

**FEDERAL INSTITUTE OF
SCIENCE AND TECHNOLOGY
(FISAT)TM**

HORMIS NAGAR, MOOKKANNOOR

ANGAMALY-683577



'FOCUS ON EXCELLENCE'

MOBILE APPLICATION DEVELOPMENT

.....
LABORATORY RECORD

Name: DEMINA DAVIS

Branch: MASTER OF COMPUTER APPLICATION

Semester: 3 Batch: A

Roll No: 41

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Semester : 3

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University Exam.Reg. No: FIT20MCA-2041

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 **DEMINA DAVIS** 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

Name:

Date:

Signature of H.O.D

Name:

Date of University practical examination

Signature of

Internal Examiner

Signature of

External Examiner

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AIM

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

Programming Code:

MainActivity.java

```
package com.example.calculator;
import androidx.appcompat.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 = "";
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        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);
        btnAdd.setOnClickListener(this);
        btnSub.setOnClickListener(this);
        btnMult.setOnClickListener(this);
        btnDiv.setOnClickListener(this);
    }
}
```

```

@Override
public void onClick(View v) {
    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());
    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;
    }
    tvResult.setText(num1 + " " + oper + " " + num2 + " = " + result);
}
}

```

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="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"
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>
```

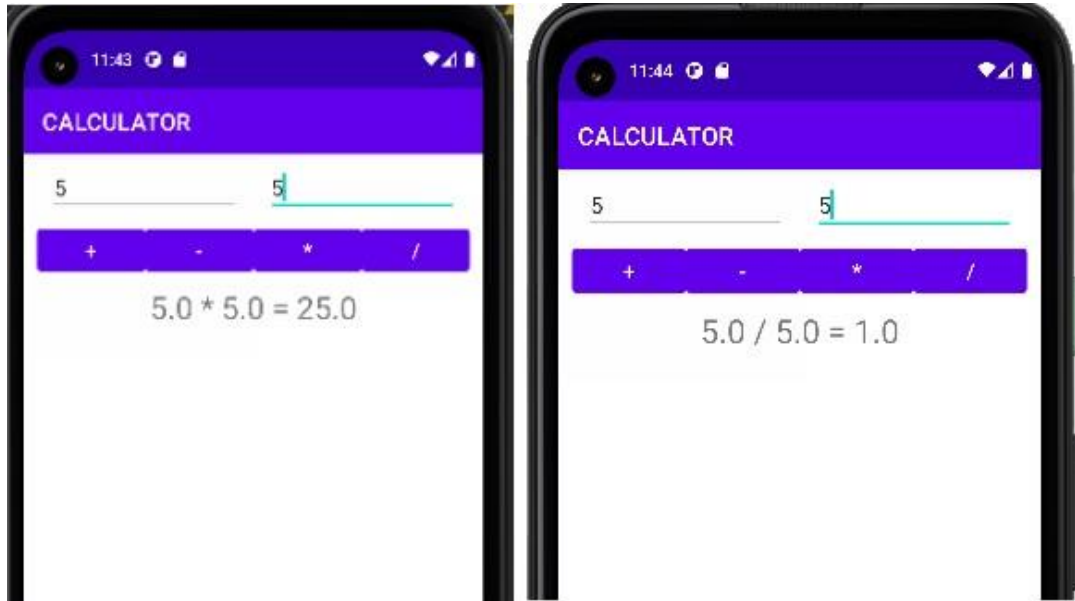
```
</LinearLayout>
```

```
<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



AIM

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

Programming Code:**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="fill_parent"
    android:layout_height="fill_parent"
    android:background="#E1B04C"
    android:orientation="vertical"
    android:weightSum="1">
    <LinearLayout
        android:id="@+id/linearLayout5"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginLeft="5pt"
        android:layout_marginTop="5pt"
        android:layout_marginRight="5pt">
        <TextView
            android:id="@+id/id1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:capitalize="words"
            android:text="Concatination"
            android:textAlignment="center"
            android:textAllCaps="true"
            android:textSize="20sp"
            tools:ignore="InvalidId" />
        </LinearLayout>
        <LinearLayout
            android:id="@+id/linearLayout1"
            android:layout_width="match_parent"
            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="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginRight="5pt"
    android:layout_weight="1"
    android:hint="String 1"
    android:inputType="text"></EditText>
<EditText
    android:id="@+id/etNum2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginLeft="5pt"
    android:layout_weight="1"
    android:hint="String 2"
    android:inputType="text"></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/button"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="concat"
        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:textColor="#19AC2D"
        android:textSize="12pt"></TextView>

```

</LinearLayout>

MainActivity.java

```
package com.example.concatination;

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 etNum1;
    EditText etNum2;
    Button button;
    TextView tvResult;

    @Override
    public void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        etNum1 = (EditText) findViewById(R.id.etNum1);
        etNum2 = (EditText) findViewById(R.id.etNum2);
        button = (Button) findViewById(R.id.button);
        tvResult = (TextView) findViewById(R.id.tvResult);
        button.setOnClickListener(this);
    }

    @Override
    public void onClick(View v) {
        String num1;
        String num2;

        if (TextUtils.isEmpty(etNum1.getText().toString())
```

```
|| TextUtils.isEmpty(etNum2.getText().toString())) {  
return;  
}  
num1 = etNum1.getText().toString();  
num2 = etNum2.getText().toString();  
switch (v.getId()) {  
case R.id.button:  
tvResult.setText(num1 + num2 );  
break;  
default:  
break;  
}  
}  
}
```

Output



AIM

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

Programming Code:**Activity main.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:background="#3779A5"
    android:orientation="vertical"
    android:weightSum="1">
    <LinearLayout
        android:id="@+id/linearLayout1"
        android:layout_width="match_parent"
        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:hint="Enter the value here"
            android:inputType="numberDecimal"
            android:textColor="#FFFFFF"></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="wrap_content"
        android:layout_height="wrap_content"
        android:layout_weight="2"
        android:background="#7C3C3C"
        android:text="Factorial"
        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:textColor="#FFFFFF"
    android:textSize="12pt"></TextView>
</LinearLayout>
```


MainActivity.java

```

package com.example.factorial;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.TextView;

public class MainActivity extends AppCompatActivity implements
View.OnClickListener{

    EditText etNum1;

    Button btnAdd;

    TextView tvResult;

    String oper = "";

    @Override

    public void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

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

        btnAdd = (Button) findViewById(R.id.btnAdd);

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

        btnAdd.setOnClickListener(this);

    }

    @Override

    public void onClick(View v) {

        float num1=0;

        float fact=1;

        float result = 0;

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

        switch (v.getId()) {

            case R.id.btnAdd:

                oper = "+";

                for(int i=1;i<=num1;i++)

```

```
{  
    fact=fact*i;  
}  
result=fact;  
break;  
default:  
break;  
}  
tvResult.setText("Factorial of" + " " + num1 + " = " + result);  
}  
}
```

Output



AIM

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

Programming Code:

MainActivity.java

```
package com.example.shapes;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
// import android.support.v7.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(new com.example.shapes.custom(this));
    }
}
```

custom.java

```
package com.example.shapes;
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 custom extends View {
    int x;
    int y;
    private Rect rectangle;
```

```
private Paint paint, p1,p2;
public custom(Context context) {
    super(context);
    x = 200;
    y = 50;
    int width = 800;
    int height = 500;
    rectangle = new Rect(x, y, width, height);
    // create the Paint and set its color
    paint = new Paint();
    paint.setColor(Color.BLACK);
    p1 = new Paint();
    p2 = new Paint();
    p1.setColor(Color.GREEN);
    p2.setColor(Color.RED);
}
@Override
protected void onDraw(Canvas canvas) {
    canvas.drawColor(Color.BLUE);
    canvas.drawRect(rectangle, paint);
    canvas.drawCircle(500, 200 , 100, p1);
    canvas.drawOval(500, 800 , 100,650, p2);
}}
```

OUTPUT:



AIM

5. Create an application to show happy face smiley and sad face smiley to demonstrate button click events.

Programming code:**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="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="vertical"
    tools:context=".MainActivity">
    <com.example.smily.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>
```

Activity sec.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.smily.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>

```

Mainactivity.java

```

package com.example.smily;
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);
    }
}

```

Mainactivity2.java

```
package com.example.smily;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import com.example.smily.databinding.ActivityMain2Binding;
import androidx.appcompat.app.AppCompatActivity;
import androidx.navigation.ui.AppBarConfiguration;
public class MainActivity2 extends AppCompatActivity {
    Button button1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_sec);
        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);
    }
}
```


FaceView.java

```
package com.example.smily;
import android.content.Context;
import android.graphics.Canvas;
import android.graphics.Color;
import android.graphics.Paint;
import android.graphics.RectF;
import android.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;
    private float radius;
    private float strokeWidth = 20;
    private float defaultScale = 0.90f;
    private float 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
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 right
bottom
canvas.drawArc(oval, 10, 150, false, mPaint); // happy face.
}
}

```

FaceView2.java

```
package com.example.smily;

import android.content.Context;
import android.graphics.Canvas;
import android.graphics.Color;
import android.graphics.Paint;
import android.graphics.RectF;
import android.util.AttributeSet;
import android.view.View;

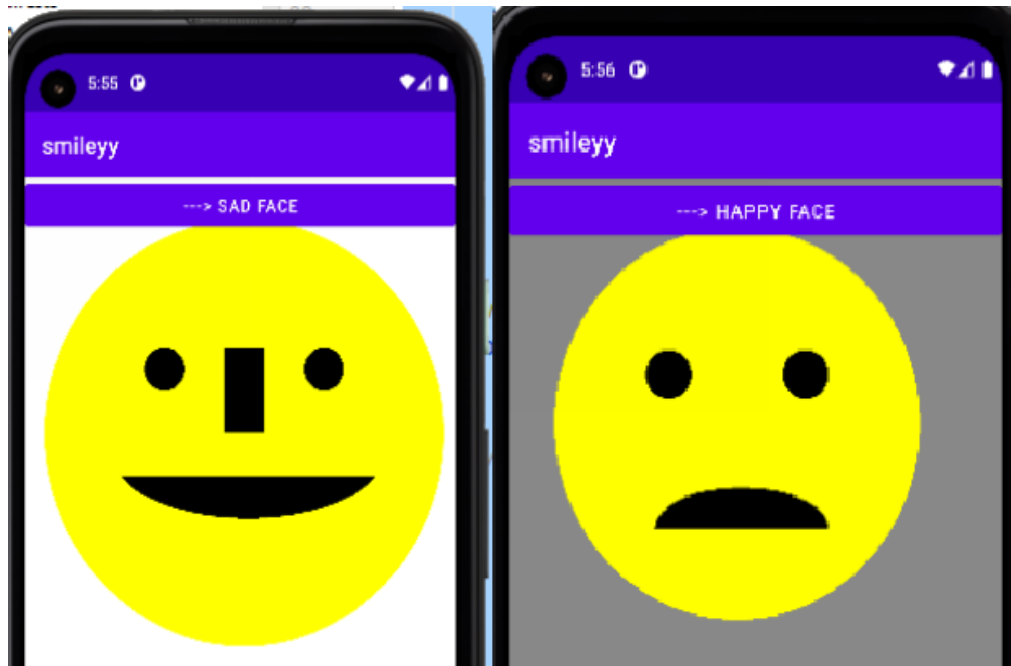
public class FaceView2 extends View {
    private static final String COLOR_HEX = "WHITE";
    private final Paint mPaint;
    private float xPosition;
    private float yPosition;
    private float radius;
    private float strokeWidth = 20;
    private float defaultScale = 0.90f;
    private float 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);
// 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 + 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 / 5,
rightEyeXPosition, (float) (yPosition + yPosition / 2)); // left top right
bottom
canvas.drawArc(oval, 200, 140, false, mPaint); // sad face.
}
}

```

output



AIM

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

Programming code:**Activity main.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"
    tools:ignore="MissingConstraints" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

Activitysec.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=".MainActivity2">
<Button
android:id="@+id/button2"
android:layout_width="263dp"
android:layout_height="53dp"
android:text="go back to 1st activity"
tools:layout_editor_absoluteX="74dp"
tools:layout_editor_absoluteY="219dp"
tools:ignore="MissingConstraints" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.intents;
import androidx.appcompat.app.AppCompatActivity;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.content.Intent;
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);
    }
}

```



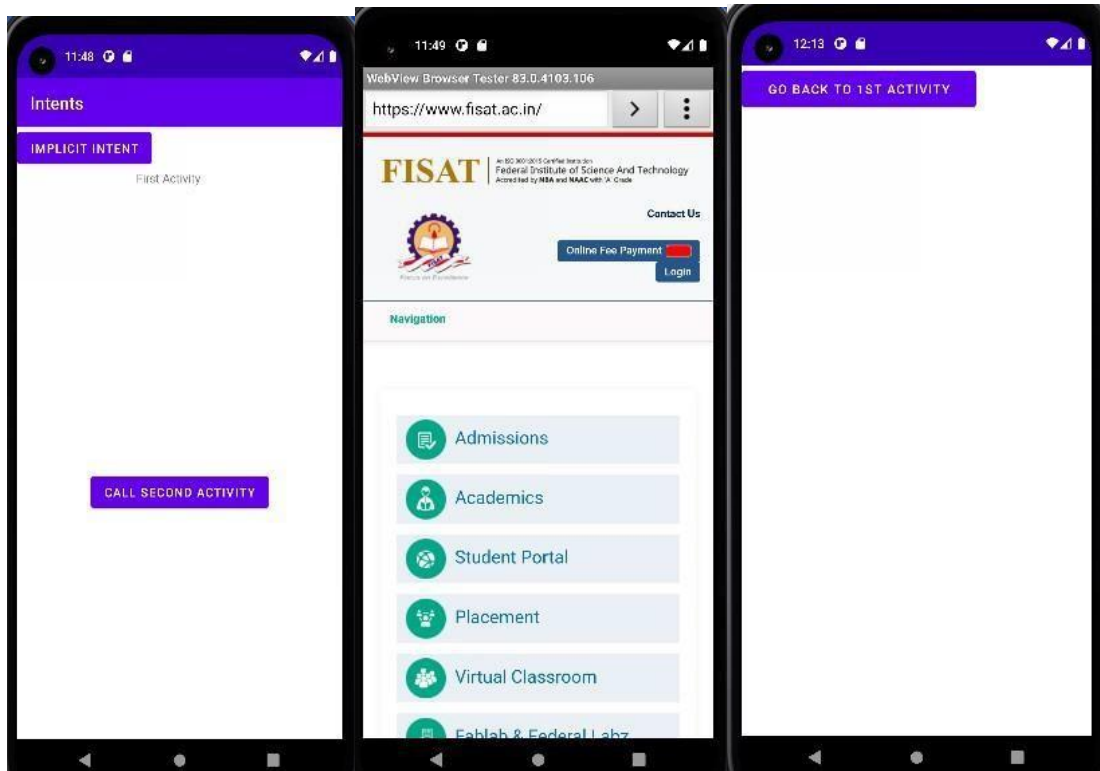
```
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
button=findViewById(R.id.button);
//button.setOnClickListener(this);
}
public void show(View view){
Intent intent = new Intent(Intent.ACTION_VIEW);
intent.setData(Uri.parse("https://www.fisat.ac.in"));
startActivity(intent);
}
public void callSecondActivity(View view){
Intent i=new Intent(getApplicationContext(),MainActivity2.class);
startActivity(i);
}
}
```

MainActivity2.java

```
package com.example.intents;
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 button;
@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activitysec);
Bundle extras = getIntent().getExtras();
button=findViewById(R.id.button);
}
```

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

Output



AIM

7. Create an android application to demonstrate storing data into internal phone memory.

Programming code:**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:id="@+id/activity_main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context="com.example.internalstorage.MainActivity">
    <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"

<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>

```

Activity second.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.internalstorage.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" />
    <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>

```

MainActivity.java

```

package com.example.internalstorage;
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;
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);
}
```

MainActivity2.java

```
package com.example.internalstorage;

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;

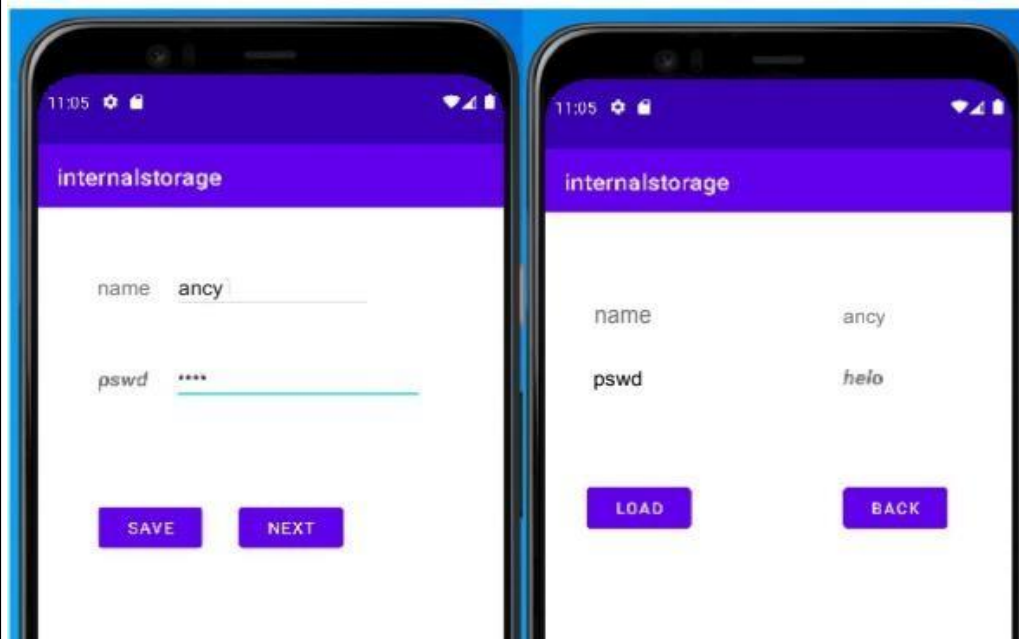
public class MainActivity2 extends AppCompatActivity {
    TextView getname, getpass;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_second);
        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();
}
public void back( View view)
{
Toast.makeText(this,"Back", Toast.LENGTH_SHORT).show();
Intent intent= new Intent(this, MainActivity.class);
startActivity(intent);
}
}
```

OUTPUT:



AIM

8. Create an android application to demonstrate GridView.

Programming code:

Activity msin.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="4"
    android:verticalSpacing="10dp"
    android:horizontalSpacing="10dp"
    android:stretchMode="columnWidth"
    android:gravity="center"
/>
```

MainActivity.java

```
package com.example.imageadaptor;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.app.Activity;
import android.view.Menu;
import android.view.View;
import android.widget.GridView;
public class MainActivity extends AppCompatActivity {
```

```

@Override

protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    GridView gridView = (GridView)
    findViewById(R.id.gridview);
    gridView.setAdapter(new imageadaptor(this));
}
}

```

imageadaptor.java

```

package com.example.imageadaptor;
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 imageadaptor extends BaseAdapter {
    private Context mContext;
    // Constructor
    public imageadaptor(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(200, 150));
            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 array
    public Integer[] picIds = {
        R.drawable.a,
        R.drawable.b,
        R.drawable.c,
        R.drawable.d,
        R.drawable.e,
        R.drawable.f,
        R.drawable.d,
        R.drawable.h,
        R.drawable.a,
    }

```

```
R.drawable.b,  
R.drawable.c,  
R.drawable.d,  
R.drawable.a,  
R.drawable.b,  
R.drawable.c,  
R.drawable.d,  
R.drawable.e,  
R.drawable.f,  
R.drawable.d,  
R.drawable.h,  
R.drawable.a,  
R.drawable.b,  
R.drawable.c,  
R.drawable.d,  
};  
}
```

Output



AIM

9. Demonstrate Image View and Grid View

Programming code:

Activity main.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="30dp"
    android:horizontalSpacing="5dp"
    android:stretchMode="columnWidth"
    android:gravity="center"
/>
```

MainActivity.java

```
package com.example.pgm91;
import androidx.appcompat.app.AppCompatActivity;
import android.app.Activity;
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, int position, long id)
        {
            // Send intent to SingleViewActivity
            Intent i = new Intent(getApplicationContext(),
                SingleViewActivity.class);
            // Pass image index
            i.putExtra("id", position);
            startActivity(i);
        }
    });
}
```

ImageAdapter.java

```
package com.example.pgm91;
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;
    }
    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;
}

public Integer[] picIds = {
    R.drawable.a,
    R.drawable.b,
    R.drawable.c,
    R.drawable.d,
    R.drawable.e,
};
}

```

activity_single_view.xml

```

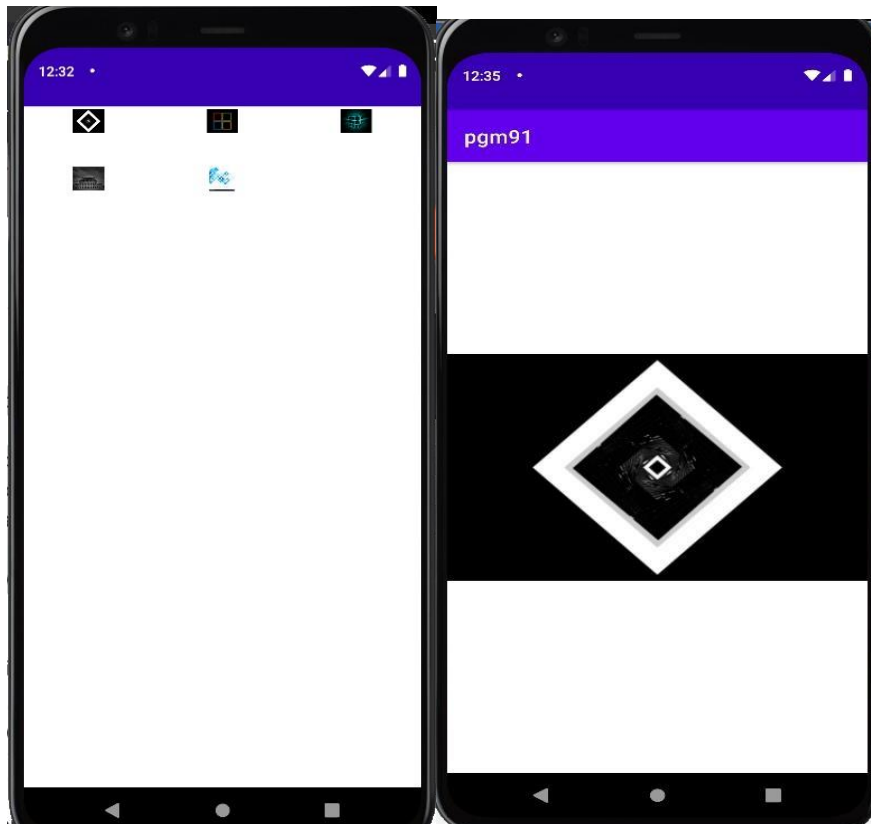
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical" >
    <ImageView android:id="@+id/SingleView"
        android:layout_width="fill_parent"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

```

SingleViewActivity.java

```
package com.example.pgm91;
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);
        Intent i = getIntent();
        int position = i.getExtras().getInt("id");
        ImageAdapter imageAdapter = new ImageAdapter(this);
        ImageView imageView = (ImageView)
            findViewById(R.id.SingleView);
        imageView.setImageResource(imageAdapter.picIds[position]);
    }
}
```

Output



AIM

10. Demonstration of Toggle Button.

Programming code**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/buttonback" />
    <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>
```

MainActivity.java

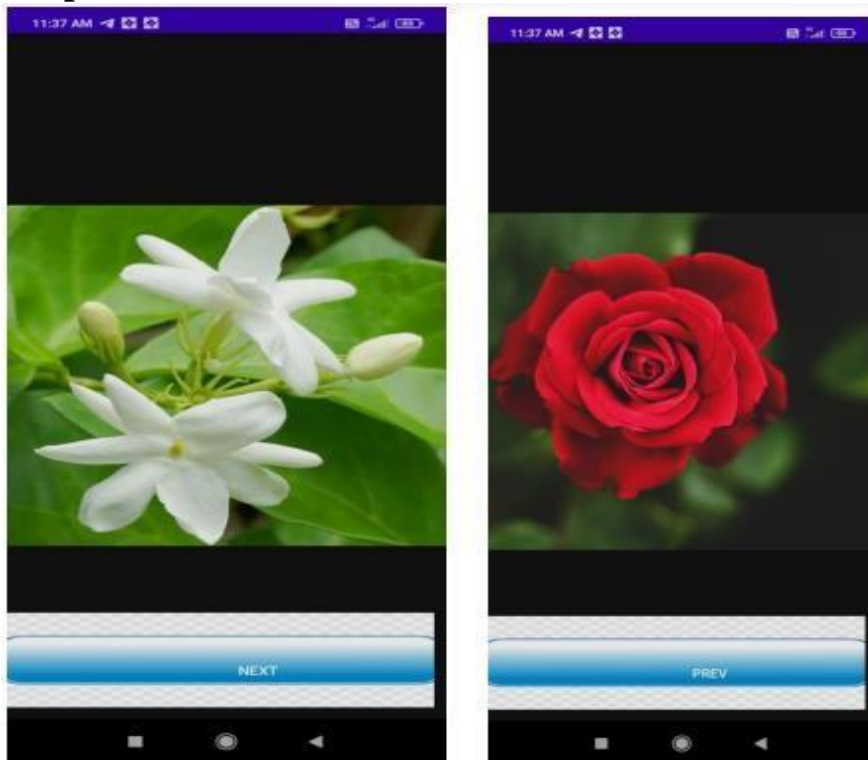
```
package com.example.pgm10;
import android.app.Activity;
import android.view.View;
import android.widget.Button;
import android.widget.ImageView;
import android.os.Bundle;
public class MainActivity extends Activity {
String s = "Next";
@Override
protected void onCreate(Bundle
savedInstanceState) {
// 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(new
View.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.piq2);
Button next= (Button)
```



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

Output



AIM

11. Demonstration of options menu.

Programming code:**MainActivity.java**

```
package com.example.optionmenu;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.widget.Toast;
import static android.widget.Toast.LENGTH_LONG;

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

    public boolean onCreateOptionsMenu(Menu menu)
    {
        getMenuInflater().inflate(R.menu.options_menu, menu);
        return true;
    }

    public boolean onOptionsItemSelected(MenuItem item)
    {
        switch (item.getItemId()) {
            case R.id.message:
                Toast.makeText(getApplicationContext(), "Shows share icon",
                    Toast.LENGTH_SHORT).show();
                return true;
        }
    }
}
```

```

case R.id.picture:
    Toast.makeText(getApplicationContext(),"Shows image icon",
        Toast.LENGTH_SHORT).show();
    return (true);
case R.id.mode:
    Toast.makeText(getApplicationContext(),"Shows call icon",
        Toast.LENGTH_SHORT).show();
    return (true);
case R.id.about:
    Toast.makeText(getApplicationContext(),"calculator menu",
        Toast.LENGTH_SHORT).show();
    return (true);
case R.id.exit:
    finish();
    return (true);
}
return (super.onOptionsItemSelected(item));
}
}

```

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">

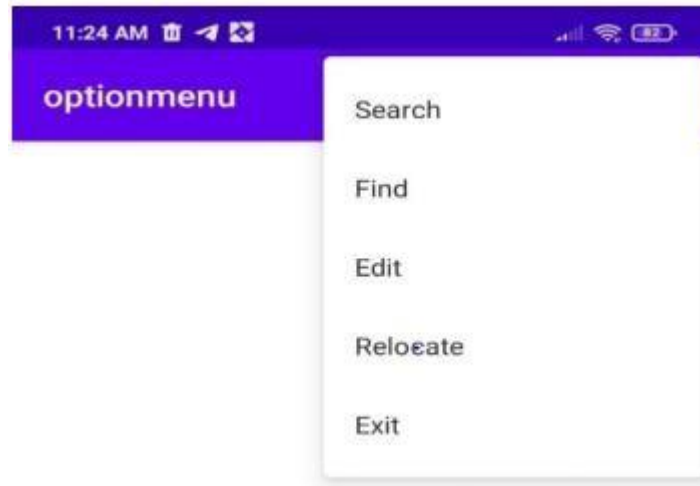
```

```

</androidx.constraintlayout.widget.ConstraintLayout>
options_menu.xml
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android"
      xmlns:app="http://schemas.android.com/apk/res-auto">
  <item
    android:id="@+id/message"
    android:icon="@android:drawable/ic_menu_send"
    app:showAsAction="always"
    android:title="message"/>
  <item
    android:id="@+id/picture"
    android:icon="@android:drawable/ic_menu_gallery"
    app:showAsAction="always|withText"
    android:title="picture"/>
  <item
    android:id="@+id/mode"
    android:icon="@android:drawable/ic_menu_call"
    app:showAsAction="always"
    android:title="mode"/>
  <item
    android:id="@+id/about"
    android:icon="@android:drawable/ic_dialog_info"
    app:showAsAction="never|withText"
    android:title="calculator"/>
  <item
    android:id="@+id/exit"
    app:showAsAction="never"
    android:title="exit"/>
</menu>

```

output




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

@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, View
view, 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 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" />
    <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

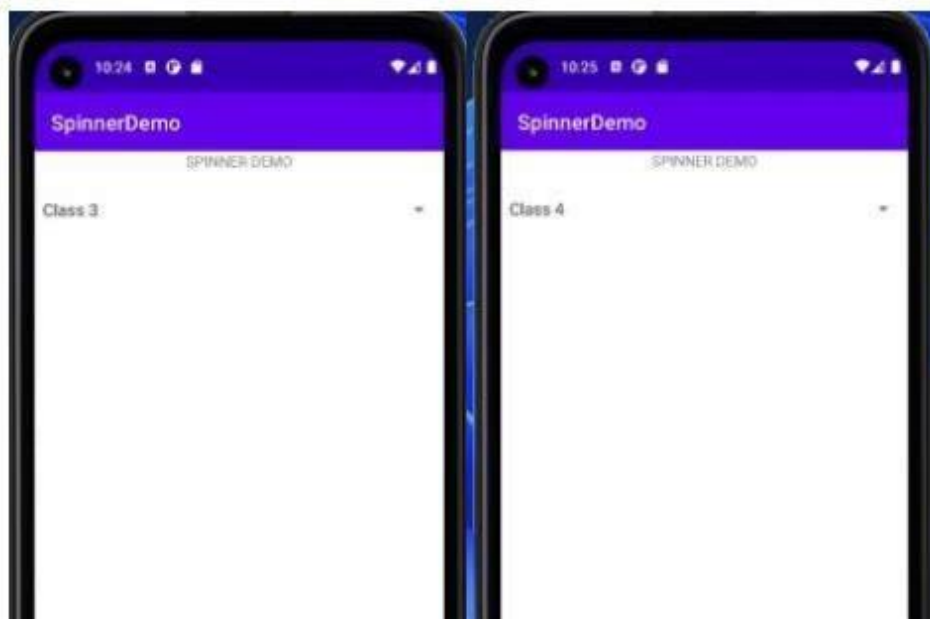
```

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

```

```
</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



AIM

13: Database application using SQLite.

Programming code:

Activity main.xml

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

```

package com.example.pgm13;

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;

    @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();
        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(  
        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) {  
                    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");
    }
    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();
}

@Override
public boolean onCreateOptionsMenu(Menu menu) {
    // Inflate the menu; this adds items to the action bar if it is present.
    //getMenuInflater().inflate(R.menu.menu_main, menu);

    return true;
}

```

```

@Override

    public boolean onOptionsItemSelected(MenuItem item) {
        int id = item.getItemId();
        return super.onOptionsItemSelected(item);
    }
}

```

Databasehelper.java

```

package com.example.pgm13;
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) {
    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,String
    marks) {
    SQLiteDatabase db = this.getWritableDatabase();
    ContentValues contentValues = new ContentValues();
    contentValues.put(COL_1,id);

    contentValues.put(COL_2,name);
    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

