVA files. CustomView.java for create the shape and set colour it usingpaint and

        MainActivity.java for display the shape using setContentView.

Step 3: Enter the required measures for the shape and create it then set colour for theshape.

Step 4: Display the shape using setContentView in MainActivity.java file.Step 5:

Stop

MainActivity.java

```java
package com.example.shape;

import androidx.appcompat.app.AppCompatActivity;import android.os.Bundle;public
class MainActivity extends AppCompatActivity {@Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(new com.example.shape.CustomView(this));
    }
}
```

CustomView.java

```java
package com.example.shape;

import android.content.Context;import android.graphics.Canvas;import
android.graphics.Color; import android.graphics.Paint; import android.graphics.Rect;import
android.view.View;
public class CustomView extends View {private Rect rectangle;
    private Paint paint, p1;

    public CustomView(Context context) {super(context);int x
        = 200;int y = 50;
        int width = 800; int height = 300;
```
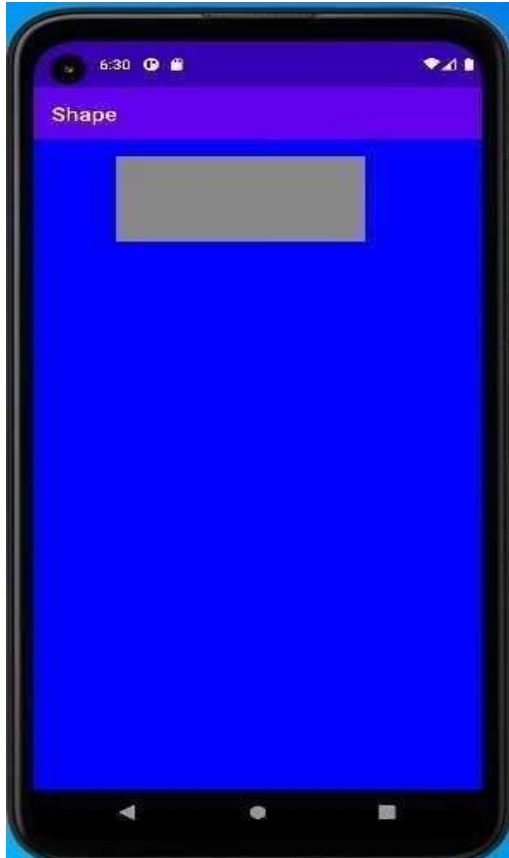
```java
        // create a rectangle that we'll draw later

        rectangle = new Rect(x, y, width, height);

        // create the Paint and set its colorpaint = new Paint();
        paint.setColor(Color.GRAY);


        p1 = new Paint(); p1.setColor(Color.RED);
    }


    @Override
    protected void onDraw(Canvas canvas) {canvas.drawColor(Color.BLUE);
        canvas.drawRect(rectangle, paint);
    }


}
```

OUTPUT :

PROGRAM 5:

Create an application to show happy face smiley and sad face smiley to demonstrate buttonclick Events.

Procedure:

Step 1: Start

Step 2: Create two activity with buttons.

Step 3: Create a main activity JAVA file which direct the page to another page on the click ofthe

button from the activity main.

Step 4: Create another activity java smily with to navigate with the onclick listener to mainactivity

page.

Step 5: Create face view class two draw the smily with dimension for happy face with canva

drawColor,draw circle,Oval,drawArch.

Step 6: Create another face view to draw the smily with dimensions for sad face with canva

drawColor,draw circle,Oval,drawArch.

Step 7: Stop.

MainActivity.java

```java
package com.example.a5happyface;
import androidx.appcompat.app.AppCompatActivity;import android.content.Intent; import
android.os.Bundle; import android.view.View; import android.widget.Button;

public class MainActivity extends AppCompatActivity {Button button;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState); setContentView(R.layout.activity_main);button
                = (Button) findViewById(R.id.button); button.setOnClickListener(new
        View.OnClickListener() {
            @Override
            public void onClick(View v) {openNewActivity();
            }
        });

    }

    public void openNewActivity() {
            Intent intent = new Intent(this, MainActivity2.class);startActivity(intent);
    }
}
```

Activity_main.xml

```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="wrap_content"
    android:layout_height="wrap_content"android:orientation="vertical"
    tools:context=".MainActivity">
    <com.example.a5happyface.FaceView android:layout_width="wrap_content"
        android:layout_height="wrap_content" />
    <Button
        android:id="@+id/button"    android:layout_width="match_parent"


        android:layout_height="wrap_content"  android:text="---> Sad
Face" />
</RelativeLayout>
```

MainActivity2.java

```java
package com.example.a5happyface;

import android.content.Intent;import android.os.Bundle; import android.view.View; import
android.widget.Button;
import androidx.appcompat.app.AppCompatActivity; public class MainActivity2 extends
AppCompatActivity {
    Button button1;@Override
    protected void onCreate(Bundle savedInstanceState)
    { super.onCreate(savedInstanceState); setContentView(R.layout.activity_main2);
        button1
            = (Button) findViewById(R.id.button1); button1.setOnClickListener(new
        View.OnClickListener() {
            @Override
            public void onClick(View v) {openNewActivity();
            }
        });


    }
    public void openNewActivity(){
        Intent intent1 = new Intent(this,MainActivity.class);startActivity(intent1);
    }
}
```

Activity_main2.xml

```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">
      <com.example.a5happyface.FaceView2 android:layout_width="wrap_content"
           android:layout_height="wrap_content" />
      <Button
           android:id="@+id/button1" android:layout_width="match_parent"
           android:layout_height="wrap_content" android:text="---> Happy Face" />
</RelativeLayout>
```

FaceView.java

```java
package com.example.a5happyface;


import android.content.Context; import android.graphics.Canvas; import android.graphics.Color;
import android.graphics.Paint; import android.graphics.RectF; importandroid.util.AttributeSet;import
android.view.View;
public class FaceView extends View {
      private static final String COLOR_HEX = "WHITE";private final Paint mPaint; private float xPosition;
           private float yPosition; privatefloat radius; private float strokeWidth
= 20; private float defaultScale = 0.90f; privatefloat
eyeRadius = 60; private float
           eyeYPosition; private float leftEyeXPosition;private float rightEyeXPosition;public
      FaceView(Context context, AttributeSet attrs) {super(context, attrs); mPaint =
           new Paint(); mPaint.setAntiAlias(true);
      }


      @Override
      protected void onDraw(Canvas canvas) { super.onDraw(canvas);
           mPaint.setColor(Color.parseColor(COLOR_HEX));
           mPaint.setStrokeWidth(strokeWidth); mPaint.setStyle(Paint.Style.STROKE);
           canvas.drawPaint(mPaint);canvas.drawColor(Color.BLACK);
           //drawing outer circle

           //lets setup x cord, y cord, radius

  //x, y position should point to center. //radius should be half the width

   /height


                     xPosition = getMeasuredWidth() / 2;yPosition = getMeasuredHeight() / 2;radius =
           xPosition < yPosition ? xPosition : yPosition ;radius *= defaultScale;
           canvas.drawCircle(xPosition, yPosition, radius, mPaint);
           //Drawing Eyes.

           //lets find eye y position
```

```java
        eyeYPosition = (float) (yPosition / 1.2);
        // lets find eye x position

        leftEyeXPosition = xPosition < yPosition ? xPosition / 2 : (float)(xPosition / 1.3);

// lets find right eye x position

        rightEyeXPosition = xPosition < yPosition ? xPosition + xPosition /
2 :
                xPosition + xPosition / 4;
        // left eye

        canvas.drawCircle(leftEyeXPosition, eyeYPosition, eyeRadius,
mPaint);
        // right eye

        canvas.drawCircle(rightEyeXPosition, eyeYPosition, eyeRadius,mPaint);
        // lets draw mouth.



        RectF oval = new RectF(leftEyeXPosition, yPosition + yPosition /
12,rightEyeXPosition, (float) (yPosition + yPosition / 2.5));
 // left top rightbottom

                canvas.drawArc(oval, 10, 150, false, mPaint); // happy
face.
```

FaceView2.java

```java
package com.example.a5happyface;

import android.content.Context; import android.graphics.Canvas; import android.graphics.Color;
import android.graphics.Paint; import android.graphics.RectF; importandroid.util.AttributeSet;import
android.view.View;
public class FaceView2 extends View {
    private static final String COLOR_HEX = "WHITE";private final Paint mPaint; private float xPosition;
        private float yPosition; privatefloat radius; private float strokeWidth
= 20; private float defaultScale = 0.90f; privatefloat
eyeRadius = 60; private float
        eyeYPosition; private float leftEyeXPosition;private float rightEyeXPosition;public
    FaceView2(Context context, AttributeSet attrs)
    { super(context, attrs); mPaint = new Paint(); mPaint.setAntiAlias(true);
    }
    @Override
    protected void onDraw(Canvas canvas) { super.onDraw(canvas);
        mPaint.setColor(Color.parseColor(COLOR_HEX));
        mPaint.setStrokeWidth(strokeWidth); mPaint.setStyle(Paint.Style.STROKE);
        canvas.drawPaint(mPaint); canvas.drawColor(Color.BLACK);
```

```java
        // drawing outer circle



        // lets setup x cord, y cord, radius

    // x, y position should point to center.

    // radius should be half the width / height xPosition = getMeasuredWidth() / 2; yPosition =
        getMeasuredHeight() / 2;

        radius = xPosition < yPosition ? xPosition : yPosition ;radius *= defaultScale;
        canvas.drawCircle(xPosition, yPosition, radius, mPaint);
        // Drawing Eyes.

        // lets find eye y position

        eyeYPosition = (float) (yPosition / 1.2);
        // lets find eye x position

        leftEyeXPosition = xPosition < yPosition ? xPosition / 2 : (float)(xPosition / 1.3);
        // lets find right eye x position

            rightEyeXPosition = xPosition < yPosition ? xPosition + xPositio

/ 2 :


        xPosition + xPosition / 4;
    // left eye



canvas.drawCircle(leftEyeXPosition, eyeYPosition, eyeRadius,

mPaint);
        // right eye

        canvas.drawCircle(rightEyeXPosition, eyeYPosition, eyeRadius,mPaint);
        // lets draw mouth.

        RectF oval = new RectF(leftEyeXPosition, yPosition + yPosition /

rightEyeXPosition, (float) (yPosition + yPosition / 2)); //left top right bottom

        canvas.drawArc(oval, 200, 140, false, mPaint); // sad face.

    }
}
```

OUTPUT:

PROGRAM 6:

Create an application to demonstrate the use of Intents to communicate between different activity.

Procedures:

Implicit intent

Step1:create Xml file and Java file.

Step2:Open activity_main.xml file and add editText to input

text and button to open web page in a constraint layout.Alsoadd

IDs for each component.

Step3:Open MainActivity.java file and instantiate the button

created in the xml file using findViewById() method.This metodbinds

the created object to the UI components with the help ofassigned ID.

Step4:To display toast message,first add listener on button and this button will open

webpage.

Step5:Create string type variable to store the value of EditText.Value is accepted and

converted to string.

Step7:Create an intent object Mainactivity.java class to of the webpage.

Step8:The start activity() method starts to call a webpage for opening specified by intent.

Explicit intent

Step1:create xml file and java file.

Step2:Open activity_main.xml and add a button for moving to second activity andaTextview for

viewing some text.Also add IDs for each components.

Step3:Open MainActivity.java file and instantiate the button,textview created in the xml fileusing

findViewByid.This

method binds the created object to the UI components with the assigned id.

Step4:To create explicit intent,first add the listener on button and using this button youwill

move to other activity.Now create an intent and start the targeted activity.

Step5:Now we have to create a second activity as a destination activity.

Step6:open second xml file.Add button and textview to moving back to home activity andto write

some text on activity.Assign id to button and textview.

Step7:open second activity java file.first add the listener on button and using this buttonmove to

home activity.create an intent and start the targeted activity.

MainActivity.java

```java
package com.example.a6intents;
import androidx.appcompat.app.AppCompatActivity;import android.content.Intent; import
android.net.Uri;    import    android.os.Bundle;    import    android.view.View;    import
android.widget.Button;

public class MainActivity extends AppCompatActivity {Button button;
    @Override
        protected void onCreate(Bundle savedInstanceState) {
            super.onCreate(savedInstanceState); setContentView(R.layout.activity_main);
            button=findViewById(R.id.button);
    //button.setOnClickListener(this);

    }
    public void show(View view){
            Intent intent = new Intent(Intent.ACTION_VIEW);
            intent.setData(Uri.parse("https://www.fisat.ac.in")); startActivity(intent);
    }

    public void callSecondActivity(View view){
            Intent i=new Intent(getApplicationContext(),MainActivity2.class);startActivity(i);
    }
    }
```

Activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout

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

```
xmlns:tools="http://schemas.android.com/tools"
xmlns:app="http://schemas.android.com/apk/res-auto"
android:layout_width="match_parent" android:layout_height="match_parent"
tools:context=".MainActivity"> TextView android:layout_width="wrap_content"
android:layout_height="wrap_content" android:layout_marginEnd="8dp"
android:layout_marginStart="8dp" android:layout_marginTop="8dp"
android:text="First Activity"


app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.454" app:layout_constraintLeft_toLeftOf="parent"
app:layout_constraintRight_toRightOf="parent" app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" app:layout_constraintVertical_bias="0.06" />
<Button
        android:id="@+id/button" android:layout_width="wrap_content"
        android:layout_height="wrap_content" android:layout_marginEnd="8dp"
        android:layout_marginStart="8dp" android:layout_marginTop="392dp"
        android:onClick="callSecondActivity" android:text="Call second activity"
        app:layout_constraintEnd_toEndOf="parent" app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

<Button      android:id="@+id/button3" android:layout_width="wrap_content"
        android:layout_height="wrap_content" android:onClick="show" android:text="implicit
        intent"tools:layout_editor_absoluteX="135dp"tools:layout_editor_absoluteY="204dp" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity2.java

```java
package com.example.a6intents;

import androidx.appcompat.app.AppCompatActivity;import android.content.Intent; import
android.os.Bundle; import android.view.View; import android.widget.Button;
public class MainActivity2 extends AppCompatActivity {Button button;
@Override
protected void onCreate(Bundle savedInstanceState)
      { super.onCreate(savedInstanceState); setContentView(R.layout.activity_main2);
            Bundle
                extras = getIntent().getExtras();button=findViewById(R.id.button);
}
public void callFirstActivity(View view){
            Intent i=new Intent(getApplicationContext(),MainActivity.class);startActivity(i);
}
 }
```

Activity_main2.xml

```java
package com.example.a6intents;

import androidx.appcompat.app.AppCompatActivity;


import android.content.Intent;import android.os.Bundle; import android.view.View;import android.widget.Button;
public class MainActivity2 extends AppCompatActivity {Button button;
    @Override
    protected void onCreate(Bundle savedInstanceState)
        { super.onCreate(savedInstanceState); setContentView(R.layout.activity_main2);
            Bundle
                extras = getIntent().getExtras();button=findViewById(R.id.button);
    }
    public void callFirstActivity(View view){
            Intent i=new Intent(getApplicationContext(),MainActivity.class);startActivity(i);
    }
    }
```
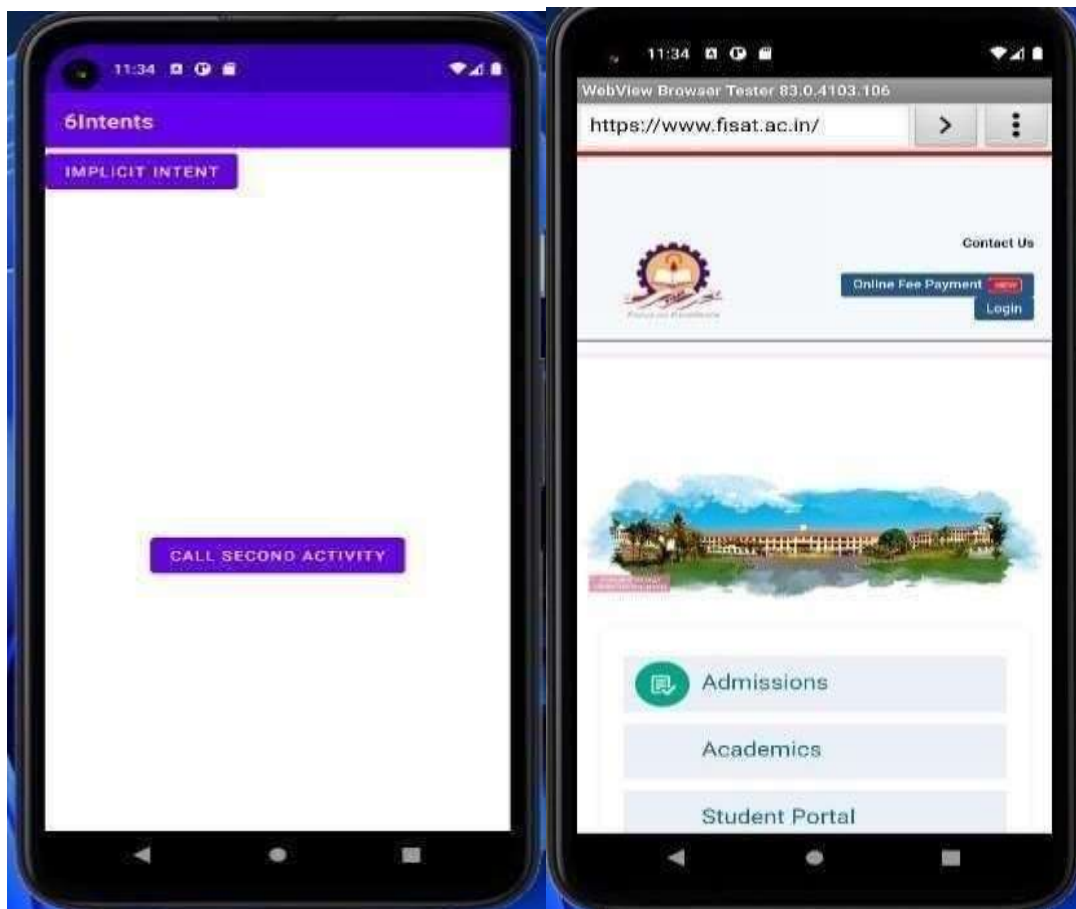
OUTPUT:

PROGRAM 7:

Create an android application to demonstrate storing data intointernal phone memory.

Procedures:

Step1:create Xml file and Java file.

Step2:Open activity_main.xml file and add editText to input text and button to open webpage in a

constraint layout.

Step3:Open MainActivity.java file and instantiate the button and edittext created in the xmlfile using

findViewById() method.This metod binds the created object to the UI components with the

help of assigned ID.

Step4:To display the information null file should be created using FILEOUTPUTSTREAM.

Step5:Create string type variable to store the value of EditText.Value is accepted and

converted to string.

Step7:Create an intent object Mainactivity.java class to open the webpage.

Step8:The start activity() method starts to call a webpage for opening specified by intent.

INTENT

Step1:create java file.

Step2:Open activity_main.xml and by using findViewById get the values passed from the first

MainActivity.java file.

Step3:To create intent,first add the listener on button and using this button you will move toother

activity.Now create an intent and start the targeted activity.

Step4:Using fileInputStream the intented file will display the content passed by theMainActivity.java file.

MainActivity.java

```
package com.example.a7storingdata;


import androidx.appcompat.app.AppCompatActivity;import android.os.Bundle;
import android.content.Context;import android.content.Intent; import android.view.View;import
android.widget.EditText;import android.widget.Toast; import java.io.File;
import java.io.FileOutputStream;import java.io.IOException;
```

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```java
public class MainActivity extends AppCompatActivity {EditText editname,editpass;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState); setContentView(R.layout.activity_main);
        editname = (EditText) findViewById(R.id.editName);editpass= (EditText)
        findViewById(R.id.editPass);
    }

    public void save(View view)  // SAVE
    {
        File file= null;
        String name = editname.getText().toString(); String password =editpass.getText().toString();

        FileOutputStream fileOutputStream = null;try { name =
            name + " "; file = getFilesDir(); fileOutputStream =
            openFileOutput("Code.txt",
    Context.MODE_PRIVATE); //MODE PRIVATE

            fileOutputStream.write(name.getBytes()); fileOutputStream.write(password.getBytes());
            Toast.makeText(this,"Saved
            \n" + "Path --" + file +
    "\tCode.txt", Toast.LENGTH_SHORT).show();editname.setText(""); editpass.setText("");return;
        } catch (Exception ex) { ex.printStackTrace();
        } finally {
            try { fileOutputStream.close();

} catch (IOException e) {e.printStackTrace();
            }
        }
    }

    public void   next( View view)              //NEXT
    {
        Toast.makeText(this,"NEXT", Toast.LENGTH_SHORT).show();Intent intent= new
        Intent(this, MainActivity2.class); startActivity(intent);

    }
}
```

Activity_main.xml

```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:id="@+id/activity_main"
    android:layout_width="match_parent" android:layout_height="match_parent"
    tools:context="com.example.a7storingdata.MainActivity">
```

```xml
<TextView
    android:text="@string/name" android:layout_width="wrap_content"
    android:layout_height="wrap_content" android:layout_alignParentTop="true"
    android:layout_alignParentLeft="true" android:layout_alignParentStart="true"
    android:layout_marginLeft="51dp" android:layout_marginStart="51dp"
    android:layout_marginTop="59dp" android:id="@+id/txtname"
    android:textStyle="bold|italic" android:textSize="18sp" />

<TextView
    android:text="@string/password" android:layout_width="wrap_content"
    android:layout_height="wrap_content" android:layout_below="@+id/txtname"
    android:layout_alignLeft="@+id/txtname" android:layout_alignStart="@+id/txtname"
    android:layout_marginTop="56dp" android:id="@+id/txtpass"
    android:textStyle="bold|italic" android:textSize="18sp" />

<EditText
    android:id="@+id/editName" android:layout_width="wrap_content"
    android:layout_height="wrap_content" android:layout_alignParentTop="true"
    android:layout_marginStart="21dp" android:layout_marginLeft="21dp"
    android:layout_marginTop="48dp"  android:layout_toEndOf="@+id/txtpass"


    android:layout_toRightOf="@+id/txtpass" android:ems="8"
    android:inputType="textPersonName" />

<EditText
    android:id="@+id/editPass" android:layout_width="wrap_content"
    android:layout_height="wrap_content" android:layout_below="@+id/editName"
    android:layout_alignStart="@+id/editName" android:layout_alignLeft="@+id/editName"
    android:layout_marginTop="35dp" android:ems="10" android:inputType="textPassword" />

<Button
    android:text="@string/save" android:layout_width="wrap_content"
    android:layout_height="wrap_content" android:layout_below="@+id/editPass"
    android:layout_alignLeft="@+id/txtpass" android:layout_alignStart="@+id/txtpass"
    android:layout_marginTop="86dp" android:id="@+id/button" android:onClick="save"/>
    // OnClick "save"
```

```xml
    <Button
        android:text="@string/next" android:layout_width="wrap_content"
        android:layout_height="wrap_content" android:layout_alignTop="@+id/button"
        android:layout_alignRight="@+id/editName" android:layout_alignEnd="@+id/editName"
        android:layout_marginRight="25dp" android:layout_marginEnd="25dp"
        android:id="@+id/button2" android:onClick="next"/>// OnClick "next"
</RelativeLayout>
```

MainActivity2.java

```java
package com.example.a7storingdata;

import androidx.appcompat.app.AppCompatActivity;import android.os.Bundle; import
android.content.Intent;import android.util.Log; import android.view.View;import
android.widget.TextView;import android.widget.Toast; import java.io.FileInputStream;
public class MainActivity2 extends AppCompatActivity {TextView getname, getpass;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);


        setContentView(R.layout.activity_main2); getname =
        (TextView)findViewById(R.id.getname);getpass =
        (TextView)findViewById(R.id.getpass);

    }
    public void load(View view)
    {
        try {
            FileInputStream fileInputStream = openFileInput("Code.txt");int read = -1;
            StringBuffer buffer = new StringBuffer(); while((read
            =fileInputStream.read())!= -1){ buffer.append((char)read);
            }
            Log.d("Code", buffer.toString());
            String name = buffer.substring(0,buffer.indexOf(" "));String pass =
            buffer.substring(buffer.indexOf(" ")+1);getname.setText(name);
            getpass.setText(pass);
        } catch (Exception e) { e.printStackTrace();
        }
        Toast.makeText(this,"Loaded", Toast.LENGTH_SHORT).show();

    }
```

```java
        public void back( View view)
        {
                Toast.makeText(this,"Back", Toast.LENGTH_SHORT).show();Intent intent= newIntent(this,
                MainActivity.class); startActivity(intent);
        }
}
```

Activity_main2.xml

```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:id="@+id/activity_main2"
        android:layout_width="match_parent" android:layout_height="match_parent"
        tools:context="com.example.a7storingdata.MainActivity2">

        <TextView
                android:text="@string/getname" android:layout_width="wrap_content"
                android:layout_height="wrap_content" android:layout_alignParentTop="true"
                android:layout_alignRight="@+id/button3" android:layout_alignEnd="@+id/button3"
                android:layout_marginRight="11dp"android:layout_marginEnd="11dp"
                android:layout_marginTop="76dp" android:id="@+id/textView3"
                android:textSize="18sp" android:textStyle="bold|italic" />

        <TextView
                android:text="@string/getpassword"

                android:layout_width="wrap_content" android:layout_height="wrap_content"
                android:layout_below="@+id/textView3" android:layout_alignRight="@+id/textView3"
                android:layout_alignEnd="@+id/textView3" android:layout_marginTop="33dp"
                android:id="@+id/textView4" android:textStyle="bold|italic" android:textSize="18sp"
                />

        <TextView
                android:layout_width="wrap_content" android:layout_height="wrap_content"
                android:layout_above="@+id/textView4" android:layout_alignLeft="@+id/button4"
                android:layout_alignStart="@+id/button4" android:id="@+id/getname"
                android:textStyle="bold|italic" android:textSize="18sp" />
```

```xml
    <TextView
        android:layout_width="wrap_content" android:layout_height="wrap_content"
        android:layout_alignBottom="@+id/textView4" android:layout_alignLeft="@+id/getname"
        android:layout_alignStart="@+id/getname" android:id="@+id/getpass"
        android:textStyle="bold|italic" android:textSize="18sp" />

    <Button
        android:text="@string/load" android:layout_width="wrap_content"
        android:layout_height="wrap_content" android:id="@+id/button3"
        android:layout_marginLeft="35dp" android:layout_marginStart="35dp"
        android:onClick="load" android:layout_below="@+id/textView4"
        android:layout_alignParentLeft="true" android:layout_alignParentStart="true"
        android:layout_marginTop="80dp" />

    <Button
        android:text="@string/back" android:layout_width="wrap_content"
        android:layout_height="wrap_content" android:layout_marginRight="54dp"
        android:layout_marginEnd="54dp" android:id="@+id/button4" android:onClick="back"
        android:layout_alignBaseline="@+id/button3" android:layout_alignBottom="@+id/button3"
        android:layout_alignParentRight="true" android:layout_alignParentEnd="true" />

</RelativeLayout>
```

OUTPUT:
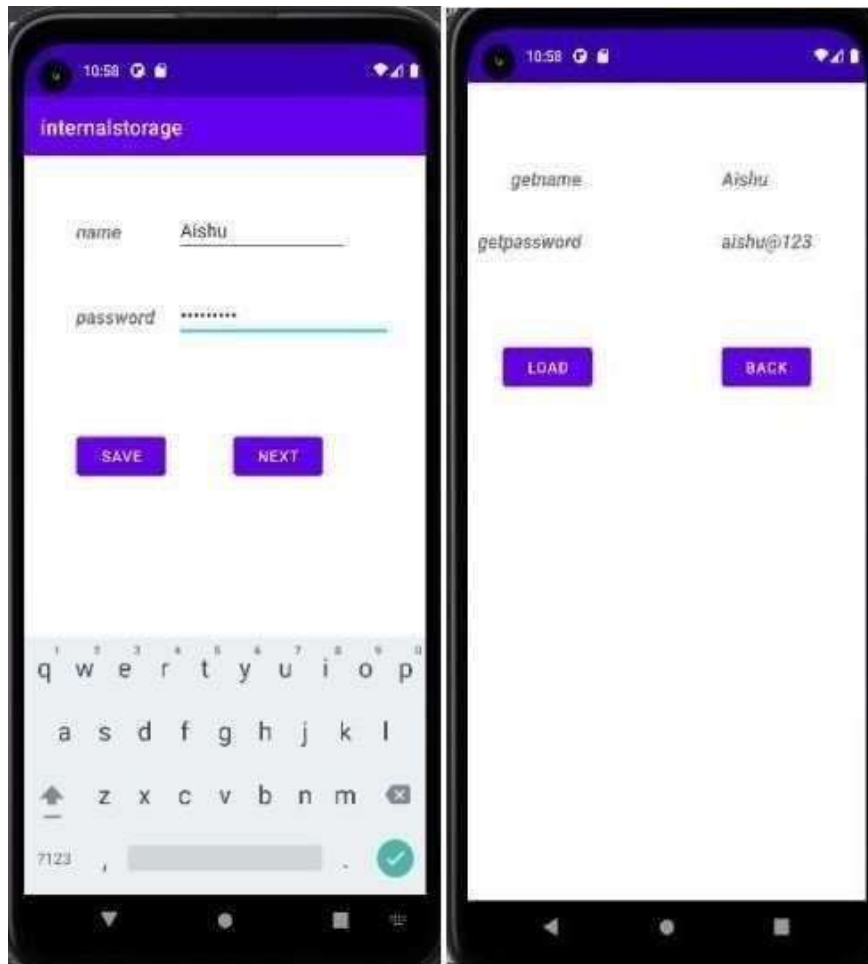
PROGRAM 8:

Create an android application to demonstrate GridView

Step1:create Xml file and Java file.

Step2:Open activity_main.xml file and add GridView Layout.

Step3:Open MainActivity.java file and instantiate the gridview created in the xml file usingfindViewById()

method. Then create setAdapter for the gridview.

IMAGEADAPTER

Step1:Create a new Imageadapter.java file. The class ImageAdapter will extend the

BaseAdapter.

Step7:The BaseAdapter set Gridview for the images.

Step8:Using R.drawable will assign the imageView.

MainActivity.java

```java
package com.example.prgm8;


import androidx.appcompat.app.AppCompatActivity;import android.os.Bundle;
import android.app.Activity; import android.view.Menu; import android.widget.GridView;

public class MainActivity extends Activity {@Override protected
    void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState); setContentView(R.layout.activity_main);

        GridView gridview = (GridView) findViewById(R.id.gridview);
        gridview.setAdapter(new ImageAdapter(this));
    }
}
```

Activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<GridView xmlns:android="http://schemas.android.com/apk/res/android"android:id="@+id/gridview"
    android:layout_width="fill_parent" android:layout_height="fill_parent"
    android:columnWidth="120dp" android:numColumns="3"
    android:verticalSpacing="10dp" android:horizontalSpacing="10dp"
    android:stretchMode="columnWidth" android:gravity="center"
/>
```

ImageAdapter.java

```java
package com.example.prgm8;

import android.content.Context;import android.view.View; import
android.view.ViewGroup;
import android.widget.BaseAdapter;import android.widget.GridView; import
android.widget.ImageView;

class ImageAdapter extends BaseAdapter {private Context mContext;public
ImageAdapter(Context c) {mContext = c;

    }

    public int getCount() { return picIds.length;
    }

    public Object getItem(int position) {return null;
    }
    public long getItemId(int position) {return 0;
    }

    // create a new ImageView for each item referenced by the Adapter

    public View getView(int position, View convertView, ViewGroup parent) {ImageView
        imageView;

        if (convertView == null) {
            imageView = new ImageView(mContext);imageView.setLayoutParams(new
                    GridView.LayoutParams(85,85));

             imageView.setScaleType(ImageView.ScaleType.CENTER_CROP);

            imageView.setPadding(8,8,8,8);
        }
        else
        {
            imageView = (ImageView) convertView;
        }


        imageView.setImageResource(picIds[position]);  return   imageView;
    }

    // Keep all Images in arraypublic Integer[] picIds = {R.drawable.sample2,
        R.drawable.sample3, R.drawable.sample4, R.drawable.sample5,
        R.drawable.sample6, R.drawable.sample7, R.drawable.sample0,
        R.drawable.sample1, R.drawable.sample2, R.drawable.sample3,
        R.drawable.sample4, R.drawable.sample5, R.drawable.sample6,
        R.drawable.sample7, R.drawable.sample0, R.drawable.sample1,
        R.drawable.sample2, R.drawable.sample3, R.drawable.sample4, R.drawable.sample5
```

R.drawable.*sample7*,R.drawable.*sample0*,R.drawable.*sample1*

```
        };
    }
```

OUTPUT :

PROGRAM 9:

Demonstrate ImageView and GridView

Procedure:

GridView

Step 1: Creating a New Project

Step 2: Add google repository in the build.gradle file of the application project.Step 3: Modify the activity_main.xml file

Step 4: Create an XML layout file for each item of GridViewStep

5: Create a Modal Class for storing Data

Step 6: Create an Adapter Class

Step 7: Modify the MainActivity.java file

Image View

Step 1: Create a New Project

Step 2: Working with the activity_main.xml fileStep

3: Working with the MainActivity file

MainActivity.java

```java
package com.example.prgm9;
import androidx.appcompat.app.AppCompatActivity;import android.app.Activity; import import
android.content.Intent;import android.os.Bundle; import android.view.View;import
android.widget.AdapterView;import android.widget.GridView;

public class MainActivity extends Activity {@Override protected
    void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState); setContentView(R.layout.activity_main);

        GridView gridview = (GridView) findViewById(R.id.gridview);
        gridview.setAdapter(new ImageAdapter(this));

        gridview.setOnItemClickListener(new AdapterView.OnItemClickListener() { public void
            onItemClick(AdapterView<?> parent, View v, intposition, long
    id){

    // Send intent to SingleViewActivity

            Intent i = new Intent(getApplicationContext(),SingleViewActivity.class);
    // Pass image index

                i.putExtra("id", position);startActivity(i);
        }
    });
    }
}
```

Activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<GridView xmlns:android="http://schemas.android.com/apk/res/android" android:id="@+id/gridview"
    android:layout_width="fill_parent" android:layout_height="fill_parent"
    android:columnWidth="120dp" android:numColumns="3"
    android:verticalSpacing="10dp" android:horizontalSpacing="10dp"
    android:stretchMode="columnWidth"


    android:gravity="center"
    />
```

ImageAdapter.java

```java
package com.example.prgm9;

import android.content.Context;import android.view.View; import
android.view.ViewGroup;
import android.widget.BaseAdapter;import android.widget.GridView; import
android.widget.ImageView;

class ImageAdapter extends BaseAdapter {private Context mContext;

    // Constructor

    public ImageAdapter(Context c) {mContext = c;
    }

    public int getCount() { return picIds.length;
    }

    public Object getItem(int position) {return null;
    }

    public long getItemId(int position) {


        return 0;
    }

    //create a new ImageView for each item referenced by the Adapter
```

```java
public View getView(int position, View convertView, ViewGroup parent) {ImageView
    imageView;

    if (convertView == null) {
        imageView = new ImageView(mContext);imageView.setLayoutParams(new
            GridView.LayoutParams(85, 85));

        imageView.setScaleType(ImageView.ScaleType.CENTER_CROP); imageView.setPadding(8, 8, 8,
        8);
    } else {
        imageView = (ImageView) convertView;
    }

    imageView.setImageResource(picIds[position]);  return  imageView;

}

// Keep all Images in arraypublic Integer[] picIds = {R.drawable.sample2,


        R.drawable.sample3,
        R.drawable.sample4,
        R.drawable.sample5,
        R.drawable.sample6,
        R.drawable.sample7,
        R.drawable.sample0,
        R.drawable.sample1,
        R.drawable.sample2,
        R.drawable.sample3,
        R.drawable.sample4,
        R.drawable.sample5,
        R.drawable.sample6,
        R.drawable.sample7,
        R.drawable.sample0,
        R.drawable.sample1,
        R.drawable.sample2,
        R.drawable.sample3,
        R.drawable.sample4,
        R.drawable.sample5,
        R.drawable.sample6,
        R.drawable.sample7,
        R.drawable.sample0, R.drawable.sample1
};
}
```

SingleViewActivity.java

```java
package com.example.prgm9;
import androidx.appcompat.app.AppCompatActivity;import android.app.Activity;import
android.content.Intent;import android.os.Bundle;
import android.widget.ImageView;
public class SingleViewActivity extends AppCompatActivity {@Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_single_view);
        // Get intent data

        Intent i = getIntent();

    // Selected image id

        int position = i.getExtras().getInt("id"); ImageAdapter imageAdapter = newImageAdapter(this);

        ImageView imageView = (ImageView) findViewById(R.id.SingleView);


        imageView.setImageResource(imageAdapter.picIds[position]);
    }
}
```

Activity_single_view.xml

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

    <ImageView android:id="@+id/SingleView" android:layout_width="fill_parent"
        android:layout_height="fill_parent"/>

</LinearLayout>
```

OUTPUT:
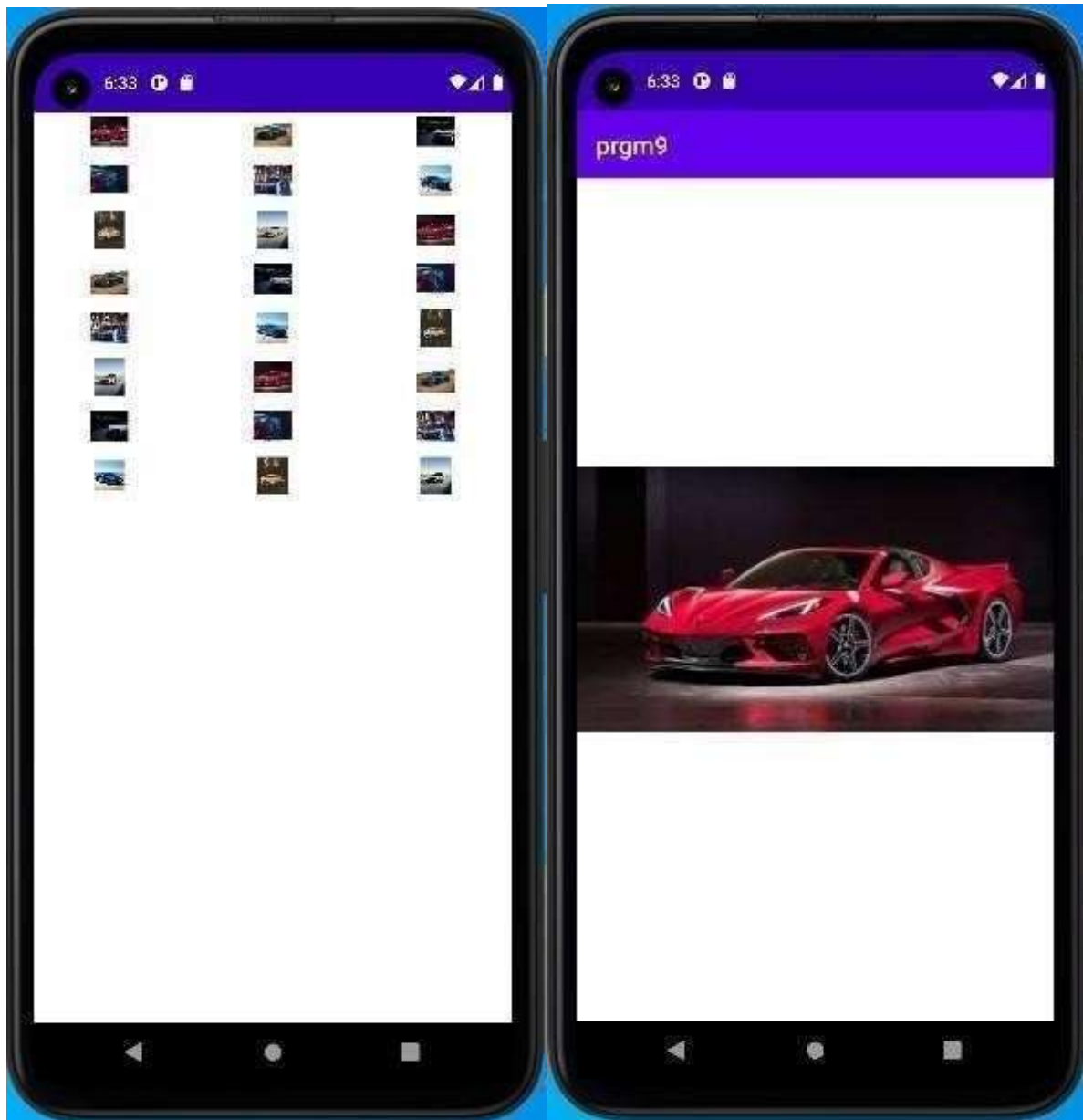
PROGRAM 10:
Demonstration of Toggle Button

Procedure:
Step 1: START
Step 2: Create Xml file and Java file.
Step 2: Open activity_main.xml file and one Image View to display image andone
        button to change images in a frame layout.
Step 3: Download three images and name it piq1.jpg, buttonback.jpg, andpic2.jpg etc
        and paste it in /src/drawable/ folder.
Step 4: Open MainActivity.java file and import the libraries that are needed.
Step 5: Instantiate the button and Image View created in the xml file using
        findViewById() method. This method binds the created object to the UI
        components with the help of assigned ID.
Step 6: By clicking the button with buttonback.jpg, it changes the images
        between piq1.jpg and pic2.jpg.
Step 7: STOP

MAINACTIVITY.JAVA

```java
package com.example.togglebutton;

import android.app.Activity; import android.view.View; import android.widget.Button;import
android.widget.ImageView; import android.os.Bundle;
public class MainActivity extends Activity { String s = "Next";
    @Override
    protected void onCreate(Bundle
                    savedInstanceState) {
// TODO Auto-generated method stub super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main); Button next= (Button)

            findViewById(R.id.next); next.setText(s); next.setOnClickListener(newView.OnClickListener() {
                    @Override
                    public void onClick(View v) { if (s.equals("Next")) {
// TODO Auto-generated method stub


                        ImageView img = (ImageView) findViewById(R.id.imageview);
                        img.setImageResource(R.drawable.pic1); Button next= (Button)
                            findViewById(R.id.next); s = "Prev";
                        next.setText(s);
                    } else {
                        ImageView img = (ImageView) findViewById(R.id.imageview);

                        img.setImageResource(R.drawable.pic2); Button next= (Button)
                            findViewById(R.id.next); s = "Next";
                        next.setText(s);
```

```
                    };


}
});
    }
 }
```

ACTIVITY MAIN.XML

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent">
    <ImageView android:id="@+id/imageview" android:layout_width="fill_parent"
        android:layout_height="fill_parent" android:scaleType="fitCenter"
        android:src="@drawable/pic1" />
    <Button android:id="@+id/next" android:layout_width="wrap_content"
        android:layout_height="30dp"
        android:layout_marginBottom="15dp" android:layout_marginRight="10dp"
        android:layout_gravity="bottom|right" android:paddingTop="2dp" android:paddingBottom="2dp"
        android:background="@drawable/buttonback"android:textColor="#000000" android:text="Next"
        />

</FrameLayout>
```

OUTPUT
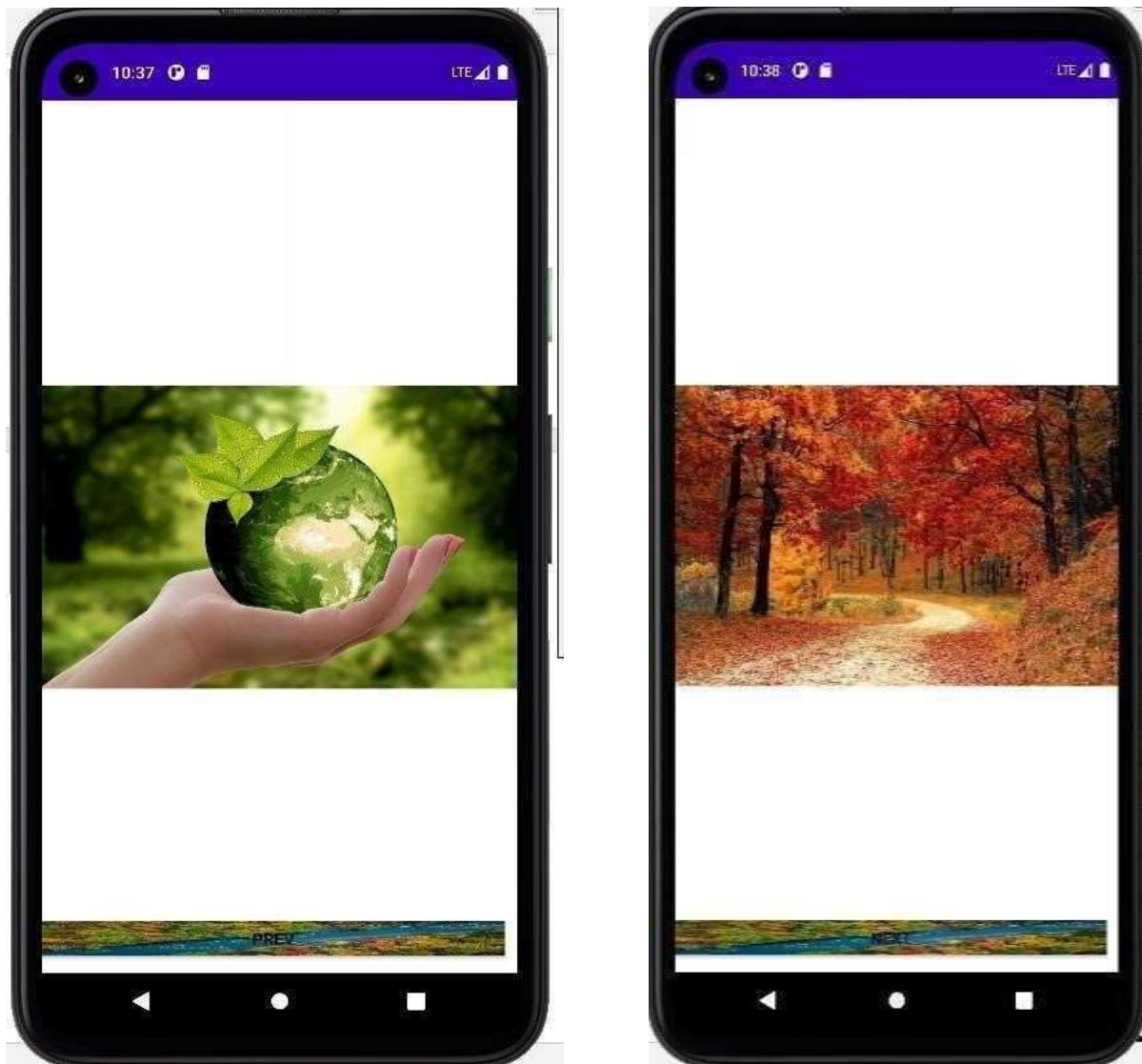
PROGRAM 11:

Demonstration of options menu

Procedure:

Step 1: Start

Step 2: Create xml and java file Step 3:

Create optionsmenu.xml file

Step 4: Open optionsmenu.xml file, and add one or more items to your optionsmenu
depending on the needs.

Step 5: Open main_activity.java file and import necessary libraries

Step 6: Inflate the menu resources using onCreateOptionsMenu() method.

Step 7: Detect user interaction by add the onOptionsItemSelected methodoutline after
the onCreateOptionsMenu() method.

Step 8: Respond to Menu Item Selection by using switch statement to yourmethod.

Step 9: Stop

MAINACTIVITY.JAVA

```java
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.Menu; import
android.view.MenuItem; import
android.widget.TextView;import
android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
// TextView tvMsg;
@Override
protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
// tvMsg= (TextView) findViewById(R.id.textView);
}
// Overriding onCreateoptionMenu() to make Option menu
@Override
public boolean onCreateOptionsMenu(Menu menu) {
//Inflating menu by overriding inflate() method of
MenuInflater class.
//Inflating here means parsing layout XML to views.
getMenuInflater().inflate(R.menu.menucontext, menu);return
true;
}
//Overriding onOptionsItemSelected to perform event on menu
```

```java
items
@Override
public boolean onOptionsItemSelected(MenuItem menuItem) {

Toast.makeText(this, "The MENU ITEM Selected : " +
menuItem.getTitle(), Toast.LENGTH_LONG).show(); switch
(menuItem.getItemId()) {
case R.id.search:
//Your code here
return true;
case R.id.find:
//Your code here
return true;
case R.id.edit:
//Your code here
return true;
case R.id.relocate:
//Your code here
return true;
case R.id.exit:
//Your code here
return true;
default:
return super.onOptionsItemSelected(menuItem);
}
}
}}
```

ACTIVITY_MAIN.XML

```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">

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

MENUCONTEXT.XML

```xml
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
<item
android:id="@+id/search"
android:title="Search" />
<item
android:id="@+id/find"
android:title="Find" />
<item
android:id="@+id/edit"
android:title="Edit" />
<item android:id="@+id/relocate"
android:title="Relocate" />
<item
android:id="@+id/exit"
android:title="Exit" /> </menu>
```

OUTPUT:

PROGRAM 12:

Use of Spinner widget in android application demonstration.

Procedure:

Step 1 : Start
Step 2 : Create xml and java file
Step 3 : Open activity_main.xml file and add a spinner object inside relativelayout and
        one textview
Step 4 : Create strings.xml file
Step 5 : Open strings.xml file and add string under resource element with fewitems
        using string-array
Step 6 : Open main_activity.java file and import necessary libraries
Step 7 : Getting the instance of spinner using findViewById() and applyingOnItemSelectedListener on it
Step 8 : We use array adapter to fill the data in spinner, also we use toast todisplay
         when the item in spinner is selected.
Step 9 : Performing action OnItemSelected and OnNothingSelectedStep10 :
Stop

MainActivity.java

```java
package com.example.a12spinnerwidget;import android.os.Bundle;import
android.view.View;
import android.widget.AdapterView;import android.widget.Spinner; importandroid.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;import android.widget.ArrayAdapter;public
class MainActivity extends AppCompatActivity {
    // these are the global variables

    Spinner classSpinner, divSpinner;
    // string variable to store selected values

    String selectedClass, selectedDiv;

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

        classSpinner = (Spinner) findViewById(R.id.classSpinner);divSpinner = (Spinner)
        findViewById(R.id.divSpinner);

        // Class Spinner implementing onItemSelectedListener

        classSpinner.setOnItemSelectedListener(new        AdapterView.OnItemSelectedListener()
{

            @Override
            public void onItemSelected(AdapterView<?> parent, View view,int position,
```

```java
long id) {

                    String selectedClass = parent.getItemAtPosition(position).toString();switch
                    (selectedClass) {case "Class 1":
                            // assigning div item list defined in XMLto the div

Spinner

                            divSpinner.setAdapter(new
                                    ArrayAdapter<String>(MainActivity.this,

android.R.layout.simple_spinner_dropdown_item,

getResources().getStringArray(R.array.items_div_class_1)));

                                    break;

                        case "Class 2":  divSpinner.setAdapter(new
                                    ArrayAdapter<String>(MainActivity.this,

android.R.layout.simple_spinner_dropdown_item,

getResources().getStringArray(R.array.items_div_class_2)));

                                    break;

                        case "Class 3":  divSpinner.setAdapter(new
                                    ArrayAdapter<String>(MainActivity.this,
android.R.layout.simple_spinner_dropdown_item,
getResources().getStringArray(R.array.items_div_class_3)));

                                    Toast.makeText(MainActivity.this, "\n Class: \t " +selectedClass,
Toast.LENGTH_LONG).show();

                                    break;

                        case "Class 4":  divSpinner.setAdapter(new
                                    ArrayAdapter<String>(MainActivity.this,
android.R.layout.simple_spinner_dropdown_item,
getResources().getStringArray(R.array.items_div_class_4)));

                                    Toast.makeText(MainActivity.this, "\n Class: \t " +selectedClass,
Toast.LENGTH_LONG).show();

                                    break;
                    }
                    //set divSpinner Visibility to Visible

                    divSpinner.setVisibility(View.VISIBLE);
            }
```
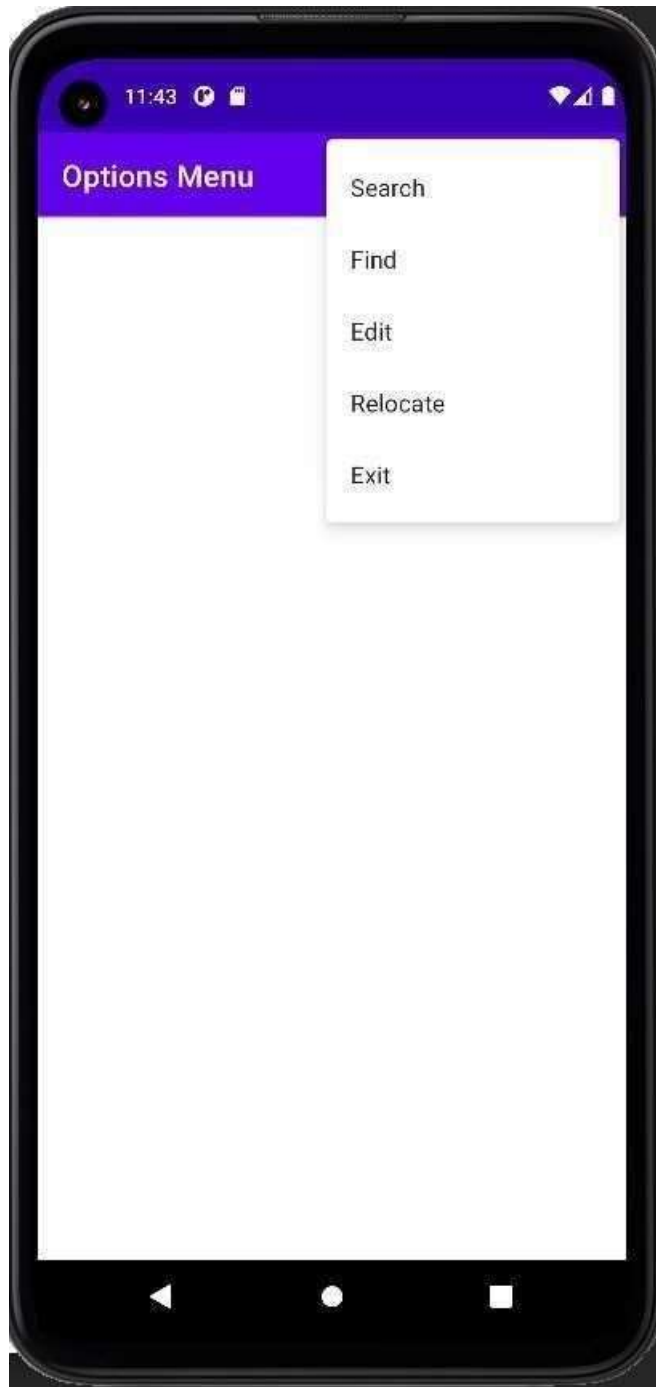
```java
            @Override
            public void onNothingSelected(AdapterView<?> parent) {
                // can leave this empty

            }
        });
        // Div Spinner implementing onItemSelectedListener

        divSpinner.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() { @Override
            public void onItemSelected(AdapterView<?> parent, Viewview, int position,long
                    id) {
                selectedDiv =
                        parent.getItemAtPosition(position).toString();
                // create a Toast to show the values on screen

                Toast.makeText(MainActivity.this,


                        "\n Div: \t" + selectedDiv,Toast.LENGTH_LONG).show();

                }



            @Override
            public void onNothingSelected(AdapterView<?> parent) {
                // can leave this empty

            }

        });


    }
}
```

activity_main.xml

```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="com.example.a12spinnerwidget.MainActivity">

    <TextView
        android:id="@+id/tvDemo" android:layout_width="match_parent"
        android:layout_height="wrap_content" android:layout_alignParentStart="true"
        android:layout_alignParentTop="true" android:gravity="center" android:text="SPINNER
        DEMO" android:layout_alignParentLeft="true" />
```

```xml
    <Spinner
        android:id="@+id/classSpinner" android:layout_width="match_parent"
        android:layout_height="wrap_content" android:layout_below="@+id/tvDemo"
        android:layout_marginTop="25dp" android:entries="@array/items_class"/>

    <Spinner
        android:id="@+id/divSpinner"    android:visibility="gone"

        android:layout_width="match_parent" android:layout_height="wrap_content"
        android:layout_below="@id/classSpinner" android:layout_toLeftOf="@id/classSpinner"
        android:layout_marginTop="10dp"
        />
</RelativeLayout>
```

strings.xml

```xml
<resources>
<string name="app_name">SpinnerDemo</string>

<string-array name="items_class">
    <item>Class 1</item>
    <item>Class 2</item>
    <item>Class 3</item>
    <item>Class 4</item>
</string-array>

<string-array name="items_div_class_1">
    <item>Div 1-A</item>
    <item>Div 1-B</item>


    <item>Div 1-C</item>
    <item>Div 1-D</item>
</string-array>

<string-array name="items_div_class_2">
    <item>Div 2-A</item>
    <item>Div 2-B</item>

    <item>Div 2-C</item>
    <item>Div 2-D</item>
</string-array>

<string-array name="items_div_class_3">
    <item>Div 3-A</item>
    <item>Div 3-B</item>
    <item>Div 3-C</item>
```

```xml
            <item>Div 3-D</item>
    </string-array>

    <string-array name="items_div_class_4">
            <item>Div 4-A</item>
            <item>Div 4-B</item>
            <item>Div 4-C</item>
            <item>Div 4-D</item>
    </string-array>

    </resources>
```

OUTPUT:

PROGRAM 13:

Database application using SQLite.

Procedure:

Step 1: Start

Step 2: Create xml and java files

Step 3: Open activity_main.xml file and add four textview, edittext and addfour
buttons to perform add, view, delete and update

Step 4: Open main_activity.java file and import the libraries that are neededStep 5:
Create mydb object for the databasehelper class

Step 6: Instantiate the buttons and edittext created in the xml file using findViewById()
method. This method binds the created object to the UIcomponents with the
help of assigned ID.

Step 7: Define methods deletedata(), adddata(), updatedata() ,viewall(), which returns
delete particular data, insert data, update data, and view all dataoperations
respectively

Step 8: OnCreateOptionsMenu() method specify the options menu for the activity. It
inflates the menu resource defined in xml into menu provided.

Step 9: By using OnOptionsItemSelected() method we can handle action baritems that
clicks.

Step 10: Create databasehelper.java file to handle database operations thatare
defined using sqliteopenhelper

Step 11: Mention all database informations such as database, table, columns etc.

Step 12: Call methods inorder to handle the database opertions such as
creation, upgrading, reading, writing, deleting

Step 13: Stop

ACTIVITY_MAIN.XML

```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">

<TextView android:layout_width="wrap_content"

android:layout_height="wrap_content"
```

```
android:textAppearance="?android:attr/textAppearanceLarge" android:text="Name"

android:id="@+id/textView"

android:layout_alignParentTop="true"

android:layout_alignParentLeft="true"

android:layout_alignParentStart="true" />

<TextView android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:textAppearance="?android:attr/textAppearanceLarge"

android:text="Surname"

android:id="@+id/textView2"

android:layout_below="@+id/editText_name"

android:layout_alignParentLeft="true"

android:layout_alignParentStart="true" />

<TextView android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:textAppearance="?android:attr/textAppearanceLarge"


android:text="Marks" android:id="@+id/textView3"

android:layout_below="@+id/editText_surname"

android:layout_alignParentLeft="true"

android:layout_alignParentStart="true" />

<EditText

android:layout_width="match_parent"

android:layout_height="wrap_content"

android:id="@+id/editText_name"

android:layout_alignTop="@+id/textView"
```

```
android:layout_toRightOf="@+id/textView" android:layout_toEndOf="@+id/textView"

/>

<EditText android:layout_width="match_parent"

android:layout_height="wrap_content"

android:id="@+id/editText_surname"

android:layout_alignTop="@+id/textView2"

android:layout_toRightOf="@+id/textView2"

android:layout_toEndOf="@+id/textView2" />

<EditText android:layout_width="match_parent"

android:layout_height="wrap_content"

android:id="@+id/editText_Marks"

android:layout_below="@+id/editText_surname"

android:layout_toRightOf="@+id/textView3"

android:layout_toEndOf="@+id/textView3" />

<Button

android:layout_width="wrap_content"

android:layout_height="wrap_content"


android:text="Add Data"

android:id="@+id/button_add"

android:layout_below="@+id/editText_Marks"

android:layout_alignParentLeft="true"

android:layout_alignParentStart="true"

android:layout_marginTop="76dp" />

<Button

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:text="View All"
```

```
android:id="@+id/button_viewAll" android:layout_above="@+id/button_update"

android:layout_centerHorizontal="true" />

<Button android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:text="Update"

android:id="@+id/button_update"

android:layout_below="@+id/button_add"

android:layout_alignParentLeft="true"

android:layout_alignParentStart="true" />

<Button android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:text="Delete"

android:id="@+id/button_delete"

android:layout_centerVertical="true"

android:layout_below="@+id/button_viewAll"

android:layout_alignLeft="@+id/button_viewAll"


android:layout_alignStart="@+id/button_viewAll" />

<TextView android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:textAppearance="?android:attr/textAppearanceLarge"

android:text="id"

android:id="@+id/textView_id"

android:layout_below="@+id/editText_Marks"

android:layout_alignParentLeft="true"

android:layout_alignParentStart="true" />
```

```xml
<EditText android:layout_width="match_parent"

android:layout_height="wrap_content"

android:id="@+id/editText_id"

android:layout_alignTop="@+id/textView_id"

android:layout_toRightOf="@+id/textView3"

android:layout_toEndOf="@+id/textView3" />
</RelativeLayout>
```

MAINACTIVITY.JAVA

```java
package com.example.dbtest;


import androidx.appcompat.app.AlertDialog;

import androidx.appcompat.app.AppCompatActivity;

import android.database.Cursor;

import android.os.Bundle; import

android.view.Menu; import

android.view.MenuItem;import

android.view.View; import

android.widget.Button; import

android.widget.EditText;import

android.widget.Toast;


public class MainActivity extends AppCompatActivity {

DatabaseHelper myDb;

EditText editName,editSurname,editMarks ,editTextId;

Button btnAddData;

Button btnviewAll;

Button btnDelete; Button

btnviewUpdate;
```

```java
@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity_main);

myDb = new DatabaseHelper(this);

editName = (EditText)findViewById(R.id.editText_name);

editSurname = (EditText)findViewById(R.id.editText_surname);


editMarks = (EditText)findViewById(R.id.editText_Marks);

editTextId = (EditText)findViewById(R.id.editText_id); btnAddData

= (Button)findViewById(R.id.button_add); btnviewAll =

(Button)findViewById(R.id.button_viewAll); btnviewUpdate=

(Button)findViewById(R.id.button_update);btnDelete=

(Button)findViewById(R.id.button_delete); AddData();

viewAll();

UpdateData();

DeleteData();

}

public void DeleteData() {

btnDelete.setOnClickListener(new

View.OnClickListener() { @Override

public void onClick(View v) {

Integer deletedRows =

myDb.deleteData(editTextId.getText().toString());

if(deletedRows > 0)

Toast.makeText(MainActivity.this,"Data

Deleted",Toast.LENGTH_LONG).show();
```

```java
else Toast.makeText(MainActivity.this,"Data

not Deleted",Toast.LENGTH_LONG).show();

}

}

);

}

public void UpdateData() {

btnviewUpdate.setOnClickListener(


new View.OnClickListener() {

@Override

public void onClick(View v) {

boolean isUpdate =

myDb.updateData(editTextId.getText().toString(),

editName.getText().toString(),


editSurname.getText().toString(),editMarks.getText().toString());

if(isUpdate == true)

Toast.makeText(MainActivity.this,"Data

Update",Toast.LENGTH_LONG).show(); else

Toast.makeText(MainActivity.this,"Data

not Updated",Toast.LENGTH_LONG).show();

}

}

);

}

public void AddData() {

btnAddData.setOnClickListener(
```

```java
new View.OnClickListener() {

@Override

public void onClick(View v) {

boolean isInserted =

myDb.insertData(editName.getText().toString(),

editSurname.getText().toString(),

editMarks.getText().toString() );


if(isInserted == true)

Toast.makeText(MainActivity.this,"Data

Inserted",Toast.LENGTH_LONG).show();else


Toast.makeText(MainActivity.this,"Data

not Inserted",Toast.LENGTH_LONG).show();

}

}

);

}


public void viewAll() {

btnviewAll.setOnClickListener(new

View.OnClickListener() { @Override

public void onClick(View v) {

Cursor res = myDb.getAllData();

if(res.getCount() == 0) {

// show message showMessage("Error","Nothing

found");
```

```
    return;

    }


    StringBuffer buffer = new StringBuffer();while

    (res.moveToNext()) { buffer.append("Id :"+

    res.getString(0)+"\n"); buffer.append("Name

    :"+ res.getString(1)+"\n");

    buffer.append("Surname :"+

    res.getString(2)+"\n"); buffer.append("Marks

    :"+ res.getString(3)+"\n\n");

    }


    // Show all data

    showMessage("Data",buffer.toString());

    }

    }

    );

    }


    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();

    }
```

```java
@Override

public boolean onCreateOptionsMenu(Menu menu) {

// Inflate the menu; this adds items to the action bar ifit is

present.

//getMenuInflater().inflate(R.menu.menu_main, menu);return

true;

}


@Override

public boolean onOptionsItemSelected(MenuItem item) {

// Handle action bar item clicks here. The action bar will


// automatically handle clicks on the Home/Up button, solong

// as you specify a parent activity in

AndroidManifest.xml.

int id = item.getItemId();


//noinspection SimplifiableIfStatement

/* if (id == R.id.action_settings) {

return true;

}*/


return super.onOptionsItemSelected(item);

}

}
```

DATABASEHELPER.JAVA

package com.example.dbtest;

import android.content.ContentValues;

import android.content.Context; import

android.database.Cursor;

import android.database.sqlite.SQLiteDatabase; import

android.database.sqlite.SQLiteOpenHelper;

public class DatabaseHelper extends SQLiteOpenHelper { public

static final String DATABASE_NAME = "Student.db";public static

final String TABLE_NAME = "student_table"; public static final

String COL_1 = "ID";

public static final String COL_2 = "NAME"; public

static final String COL_3 = "SURNAME";public static

final String COL_4 = "MARKS";

public DatabaseHelper(Context context) {

super(context, DATABASE_NAME, null, 1);

}

@Override

public void onCreate(SQLiteDatabase db) {

db.execSQL("create table " + TABLE_NAME +" (ID INTEGER PRIMARY KEY

AUTOINCREMENT,NAME TEXT,SURNAME TEXT,MARKS INTEGER)");

}

@Override

public void onUpgrade(SQLiteDatabase db, int oldVersion, int

newVersion) {

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```java
db.execSQL("DROP TABLE IF EXISTS "+TABLE_NAME);


onCreate(db);
}


public boolean insertData(String name,String surname,String marks) {SQLiteDatabase

db = this.getWritableDatabase();

ContentValues contentValues = new ContentValues();

contentValues.put(COL_2,name);

contentValues.put(COL_3,surname);

contentValues.put(COL_4,marks);

long result = db.insert(TABLE_NAME,null ,contentValues);

if(result == -1)

return false;

else

return true;
}


public Cursor getAllData() {

SQLiteDatabase db = this.getWritableDatabase();

Cursor res = db.rawQuery("select * from "+TABLE_NAME,null);

return res;
}


public boolean updateData(String id,String name,String surname,Stringmarks) {

SQLiteDatabase db = this.getWritableDatabase();

ContentValues contentValues = new ContentValues();

contentValues.put(COL_1,id);

contentValues.put(COL_2,name);
```

```java
contentValues.put(COL_3,surname);

contentValues.put(COL_4,marks);

db.update(TABLE_NAME, contentValues, "ID = ?",new String[]

{ id });


return true;

}


public Integer deleteData (String id) { SQLiteDatabase

db = this.getWritableDatabase();

return db.delete(TABLE_NAME, "ID = ?",new String[] {id});

}

}
```

OUTPUT: