SRI SHANMUGHA COLLEGE OF ENGINEERING AND TECHNOLOGY

(APPROVED BY AICTE, NEW DELHI & AFFILIATED TO ANNA UNIVERSITY AND ACCREDITED BY NAAC & NBA(ECE,CSE,MECH)
Tiruchengode-Sankari Main Road, Pullipalayam, Morur(Po),Sankari (Tk), Salem (Dt) Pin: 637 304

RECORD NOTE BOOK

MOBILE APPLICATION DEVELOPMENT LABORATORY

(CS8662)

NAME :

REG NO :

YEAR :

SRI SHANMUGHA COLLEGE OF ENGINEERING AND TECHNOLOGY

(APPROVED BY AICTE, NEW DELHI & AFFILIATED TO ANNA UNIVERSITYAND ACCREDITED BY NAAC & NBA(ECE,CSE,MECH)
Tiruchengode-Sankari Main Road, Pullipalayam, Morur(Po),Sankari (Tk), Salem (Dt) Pin: 637 304

RECORD NOTE BOOK

REG NO. _____

Certified that this is a bonafide record of Practical work done by

Mr/Ms …… of the ……

Semester …….. Branch during the Academic year ……

in the.....Laboratory

Staff-in-charge Head of the Department

Submitted for the Anna University Practical Examination held on……..

Internal Examiner External Examiner

LIST OF EXPERIMENT

S.No	Date	Name Of Experiment	Page No	Staff Signature	Remark
1		Develop an application that uses GUI Components, Fonts and Colors			
2		Develop an application that uses Layout Managers and Event Listeners			
3		Write an application that draws basic graphical primitives on the screen			
4		Develop an application that makes use of database			
5		Develop an application that makes use of Notification Manager Date			
6		Develop an application that makes use of Notification Manager Date			
7		Develop a native application that uses GPS location information			
8		Implement an application that writes data to the SD card			
9		Implement an application that creates an alert upon receiving a message			
10		Develop an application that makes use of RSS Feed			
11		Develop a mobile application to send an email			
12		Develop a Mobile application for simple needs (Mini Project)			

Ex. No:1 Date :	**Develop an application that uses GUI Components, Fonts and Colors**

AIM:

To develop an application that uses GUI Components, Fonts and Colors.

PROCEDURE:

1. Open Eclipse IDE.
2. Create the project Ex_No_1.
3. Go to package explorer in the left hand side. Select the project Ex_No_1.
4. Go to res folder and select layout. Double click the activity_main.xml file.
5. Now you can see the Graphical layout window.
6. Drag and drop the following components:
    a. One TextView with text MAD Lab
    b. Three Buttons with labeled as Change Font Size, Change Font Color and Change Font Style
7. Again go to package explorer in the left hand side. Select the project Ex_No_1.
8. Go to src folder. Double click the MainActivity.java file.
9. In java file write the activities done by the application such as, actions of buttons.
10. Finally run the android application.

PROGRAMS:

activity_main.xml:

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent" android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="com.example.ex_no_1.MainActivity" >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="53dp"
        android:text="MAD Lab"
        android:textAppearance="?android:attr/textAppearanceLarge"
        tools:ignore="HardcodedText" />

    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_alignParentRight="true"
        android:layout_below="@+id/textView1"
        android:layout_marginTop="64dp"
```

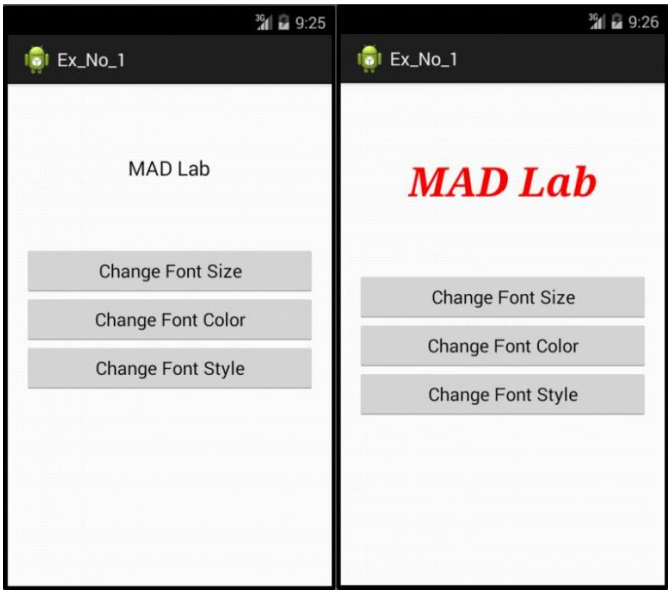
```
        android:text="Change Font Size"
        tools:ignore="HardcodedText" />

    <Button
        android:id="@+id/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_alignParentRight="true"
        android:layout_below="@+id/button1"
        android:text="Change Font Color"
        tools:ignore="HardcodedText" />
    <Button
        android:id="@+id/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_alignParentRight="true"
        android:layout_below="@+id/button1"
        android:text="Change Font Color"
        tools:ignore="HardcodedText" />

    <Button
        android:id="@+id/button3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_alignParentRight="true"
        android:layout_below="@+id/button2"
        android:text="Change Font Style"
        tools:ignore="HardcodedText" />
</RelativeLayout>
```

MainActivity.java:

```
package com.example.ex_no_1;
import android.support.v7.app.ActionBarActivity;
import android.graphics.Color;
import android.graphics.Typeface;
import android.os.Bundle;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.TextView;
public class MainActivity extends ActionBarActivity {
      float font =
      20; int count
      = 1; Button
      b1,b2,b3;
      @Override
      protected void onCreate(Bundle savedInstanceState) {
            super.onCreate(savedInstanceState);
            setContentView(R.layout.activity_main);
            final TextView t1 = (TextView)
            findViewById(R.id.textView1); t1.setTextSize(15);
            b1 = (Button) findViewById(R.id.button1);
            b1.setOnClickListener(new OnClickListener() {
                  public void onClick(View
                        view) {
```

```
        t1.setTextSize(font); font =
                font + 5;
                if (font == 50)
                 font = 20;
        }
});
b2 = (Button) findViewById(R.id.button2);
b2.setOnClickListener(new View.OnClickListener() {
        public void onClick(View view) {
                switch (count) {
                case 1:
                        t1.setTextColor(Color.parseColor("#7f00ff"));
                        break;
                case 2:
                        t1.setTextColor(Color.parseColor("#00FF00"));
                        break;
                case 3:
                        t1.setTextColor(Color.parseColor("#FF0000"));
                        break;
                case 4:
                        t1.setTextColor(Color.parseColor("#0000FF"));

                        break;

        }
});
```

OUTPUT:



RESULT:

Thus the application that uses GUI Components, Fonts and Colors has been developed and the output was verified.

Ex. No:2 Date :	**Develop an application that uses Layout Managers and Event Listeners**

AIM:

To develop an application that uses Layout Managers and Event Listeners.

PROCEDURE:

1. Open Eclipse IDE.
2. Create the project Ex_No_2.
3. Go to package explorer in the left hand side. Select the project Ex_No_2.
4. Go to res folder and select layout. Double click the activity_main.xml file.
5. Now you can see the Graphical layout window.
6. Drag and drop the following components:
    a. Four TextViews with texts as Name, Gender, Degree and Programming Knowledge
    b. One EditText
    c. One Spinner
    d. One RadioGroup with two RadioButtons labeled as B.E. CSE and B.Tech. IT
    e. One RatingBar
    f. One Button with labeled as SUBMIT
7. Again go to package explorer in the left hand side. Select the project Ex_No_2.
8. Go to src folder. Double click the MainActivity.java file.
9. In java file write the activities done by the application such as, actions of button.
10. Finally run the android application.

PROGRAMS:

activity_main.xml:

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent" android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="com.example.ex_no_2.MainActivity" >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_alignParentTop="true"
        android:text="Name"
        android:textAppearance="?android:attr/textAppearanceMedium"
        tools:ignore="HardcodedText" />

    <EditText
        android:id="@+id/editText1"
        android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"



    android:layout_alignTop="@+id/textView1"
    android:layout_marginLeft="14dp"
    android:layout_toRightOf="@+id/textView1"
    android:ems="10" tools:ignore="TextFields"
    >
    <requestFocus />
</EditText>
<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentLeft="true"
    android:layout_below="@+id/editText1"
    android:layout_marginTop="14dp"
    android:text="Gender"
    android:textAppearance="?android:attr/textAppearanceMedium"
    tools:ignore="HardcodedText" />

<Spinner
    android:id="@+id/spinner1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/editText1"
    android:layout_alignTop="@+id/textView2"
    android:entries="@array/Gender" />
    <TextView
    android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentLeft="true"
    android:layout_below="@+id/spinner1"
    android:text="Degree"
    android:textAppearance="?android:attr/textAppearanceMedium"
    tools:ignore="HardcodedText" />
<RadioGroup
    android:id="@+id/radioGroup1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/spinner1"
    android:layout_below="@+id/spinner1" >

    <RadioButton
        android:id="@+id/radio0"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:checked="true"
        android:text="B.E. CSE"
        tools:ignore="HardcodedText" />
    <RadioButton
        android:id="@+id/radio1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="B.Tech IT"
        tools:ignore="HardcodedText" />
```

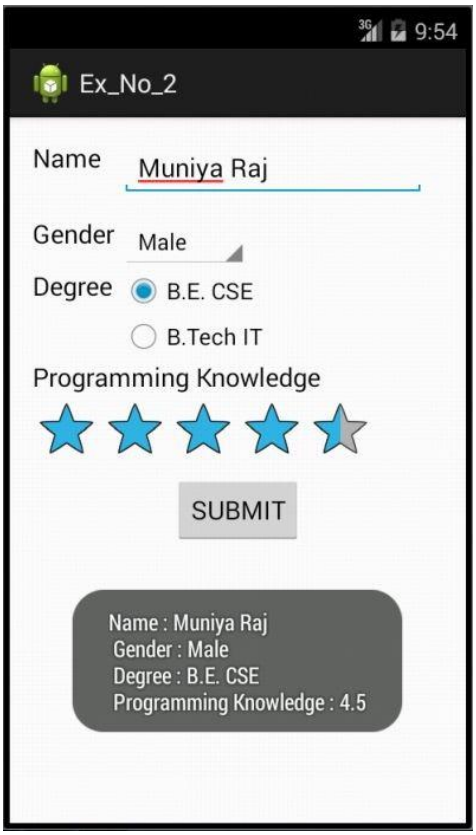
```
    </RadioGroup>



    <RatingBar
        android:id="@+id/ratingBar1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignLeft="@+id/textView4"
        android:layout_below="@+id/textView4" />

    <TextView
        android:id="@+id/textView4"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignLeft="@+id/textView3"
        android:layout_below="@+id/radioGroup1"
        android:text="Programming Knowledge"
        android:textAppearance="?android:attr/textAppearanceMedium"
        tools:ignore="HardcodedText" />

    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/ratingBar1"
        android:layout_centerHorizontal="true"
        android:text="SUBMIT"
        tools:ignore="HardcodedText" />

</RelativeLayout>
```

MainActivity.java:

```
package com.example.ex_no_2;
import android.support.v7.app.ActionBarActivity;
import android.os.Bundle;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.RadioGroup.OnCheckedChangeListener;
import android.widget.RatingBar;
import android.widget.RatingBar.OnRatingBarChangeListener;
import android.widget.Spinner;
import android.widget.Toast;
public class MainActivity extends ActionBarActivity {
        String name,gender,dept;
        float prog;
        @Override
        protected void onCreate(Bundle savedInstanceState) {
                super.onCreate(savedInstanceState);
                setContentView(R.layout.activity_main);
                final EditText
                e=(EditText)findViewById(R.id.editText1);
```

```
RadioGroup
rg=(RadioGroup)findViewById(R.id.radioGroup1);
final RadioButton
r1=(RadioButton)findViewById(R.id.radio0);
final RadioButton


r2=(RadioButton)findViewById(R.id.radio1);
final Spinner
s=(Spinner)findViewById(R.id.spinner1); RatingBar
rb=(RatingBar)findViewById(R.id.ratingBar1);
Button b=(Button)findViewById(R.id.button1);
rg.setOnCheckedChangeListener(
                new OnCheckedChangeListener()
                {
                        @Override
                        public void onCheckedChanged(RadioGroup arg0, int arg1) {
                                // TODO Auto-generated method stub
                                if(r1.isChecked()==true)
                                        dept="B.E. CSE";
                                if(r2.isChecked()==true)
                                        dept="B.Tech IT";
                        }
                });
        rb.setOnRatingBarChangeListener(
                new OnRatingBarChangeListener()
                {
                        @Override
                        public void onRatingChanged(RatingBar arg0, float arg1,
                                        boolean arg2) {
                                // TODO Auto-generated method stub

                               prog=arg1;
                        }
                });
        b.setOnClickListener(
                new OnClickListener()
                {
                        @Override
                        public void onClick(View arg0) {
                                // TODO Auto-generated method stub
                                name=e.getText().toString();
                                gender=s.getSelectedItem().toString();
                                Toast.makeText(getApplicationContext(), "Name:
"+name+"\n  Gender  :  "+gender+"\n Degree  :  "+dept+"\n Programming Knowledge :
        "+prog, Toast.LENGTH_LONG).show();
                        }
                });
        }
 }
```

OUTPUT:



RESULT:

Thus the application that uses Layout Managers and Event Listener has been developed and the output was verified.

Ex. No:3	**Write an application that draws basic graphical primitives on the screen**
Date :	

AIM:

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

PROCEDURE:

1. Open Eclipse IDE.
2. Create the project Ex_No_7.
3. Go to package explorer in the left hand side. Select the project Ex_No_7.
4. Go to res folder and select layout. Double click the activity_main.xml file.
5. Now you can see the Graphical layout window.
6. Drag and drop only one ImageView
7. Again go to package explorer in the left hand side. Select the project Ex_No_6.
8. Go to src folder. Double click the MainActivity.java file.
9. In java file write the activities done by the application such as drawing the graphical primitives.
10. Finally run the android application.

PROGRAMS:

activity_main.xml:

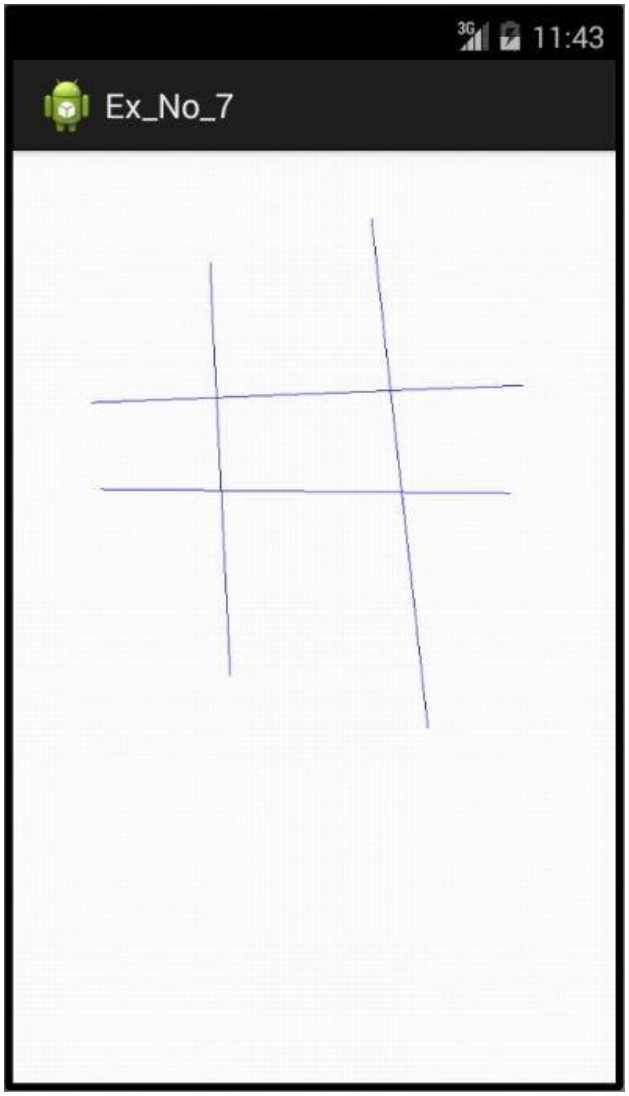
```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent" android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="com.example.ex_no_7.MainActivity" >

    <ImageView
        android:id="@+id/imageView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentBottom="true"
        android:layout_alignParentLeft="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentTop="true"
        android:src="@drawable/ic_launcher"
        tools:ignore="ContentDescription" />

</RelativeLayout>
```

MainActivity.java:

```
package com.example.ex_no_7;
import android.support.v7.app.ActionBarActivity;
import android.annotation.SuppressLint;
import android.graphics.Bitmap;
import android.graphics.Canvas;
import android.graphics.Color;
```

```
import android.graphics.Paint;
import android.os.Bundle;
import android.view.Display;
import android.view.MotionEvent;
import android.view.View;
import android.view.View.OnTouchListener;
import android.widget.ImageView;
@SuppressLint("ClickableViewAccessibility")
public class MainActivity extends ActionBarActivity implements OnTouchListener {
	ImageView iv;
	Bitmap b;
	Canvas c;
	Paint p;
	float dx=0,dy=0,ux=0,uy=0;
	@SuppressWarnings("deprecatio
	n")
	@Override
	protected void onCreate(Bundle savedInstanceState) {
		super.onCreate(savedInstanceState);
		setContentView(R.layout.activity_main);
		iv=(ImageView)this.findViewById(R.id.imageView1);
		Display d = getWindowManager().getDefaultDisplay();
		float dw = d.getWidth();
		float dh = d.getHeight();
		b = Bitmap.createBitmap((int) dw, (int) dh,Bitmap.Config.ARGB_8888); c =
		new Canvas(b);
		p = new Paint();
		p.setColor(Color.BLUE);
		iv.setImageBitmap(b);
		iv.setOnTouchListener(this);
	}

	@Override
	public boolean onTouch(View v, MotionEvent event) {
		// TODO Auto-generated method stub int
		action = event.getAction(); switch
		(action)
		{
			case MotionEvent.ACTION_DOWN:
					dx=event.getX();
					dy=event.getY();
					break;
			case MotionEvent.ACTION_MOVE:
					break;
			case MotionEvent.ACTION_UP:
					ux=event.getX();
					uy=event.getY();
					c.drawLine(dx, dy, ux, uy, p);
					iv.invalidate();
					break;
			case MotionEvent.ACTION_CANCEL:
					break;
			 default:

		}		Break;
	return true; }
}
```

OUTPUT:



RESULT:

Thus the application that draws basic graphical primitives on the screen has been developed and the output was verified.

Ex. No:4	**Develop an application that makes use of database**
Date :	

AIM:

To develop an application that makes use of database.

PROCEDURE:

1. Open Eclipse IDE.
2. Create the project Ex_No_4.
3. Go to package explorer in the left hand side. Select the project Ex_No_4.
4. Go to res folder and select layout. Double click the activity_main.xml file.
5. Now you can see the Graphical layout window.
6. Drag and drop the following components:
    a. Three TextViews with texts as Reg.No., Name and Marks
    b. Three EditTexts
    c. Five Buttons with labeled as ADD, VIEW, VIEW ALL, UPDATE and DELETE
7. Again go to package explorer in the left hand side. Select the project Ex_No_4.
8. Go to src folder. Double click the MainActivity.java file.
9. In java file write the activities done by the application such as, actions of button.
10. Finally run the android application.

PROGRAMS:

activity_main.xml:

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent" android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="com.example.ex_no_4.MainActivity" >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_alignParentTop="true"
        android:text="Reg. No."
        android:textAppearance="?android:attr/textAppearanceMedium"
        tools:ignore="HardcodedText" />

    <EditText
        android:id="@+id/editText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignTop="@+id/textView1"
        android:layout_toRightOf="@+id/textView1"
        android:ems="10"
        android:inputType="number">
<requestFocus />
```

```
</EditText>

<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/textView1"
    android:layout_below="@+id/editText1"
    android:layout_marginTop="20dp"
    android:text="Name"
    android:textAppearance="?android:attr/textAppearanceMedium"
    tools:ignore="HardcodedText" />

<TextView
    android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/textView2"
    android:layout_below="@+id/editText2"
    android:layout_marginTop="26dp"
    android:text="Marks"
    android:textAppearance="?android:attr/textAppearanceMedium"
    tools:ignore="HardcodedText" />

<EditText
    android:id="@+id/editText3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBottom="@+id/textView3"
    android:layout_alignLeft="@+id/editText2"
    android:ems="10"
    android:inputType="number" />

<EditText
    android:id="@+id/editText2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/textView2"
    android:layout_alignBottom="@+id/textView2"
    android:layout_alignLeft="@+id/editText1"
    android:ems="10"
    tools:ignore="TextFields" />

<Button
    android:id="@+id/button1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentLeft="true"
    android:layout_below="@+id/textView3"
    android:layout_marginTop="32dp"
    android:text="ADD"
    tools:ignore="HardcodedText" />
<Button
    android:id="@+id/button3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/button2"
    android:layout_alignBottom="@+id/button2"
    android:layout_alignParentRight="true"
    android:text="VIEW ALL"
```

```
        tools:ignore="HardcodedText" />



    <Button
        android:id="@+id/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignBaseline="@+id/button1"
        android:layout_alignBottom="@+id/button1"
        android:layout_alignLeft="@+id/editText3"
        android:layout_marginLeft="24dp"
        android:text="VIEW" tools:ignore="HardcodedText"
        />
    <Button
        android:id="@+id/button4"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignLeft="@+id/button1"
        android:layout_below="@+id/button1"
        android:layout_marginLeft="27dp"
        android:layout_marginTop="18dp"
        android:text="UPDATE"
        tools:ignore="HardcodedText" />

    <Button
        android:id="@+id/button5"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignBaseline="@+id/button4"
        android:layout_alignBottom="@+id/button4"
        android:layout_marginLeft="20dp"
        android:layout_toRightOf="@+id/button4"
        android:text="DELETE"
        tools:ignore="HardcodedText" />

</RelativeLayout>
```

MainActivity.java:

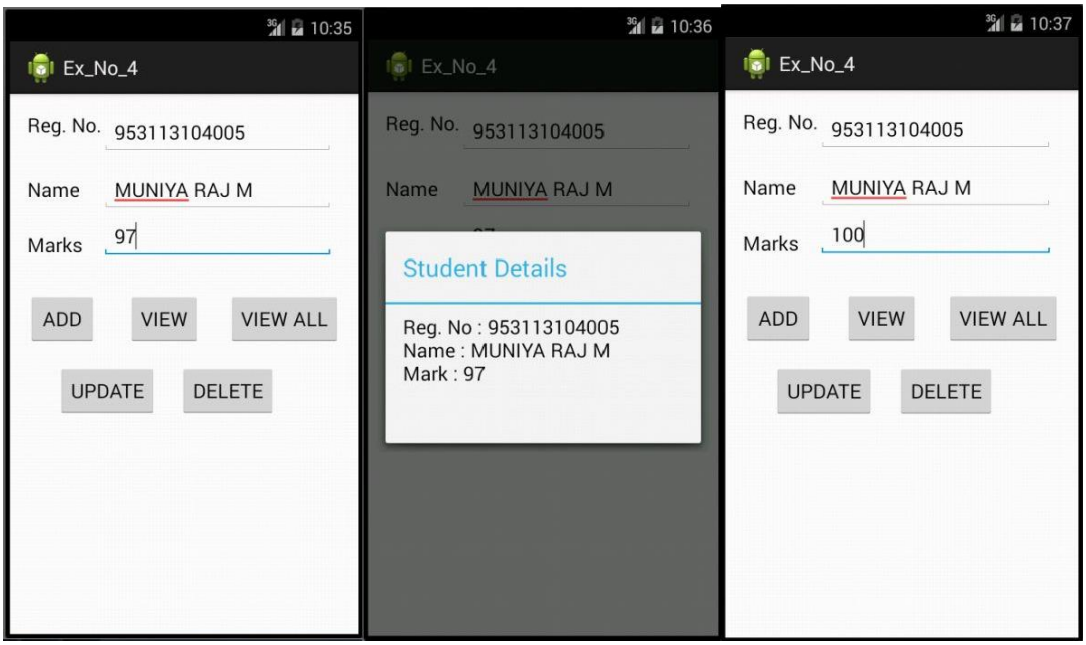
```
package com.example.ex_no_4;
import android.support.v7.app.ActionBarActivity;
import android.app.AlertDialog.Builder;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
public class MainActivity extends ActionBarActivity {
        EditText name,regno,mark;
        Button btnAdd,btnDelete,btnUpdate,btnView,btnViewAll;
        SQLiteDatabase db;
        @Override
        protected void onCreate(Bundle savedInstanceState) {
                super.onCreate(savedInstanceState);
                setContentView(R.layout.activity_main);
```

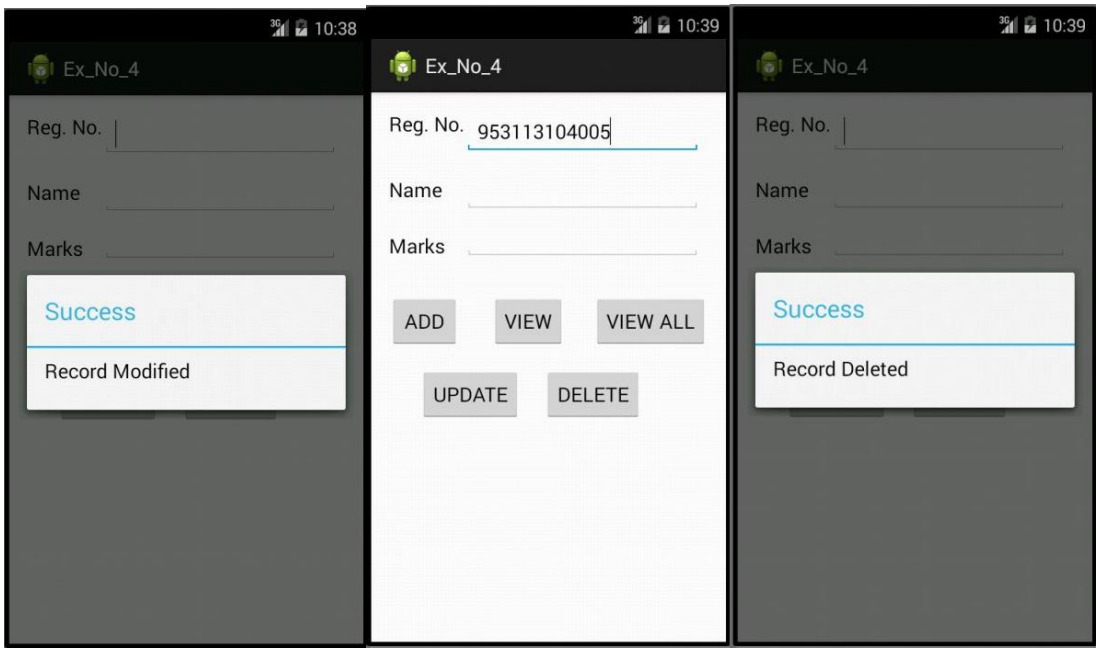
```
        regno=(EditText)findViewById(R.id.editText1);



            name=(EditText)findViewById(R.id.editTex
        t2);
        mark=(EditText)findViewById(R.id.editText3
        );
        btnAdd=(Button)findViewById(R.id.button1);
        btnView=(Button)findViewById(R.id.button2)
        ;
        btnViewAll=(Button)findViewById(R.id.butt
        on3);
        btnUpdate=(Button)findViewById(R.id.button4
        );
        btnDelete=(Button)findViewById(R.id.button5
        );
        db=openOrCreateDatabase("Students", Context.MODE_PRIVATE, null);
        db.execSQL("CREATE TABLE IF NOT EXISTS student(regno VARCHAR,name
        VARCHR,mark VARCHAR);");
        btnAdd.setOnClickListener(new OnClickListener()
        {
      @Override
       public void onClick(View arg0) {
       // TODO Auto-generated method stub

if(regno.getText().toString().trim().length()==0||name.getText().toString().trim().le
ngth()==0||mark.getText().toString().trim().length()==0)
                    {
                        showMessage("Error", "Please enter all values");
                        return;
                    }
                    db.execSQL("INSERT INTO student
VALUES('"+regno.getText()+"','"+name.getText()+"','"+mark.getText()+"');");
                    showMessage("Success", "Record added");
                    clearText();
                }
        });
        btnDelete.setOnClickListener(new OnClickListener()
        {
                @Override
                public void onClick(View v) {
                    // TODO Auto-generated method stub
                    if(regno.getText().toString().trim().length()==0)
                    {
                        showMessage("Error", "Please enter Reg. No.");
                        return;             }
                    Cursor c=db.rawQuery("SELECT * FROM student WHERE
regno='"+regno.getText()+"'", null);
                    if(c.moveToFirst())
                    {db.execSQL("DELETE FROM student WHERE
```

```
                    regno='"+regno.getText()+"'"); showMessage("Success", "Record
                    Deleted");
                    }

else
    { showMessage("Error", "Invalid Reg. No.");
      }
            clearText();
            }}
  });
            btnUpdate.setOnClickListener(new OnClickListener()
            {
            @Override
            public void onClick(View v) {
            // TODO Auto-generated method stub
            if(regno.getText().toString().trim().length()==0)
            {
            showMessage("Error", "Please enter Reg. No.");
            return;
            }
            Cursor c=db.rawQuery("SELECT * FROM student WHERE
            regno='"+regno.getText()+"'", null);
            if(c.moveToFirst())
            {db.execSQL("UPDATE student SET
            name='"+name.getText()+"',mark='"+mark.getText()+"' WHERE
            regno='"+regno.getText()+"'");
            showMessage("Success", "Record Modified");}
            else
            { showMessage("Error", "Invalid Reg. No.");}
            clearText();
            }});
             btnView.setOnClickListener(new OnClickListener()
            {
            @Override
            public void onClick(View v) {
            // TODO Auto-generated method stub
            if(regno.getText().toString().trim().length()==0)
            {
            showMessage("Error", "Please enter Reg. No.");
            return;
            }
            Cursor c=db.rawQuery("SELECT * FROM student WHERE regno='"+regno.getText()+"'", null);
            if(c.moveToFirst())
            {
            name.setText(c.getString(1));
             mark.setText(c.getString(2));
            }
            else
            {showMessage("Error", "Invalid Reg. No.");
            clearText();
            }
            }
            }
```

```
        btnViewAll.setOnClickListener(new  OnClickListener()
        {
         @Override
          public  void  onClick(View  v)  {
           // TODO  Auto-generated  method  stub
           Cursor  c=db.rawQuery("SELECT  *  FROM  student",  null);
          if(c.getCount()==0){
          showMessage("Error", "No records found");
           return;
           }
          StringBuffer buffer=new StringBuffer();
           while(c.moveToNext())
          {    buffer.append("Reg. No : "+c.getString(0)+"\n");
               buffer.append("Name : "+c.getString(1)+"\n");
                buffer.append("Mark : "+c.getString(2)+"\n\n");
            }
           showMessage("Student Details", buffer.toString());
           }
         });
      }
  public void showMessage(String title,String message)
        {
            Builder builder=new
            Builder(this);
            builder.setCancelable(true);
            builder.setTitle(title);
            builder.setMessage(message);
            builder.show();
        }
        public void clearText()
        {
            regno.setText("");
            name.setText("");
            mark.setText("");
            regno.requestFocus();
        }
}
```

OUTPUT:





RESULT:

Thus the application that makes use of database has been developed and the output was verified.

Ex. No:5	**Develop an application that makes use of Notification Manager Date**
Date :	

Aim:

To develop an Android Application that makes use of Notification Manager.

Procedure:

Creating a New project:

- Open Android Studio and then click on **File -> New -> New project**.
- Then type the Application name as **"exno5"** and click Next.
- Then **select the Minimum SDK** as shown below and click Next.
- Then **select the Empty Activity** and click Next.
- Finally click **Finish**.
- It will take some time to build and load the project.
- After completion it will look as given below.

PROGRAMS:

Designing layout for the Android Application:

- Click on **app -> res -> layout -> activity_main.xml.**
- Now click on Text as shown below.
- Then delete the code which is there and type the code as given below.

Code for Activity_main.xml:

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

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

 xmlns:app="http://schemas.android.com/apk/res-auto"

xmlns:tools="http://schemas.android.com/tools"

android:layout_width="match_parent"

 android:layout_height="match_parent"

android:orientation="vertical" android:gravity="center"

tools:context=".MainActivity">
```

```
    <Button
      android:id="@+id/btnSimpleNotification"
      android:layout_width="wrap_content"

    android:layout_height="wrap_content"
    android:text="Simple Notification" />
    <Button
      android:id="@+id/btnNotificationIcon"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"

      android:text="Notification With Icon" />

    <Button android:id="@+id/btnNotificationImage"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="Notification With Image" />

    <Button android:id="@+id/btnNotificationWithGroupConvo"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="Notification With Group Conversation" />

    <Button android:id="@+id/btnNotificationSemantic"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="Notification Semantic Action" />

  </LinearLayout>
```

Java Coding for the Android Application:

- Click on **app -> java -> com.example.exno5 -> MainActivity**.
- Then delete the code which is there and type the code as given below.

Code forMainActivity.java:

```
 packagecom.example.exno5;
 import android.app.NotificationChannel;
import android.app.NotificationManager;
import android.app.PendingIntent;
 import android.content.Context;
```

```
import android.content.Intent;
import android.net.Uri;
import androidx.core.app.NotificationCompat; import
androidx.appcompat.app.AppCompatActivity; import
androidx.core.app.Person;
import androidx.core.graphics.drawable.IconCompat;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;
import java.util.Date;
public class MainActivity extends AppCompatActivity implements View.OnClickListener {
        NotificationManager notificationManager;
        NotificationCompat.Builder builder;
        NotificationChannel channel;
        CharSequence charSequence = "";
@Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    Button btnSimpleNotification = findViewById(R.id.btnSimpleNotification);
    Button btnNotificationIcon = findViewById(R.id.btnNotificationIcon);
    Button btnNotificationImage = findViewById(R.id.btnNotificationImage);
    Button btnNotificationWithGroupConvo = findViewById(R.id.btnNotificationWithGroupConvo);
    Button btnNotificationSemantic = findViewById(R.id.btnNotificationSemantic);

    charSequence = btnNotificationIcon.getText();

    btnSimpleNotification.setOnClickListener(this);
    btnNotificationIcon.setOnClickListener(this);
    btnNotificationImage.setOnClickListener(this);
    btnNotificationWithGroupConvo.setOnClickListener(this);
    btnNotificationSemantic.setOnClickListener(this);

    notificationManager=(NotificationManager)getSystemService(Context.NOTIFICATION_SERVICE);
    CharSequence name = "My Notification";
    String description = "yadda yadda";
    int importance = NotificationManager.IMPORTANCE_DEFAULT;

    channel = new NotificationChannel("1", name, importance);
    channel.setDescription(description);
```

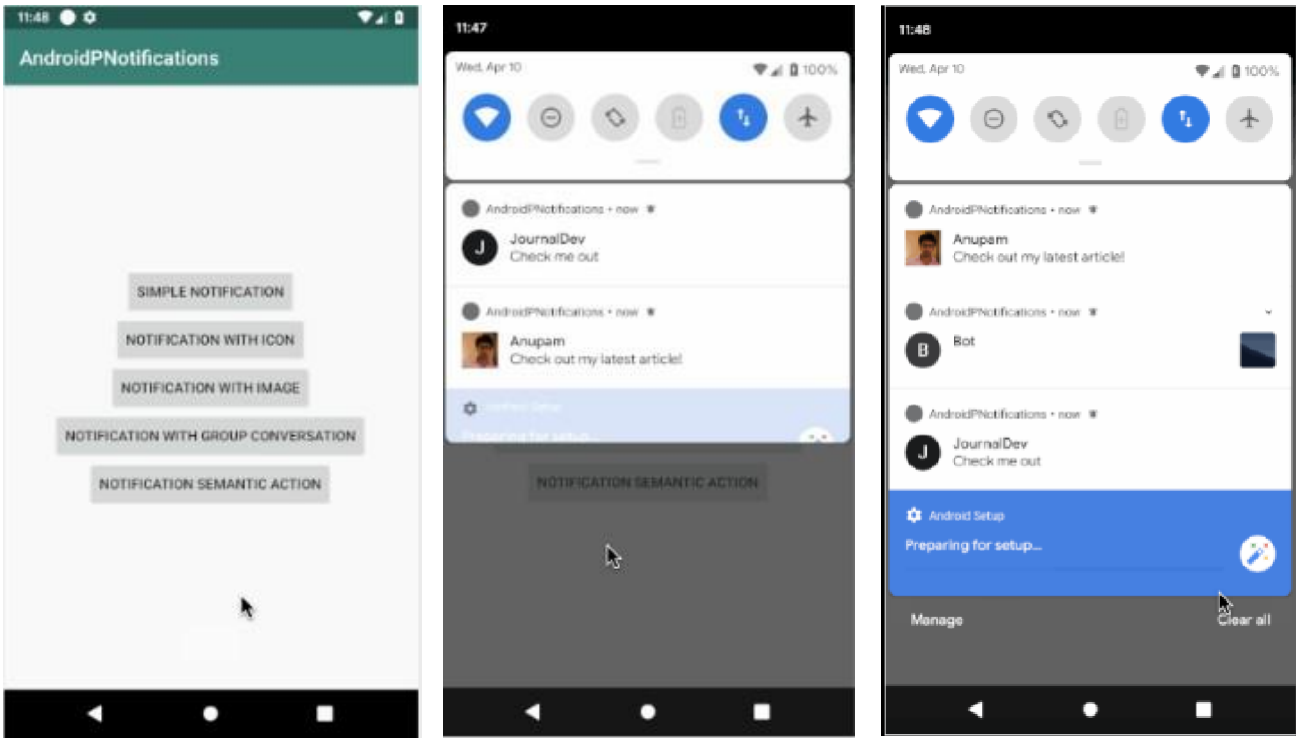
```
    builder = new NotificationCompat.Builder(MainActivity.this, channel.getId())
            .setSmallIcon(R.mipmap.ic_launcher);

    notificationManager.createNotificationChannel(channel);}

@Override
public void onClick(View v) {

    switch (v.getId()) {
        case R.id.btnSimpleNotification:
            simpleNotification();
            break;
        case R.id.btnNotificationIcon:
            notificationWithIcon();
            break;
        case R.id.btnNotificationImage:
            notificationWithImage();
            break;

        case R.id.btnNotificationWithGroupConvo:
            notificationWithGroupConvo();
            break;

        case R.id.btnNotificationSemantic:
            notificationSemantic();
            break;
    }
}
private void simpleNotification() {
    Person jd = new Person.Builder().setName("JournalDev ") .setImportant(true) .build();

    new NotificationCompat.MessagingStyle(jd)
        .addMessage("Check me out", new Date().getTime(), jd) .setBuilder(builder);

    notificationManager.notify(1, builder.build());
}
private void notificationWithIcon() {
    Person anupam = new Person.Builder()
        .setName("Anupam")
        .setIcon(IconCompat.createWithResource(this, R.drawable.index))
```

```
        .setImportant(true) .build();
    new NotificationCompat.MessagingStyle(anupam)
        .addMessage("Check out my latest article!", new Date().getTime(), anupam)
        .setBuilder(builder);


    notificationManager.notify(2, builder.build());
}
private void notificationWithImage() { Person
    bot = new Person.Builder()
        .setName("Bot") .setImportant(true)
        .setBot(true) .build();

    Uri uri = Uri.parse("android.resource://com.journaldev.androidpnotifications/drawable/"+R.drawable.bg);

    NotificationCompat.MessagingStyle.Message message = new
    NotificationCompat.MessagingStyle.Message("Check out my latest article!", new Date().getTime(), bot);
    message.setData("image/*",uri);

    new NotificationCompat.MessagingStyle(bot)
        .addMessage(message) .setGroupConversation(true).setBuilder(builder);

    notificationManager.notify(3, builder.build());
}
private void notificationWithGroupConvo()
{
    Person jd = new Person.Builder()
        .setName("JournalDev") .build();

    Person anupam = new Person.Builder()
        .setName("Anupam")
        .setIcon(IconCompat.createWithResource(this, R.drawable.samindexple_photo))
        .setImportant(true).build();

    Person bot = new Person.Builder()
        .setName("Bot").setBot(true) .build();

    Uri uri = Uri.parse("android.resource://com.journaldev.androidpnotifications/drawable/"+R.drawable.bg);

    NotificationCompat.MessagingStyle.Message message = new NotificationCompat.MessagingStyle.Message("",
    new Date().getTime(), bot); message.setData("image/*",uri);
```

```
    new NotificationCompat.MessagingStyle(bot)
        .addMessage("Hi. How are you?", new Date().getTime(), anupam)
        .addMessage(message)
        .addMessage("Does this image look good?", new Date().getTime(), bot)
        .addMessage("Looks good!", new Date().getTime(), jd)
        .setGroupConversation(true) .setConversationTitle("Sample Conversation")
        .setBuilder(builder);notificationManager.notify(4,  builder.build());

private  void notificationSemantic()
   {
      Personjd=newPerson.Builder()
        .setName("JournalDev")
        .build();

    Person anupam = new Person.Builder()
        .setName("Anupam")
        .setIcon(IconCompat.createWithResource(this, R.drawable.index))
        .setImportant(true)
        .build();

    Person bot = new Person.Builder()
        .setName("Bot")
        .setBot(true)
        .build();

    Uri uri = Uri.parse("android.resource://com.journaldev.androidpnotifications/drawable/"+R.drawable.bg); Intent

    intent = new Intent(this, MainActivity.class);
    intent.putExtra("hi","Notifications were read");
    PendingIntent pendingIntent = PendingIntent.getActivity(this, 0, intent, 0);

    NotificationCompat.MessagingStyle.Message message = new NotificationCompat.MessagingStyle.Message("",
    new Date().getTime(), bot); message.setData("image/*",uri);

    NotificationCompat.Action replyAction =
        new NotificationCompat.Action.Builder(
            R.drawable.bg, "MARK READ", pendingIntent)
            .setSemanticAction(NotificationCompat.Action.SEMANTIC_ACTION_MARK_AS_READ)
            .build();
    NotificationCompat.Builder separateBuilder = builder;
    separateBuilder.addAction(replyAction);
```

```
    new NotificationCompat.MessagingStyle(bot)

        .addMessage("Hi. How are you?", new Date().getTime(), anupam)
        .addMessage(message)
        .addMessage("Does this image look good?", new Date().getTime(), bot)
        .addMessage("Looks good!", new Date().getTime(), jd)
        .setGroupConversation(true)
        .setConversationTitle("Sample Conversation")
        .setBuilder(separateBuilder);

    notificationManager.notify(5, separateBuilder.build());
  }
  @Override
  protected void onResume() {
    super.onResume();

    if(getIntent()!=null && getIntent().getExtras()!=null)
    {
      String value = getIntent().getStringExtra("hi");
      Toast.makeText(getApplicationContext(),value,Toast.LENGTH_LONG).show();
    }
  }

}
```

Output:



Result:

Thus Android Application that makes use of notification manager is developed and executed successfully.

Ex. No:6	**Implement an application that implements multi threading**
Date :	

AIM:

To implement an application that implements multi threading.

PROCEDURE:

1. Open Eclipse IDE.
2. Create the project Ex_No_9.
3. Go to package explorer in the left hand side. Select the project Ex_No_9.
4. Go to res folder and select layout. Double click the activity_main.xml file.
5. Now you can see the Graphical layout window.
6. Drag and drop the following components:
    a. One ProgressBar (Horizontal)
    b. One Button with labeled as Start Progress
    c. One TextView without any texts
7. Again go to package explorer in the left hand side. Select the project Ex_No_9.
8. Go to src folder. Double click the MainActivity.java file.
9. In java file write the activities done by the application such as action of button.
10. Finally run the android application.

PROGRAMS:

activity_main.xml:

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent" android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="com.example.ex_no_9.MainActivity" >

        <ProgressBar android:id="@+id/progressBar1"
        style="?android:attr/progressBarStyleHorizontal"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentTop="true" />

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/progressBar1"
        android:layout_centerHorizontal="true"



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

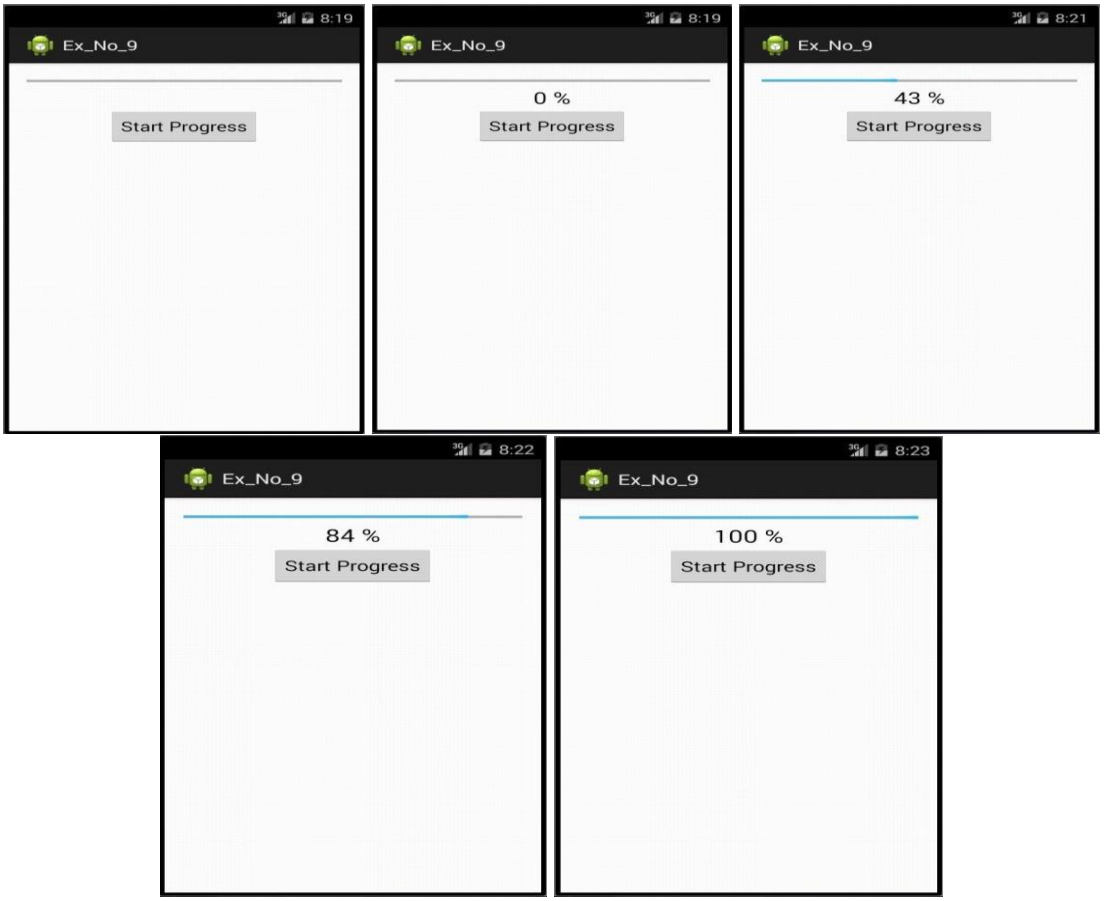
```
        tools:ignore="HardcodedText" />



    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/textView1"
        android:layout_centerHorizontal="true"
        android:text="Start Progress"
        tools:ignore="HardcodedText" />

</RelativeLayout>
```

MainActivity.java:

```
package com.example.ex_no_9;
import android.support.v7.app.ActionBarActivity;
import android.os.Bundle;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button; import
android.widget.ProgressBar; import
android.widget.TextView;
public class MainActivity extends ActionBarActivity {
       @Override
       protected void onCreate(Bundle savedInstanceState) {
              super.onCreate(savedInstanceState);
              setContentView(R.layout.activity_main);
              final ProgressBar p=(ProgressBar)findViewById(R.id.progressBar1);
              final TextView
              t=(TextView)findViewById(R.id.textView1); Button
              b=(Button)findViewById(R.id.button1);
              b.setOnClickListener(
                            new OnClickListener()
                            {@Override
                                  public void onClick(View arg0) {
                                        // TODO Auto-generated method stub
                                    Runnable r=new Runnable(){
                                          @Override
                                              public void run() {
                                                    // TODO Auto-generated method stub
                                      for(int i=0;i<=100;i++)
                                    {final int temp=i;
                                    try {
```

```
Thread.sleep(2000);
                                                    } catch (InterruptedException e) {
                                                        // TODO Auto-generated catch

        e.printStackTrace();}
p.post(new Runnable()
{
@Override
   public void run() {
 // TODO Auto-generated
  p.setProgress(temp); t.setText(temp+" %");
}
 });
}
}};
new Thread(r).start();
}
});
}
}
```

Output:



RESULT:

Thus the application that implements multi threading has been developed and the output was verified.

Ex. No:7	**Develop a native application that uses GPS location information**
Date :	

AIM:

To develop a native application that uses GPS location information.

PROCEDURE:

1. Open Eclipse IDE.
2. Create the project Ex_No_5.
3. Go to package explorer in the left hand side. Select the project Ex_No_5.
4. Go to res folder and select layout. Double click the activity_main.xml file.
5. Now you can see the Graphical layout window.
6. Drag and drop the following components:
   a. One TextView with text as Current Location
   b. Two TextViews without any texts.
7. Again go to package explorer in the left hand side. Select the project Ex_No_5.
8. Go to src folder. Double click the MainActivity.java file.
9. In java file write the activities done by the application such as finding current location and print them.
10. Get the following permission in AndroidManifest.xml file:

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

11. Finally run the android application.

PROGRAMS:

activity_main.xml:

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent" android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="com.example.ex_no_5.MainActivity" >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentTop="true"
        android:layout_marginTop="114dp"
        android:text=""
        android:textAppearance="?android:attr/textAppearanceMedium"
```

```
        tools:ignore="HardcodedText" />


<TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignLeft="@+id/textView1"
        android:layout_alignParentRight="true"
        android:layout_below="@+id/textView1"
        android:layout_marginTop="51dp"
        android:text=""
        android:textAppearance="?android:attr/textAppearanceMedium"
        tools:ignore="HardcodedText" />

    <TextView
        android:id="@+id/textView3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="47dp"
        android:text="Current Location"
        android:textAppearance="?android:attr/textAppearanceLarge"
        tools:ignore="HardcodedText" />

</RelativeLayout>
```

MainActivity.java:

```
package com.example.ex_no_5;
import android.support.v7.app.ActionBarActivity;
import android.content.Context;
import android.location.Criteria;
import android.location.Location;
import android.location.LocationListener;
import android.location.LocationManager;
import android.os.Bundle;
import android.widget.TextView;
import android.widget.Toast;
public class MainActivity extends ActionBarActivity implements LocationListener{ @Override
       protected void onCreate(Bundle savedInstanceState) {
              super.onCreate(savedInstanceState);
              setContentView(R.layout.activity_main);
              LocationManager
              lm=(LocationManager)getSystemService(Context.LOCATION_SERVICE);
               Criteria c=new Criteria();
              String s=lm.getBestProvider(c,
              false); if(s!=null && !s.equals(""))
              {
                     Location l=lm.getLastKnownLocation(s);
                     lm.requestLocationUpdates(s, 20000, 1, this);
                     if(l!=null)
                            onLocationChanged(l);
                     else
                            Toast.makeText(getApplicationContext(), "Location can't be
retrieved !!!", Toast.LENGTH_LONG).show();
```

```
            }
else
Toast.makeText(getApplicationContext(), "Provider not found !!!",
 Toast.LENGTH_LONG).show();
        }
        @Override
        public void onLocationChanged(Location arg0) {
                // TODO Auto-generated method stub
                TextView
                t1=(TextView)findViewById(R.id.textView1);
                t1.setText("Latitude : \n"+arg0.getLatitude());
                TextView
                t2=(TextView)findViewById(R.id.textView2);
                t2.setText("Longitude :
                \n"+arg0.getLongitude());

        @Override
        public void onProviderDisabled(String arg0) {
                // TODO Auto-generated method stub
        }
        @Override
        public void onProviderEnabled(String arg0) {
                // TODO Auto-generated method stub
        }
        @Override
        public void onStatusChanged(String arg0, int arg1, Bundle arg2) {
                // TODO Auto-generated method stub
        }
}
```

OUTPUT:

RESULT:

Thus the application that uses GPS location information has been developed and the output was verified.

Ex. No:8	**Implement an application that writes data to the SD card**
Date :	

AIM:

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

PROCEDURE:

1. Open Eclipse IDE.
2. Create the project Ex_No_6.
3. Go to package explorer in the left hand side. Select the project Ex_No_6.
4. Go to res folder and select layout. Double click the activity_main.xml file.
5. Now you can see the Graphical layout window.
6. Drag and drop the following components:
    a. Two EditTexts
    b. Two Buttons with labeled as READ and SAVE
7. Again go to package explorer in the left hand side. Select the project Ex_No_6.
8. Go to src folder. Double click the MainActivity.java file.
9. In java file write the activities done by the application such as actions of buttons.
10. Get the following permission in AndroidManifest.xml file:
    `<uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE" />`
11. Finally run the android application.

PROGRAMS:

activity_main.xml:

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent" android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="com.example.ex_no_6.MainActivity" >

    <EditText
        android:id="@+id/editText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_alignParentTop="true"
        android:ems="10"
        android:hint="Path"
        tools:ignore="TextFields,HardcodedText" >

        <requestFocus />
    </EditText>
```

```
    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignTop="@+id/editText1"
        android:layout_toRightOf="@+id/editText1"
        android:text="READ"
        tools:ignore="HardcodedText" />

    <EditText
        android:id="@+id/editText2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignLeft="@+id/editText1"
        android:layout_centerVertical="true"
        android:ems="10"
        android:hint="Contents of File"
        android:inputType="textMultiLine"
        tools:ignore="HardcodedText" />

    <Button
        android:id="@+id/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentRight="true"
        android:layout_centerVertical="true"
        android:text="SAVE"
        tools:ignore="HardcodedText" />

</RelativeLayout>
```

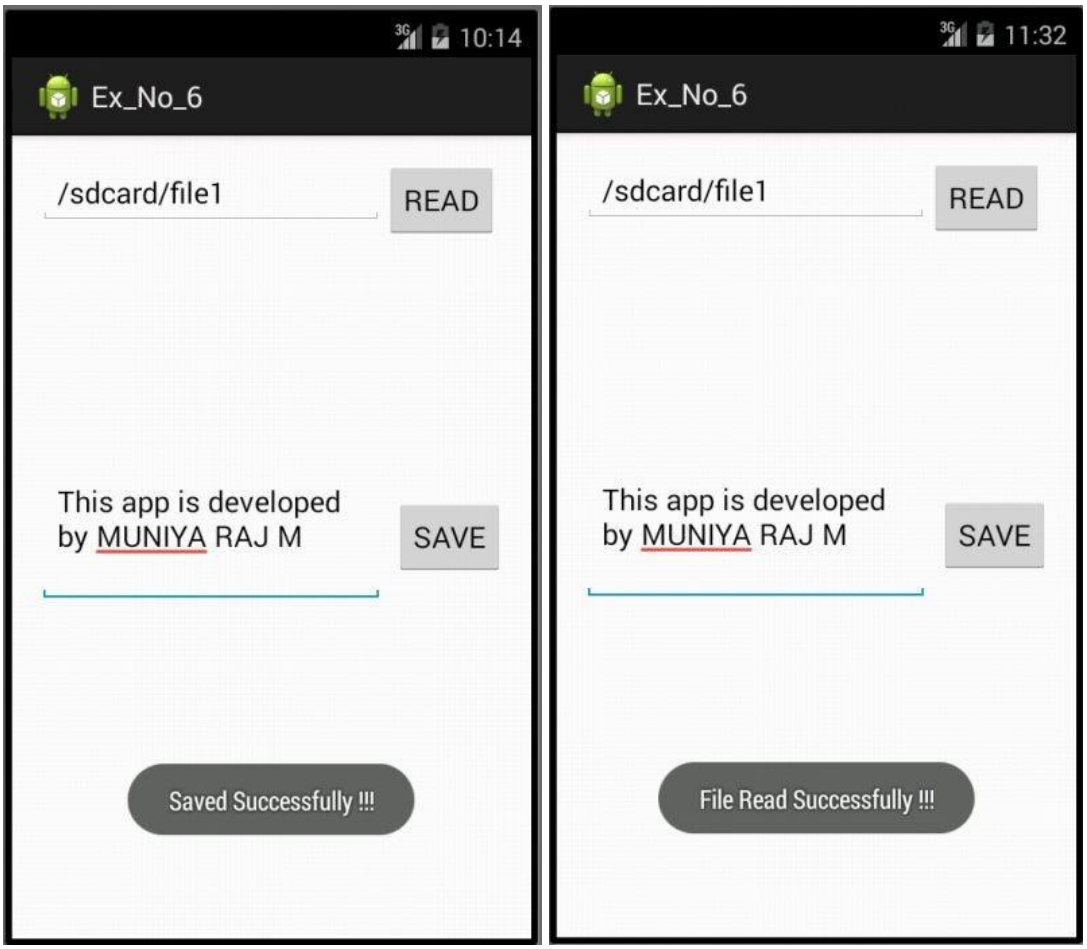
MainActivity.java:

```
package com.example.ex_no_6; import
java.io.BufferedReader; import
java.io.File;
import java.io.FileNotFoundException;
import      java.io.FileReader;
import     java.io.FileWriter;
import java.io.IOException;
import android.support.v7.app.ActionBarActivity;
import android.annotation.SuppressLint; import
android.content.SharedPreferences; import
android.os.Bundle;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button; import
android.widget.EditText; import
android.widget.Toast;
public class MainActivity extends ActionBarActivity { @SuppressLint("SdCardPath")
       @Override
       protected void onCreate(Bundle savedInstanceState) {
              super.onCreate(savedInstanceState);
              setContentView(R.layout.activity_main);
              final EditText e1=(EditText)findViewById(R.id.editText1);
              final EditText e2=(EditText)findViewById(R.id.editText2);
```

```
Button
b1=(Button)findViewById(R.id.button1);
Button
b2=(Button)findViewById(R.id.button2);
String path=getPreferences(MODE_PRIVATE).getString("fpath",
"/sdcard/file1"); e1.setText(path);
b1.setOnClickListener(
            new OnClickListener()
            {
                  @Override
                  public void onClick(View arg0) {
                        // TODO Auto-generated method stub

                        File f=new
                        File(e1.getText().toString()); String
                        s="";
                        StringBuilder sb=new StringBuilder();
                        FileReader fr = null;
                        try {
                              fr = new FileReader(f);
                        } catch (FileNotFoundException e) {
                              // TODO Auto-generated catch block
                              e.printStackTrace();
                        }
                        BufferedReader br=new BufferedReader(fr);

                        try {
                              while((s=br.readLine())!=null)
                              {
                                    sb.append(s+"\n");
                               }
                        } catch (IOException e) {
                              // TODO Auto-generated catch block
                              e.printStackTrace();
                        }
                        Toast.makeText(getApplicationContext(), "File Read
Successfully !!!", Toast.LENGTH_LONG).show();
                        e2.setText(sb);
                  }
             });
b2.setOnClickListener(
            new OnClickListener()
            {
                  @Override
                  public void onClick(View arg0) {
                        // TODO Auto-generated method stub

                        File f=new File(e1.getText().toString());
                        FileWriter fw = null;
```

```
                    try {
                        fw = new FileWriter(f);
                    } catch (IOException e3) {
                        // TODO Auto-generated catch block
                        e3.printStackTrace();
                    }
                    try {
                        fw.write(e2.getText().toString());
                    } catch (IOException e2) {
                        // TODO Auto-generated catch block
                        e2.printStackTrace();
                     }

                   try {
                       fw.close();
                    } catch (IOException e2) {
                  // TODO Auto-generated catch block
                    e2.printStackTrace();
                  e=getPreferences(MODE_PRIVATE).edit();
                    }
SharedPreferences.Editor e=getPreferences(MODE_PRIVATE).edit();

          e.putString("fpath", f.getPath());
        e.commit();
       Toast.makeText(getApplicationContext(), "Saved Successfully !!!",
    Toast.LENGTH_LONG).show();
        }
        });
        }
         }
```

OUTPUT:



RESULT:

Thus the application that writes data to the SD card has been implemented and the output was verified.

Ex. No:9	**Implement an application that creates an alert upon receiving a message**
Date :	

AIM:

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

PROCEDURE:

1. Open Eclipse IDE.
2. Create the project Ex_No_10.
3. Go to package explorer in the left hand side. Select the project Ex_No_10.
4. Go to res folder and select layout. Double click the activity_main.xml file.
5. Now you can see the Graphical layout window.
6. This application has no components, because this just generates a notification alone.
7. Again go to package explorer in the left hand side. Select the project Ex_No_10.
8. Go to src folder. Double click the MainActivity.java file.
9. In java file write the activities done by the application such as receiving a message and notify it.
10. Get the following permissions in AndroidManifest.xml file:

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

11. Add Receiver class as receiver in AndroidManifest.xml file.
12. Finally run the android application.

PROGRAMS:

activity_main.xml:

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent" android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="com.example.ex_no_10.MainActivity" >

</RelativeLayout>
```

MainActivity.java:

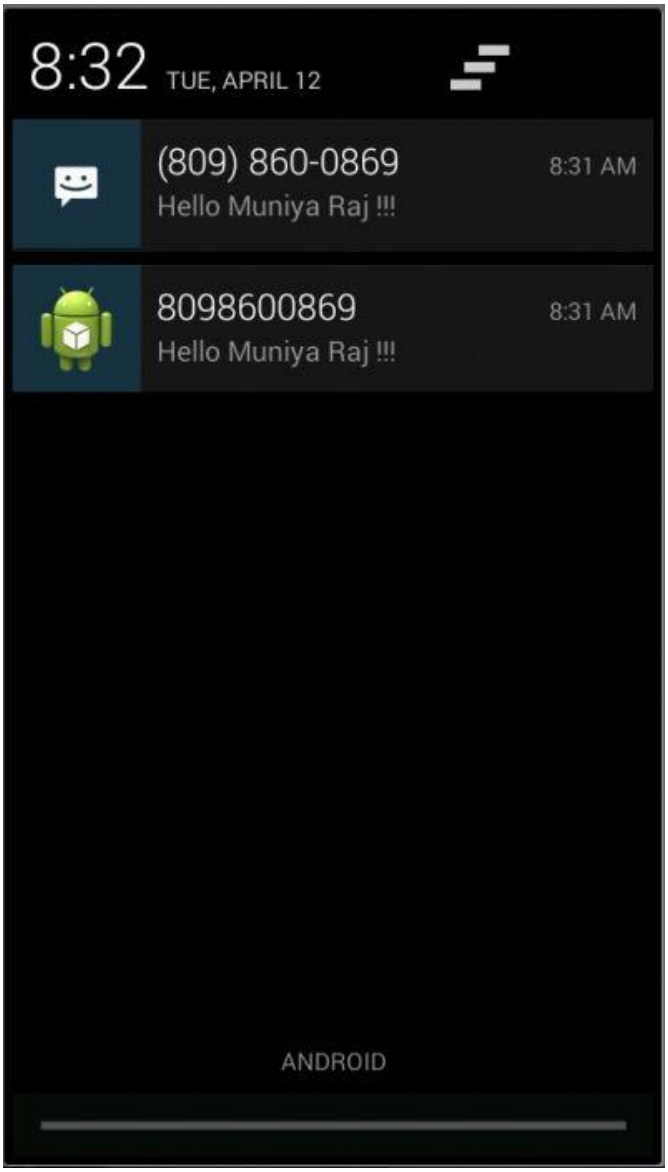
```
package com.example.ex_no_10;
import android.support.v7.app.ActionBarActivity;
import android.app.Notification;
import android.app.NotificationManager;
import android.content.Context;
import android.os.Bundle;
public class MainActivity extends ActionBarActivity {
	private static MainActivity inst;
	public static MainActivity instance() {
		// TODO Auto-generated method stub
		return inst;
	}
```

```
	public void onStart()
	{
		super.onStart();
		inst=this;
	}
	NotificationManager nm;
	Notification n;
	@SuppressWarnings("deprecatio
	n") @Override
	protected void onCreate(Bundle savedInstanceState) { super.onCreate(savedInstanceState);
		setContentView(R.layout.activity_main);
		nm=(NotificationManager)getSystemService(Context.NOTIFICATION_SERVICE);
		n=new Notification(R.drawable.ic_launcher,"SMS Alert",System.currentTimeMillis());

	}
	@SuppressWarnings("deprecation")
	public void update_notification(String no, String msg) {
		// TODO Auto-generated method stub
		n.setLatestEventInfo(getBaseContext(), no, msg, null);
		nm.notify(1337, n);
	}
}
```

Receiver.java:

```
package com.example.ex_no_10;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.os.Bundle;
import android.telephony.SmsMessage;
public class Receiver extends BroadcastReceiver { public
	static final String SMS_BUNDLE="pdus"; @Override
	public void onReceive(Context arg0, Intent arg1) {
		// TODO Auto-generated method
		stub String no = null,msg =
		null; Bundle
		b=arg1.getExtras();
		if(b!=null)
		{
			Object[] sms=(Object[])b.get(SMS_BUNDLE);
			for(int i=0;i<sms.length;++i)
			{
				SmsMessage sm=SmsMessage.createFromPdu((byte[])sms[i]);
				no=sm.getOriginatingAddress();
				msg=sm.getMessageBody().toString();
			}
			MainActivity inst=MainActivity.instance();
			inst.update_notification(no,msg);
		}
	}}
```

OUTPUT:



RESULT:

Thus the application that creates an alert upon receiving a message has been developed and the output was verified.

Ex. No:10	**Develop an application that makes use of RSS Feed**
Date :	

AIM:

To develop an application that makes use of RSS Feed.

PROCEDURE:

1. Open Eclipse IDE.
2. Create the project Ex_No_8.
3. Go to package explorer in the left hand side. Select the project Ex_No_8.
4. Go to res folder and select layout. Double click the activity_main.xml file.
5. Now you can see the Graphical layout window.
6. Create the FrameLayout.
7. Create a new layout named as fragment_layout.xml which has following components:
    a. ListView
    b. ProgressBar
8. Create another one layout named as rss_item.xml which has only one TextView.
9. Again go to package explorer in the left hand side. Select the project Ex_No_7.
10. Go to src folder. Double click the MainActivity.java file.
11. In java file write the activities done by the application.
12. Create the following additional classes for this application:
    a. Constants.java
    b. PcWorldRssParser.java
    c. RssAdapter.java
    d. RssFragement.java
    e. RssItem.java
    f. RssService.java
13. Write appropriate actions for the created additional classes.
14. Get the following permission in AndroidManifest.xml file:
    ```
    <uses-permission android:name="android.permission.INTERNET" />
    ```
15. Finally run the android application.

PROGRAMS:

activity_main.xml:

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

fragement_layout.xml:

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

```
    <ListView
      android:id="@+id/listView"
      android:layout_width="fill_parent"
      android:layout_height="fill_parent" >
  </ListView>

  <ProgressBar
      android:id="@+id/progressBar"
      style="?android:attr/progressBarStyleLarge"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_centerInParent="true" />

</RelativeLayout>
```

rss_item.xml:

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

MainActivity.java:

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

      }
```

Constants.java

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

PcWorldRssParser.java

```
package com.example.ex_no_8;
import java.io.IOException;
import java.io.InputStream;
import java.util.ArrayList;
import java.util.List;
import org.xmlpull.v1.XmlPullParser;
import org.xmlpull.v1.XmlPullParserException;
import android.util.Xml;
public class PcWorldRssParser {
	// We don't use namespaces
	private final String ns = null;
	public List<RssItem> parse(InputStream inputStream) throws
XmlPullParserException, IOException {

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

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

RssAdapter.java

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

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

RssFragement.java

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

```
listView = (ListView) view.findViewById(R.id.listView);
                listView.setOnItemClickListener(this);
                startService();
            } else {
                ViewGroup parent = (ViewGroup) view.getParent();
                parent.removeView(view);
            }
            return view;
        }
        private void startService() {
            Intent intent = new Intent(getActivity(), RssService.class);
            intent.putExtra(RssService.RECEIVER, resultReceiver);
            getActivity().startService(intent);
        }
        private final ResultReceiver resultReceiver = new ResultReceiver(new Handler()) {
            @SuppressWarnings("unchecked")
            @Override
            protected void onReceiveResult(int resultCode, Bundle resultData) {
                progressBar.setVisibility(View.GONE);
                List<RssItem> items = (List<RssItem>)
resultData.getSerializable(RssService.ITEMS);
                if (items != null) {
                    RssAdapter adapter = new RssAdapter(getActivity(), items);
                    listView.setAdapter(adapter);
                } else {
Toast.makeText(getActivity(), "An error occured while downloading the rss feed.",
Toast.LENGTH_LONG).show();

                }
            };
        };
        @Override
        public void onItemClick(AdapterView<?> parent, View view, int position, long
            id) { RssAdapter adapter = (RssAdapter) parent.getAdapter();
            RssItem item = (RssItem)
            adapter.getItem(position); Uri uri =
            Uri.parse(item.getLink());
            Intent intent = new Intent(Intent.ACTION_VIEW, uri);
            startActivity(intent);
        }
}
```

RssItem.java

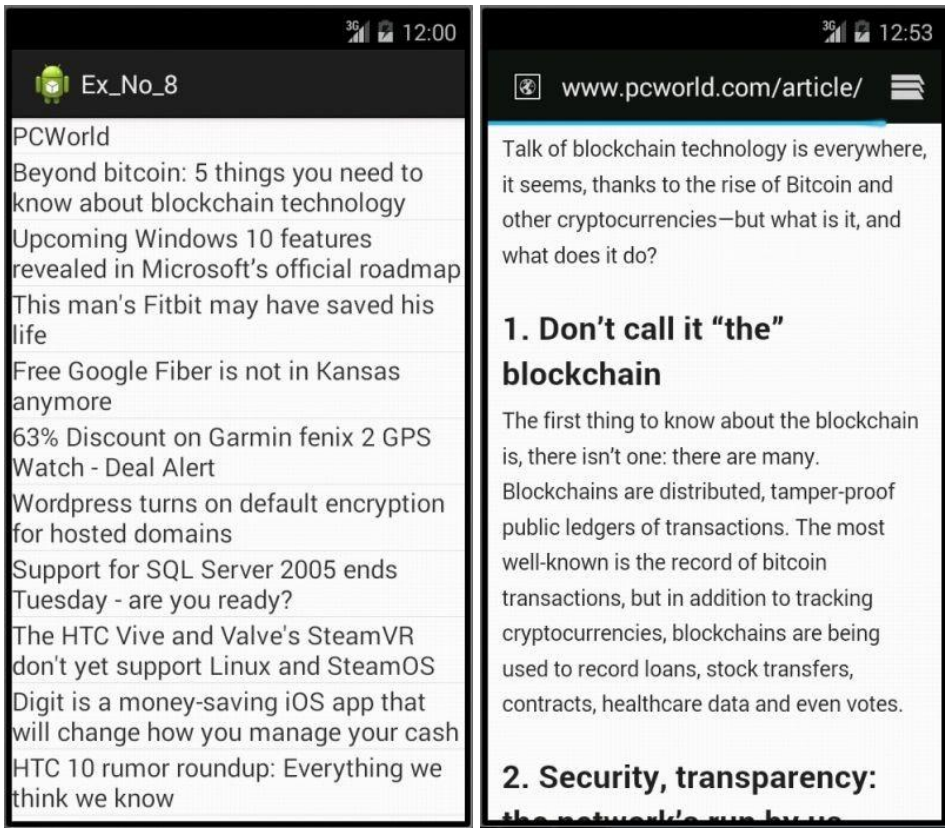
```
package com.example.ex_no_8;
public class RssItem {
        private final String title;
        private final String link;
        public RssItem(String title, String link) {
            this.title = title;
            this.link = link;
        }
        public String getTitle() {
            return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

```
        }
}
```

RssService.java

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

OUTPUT:



RESULT:

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

Ex. No:11	**Develop a mobile application to send an email**
Date :	

Aim:

To develop an Android Application to send an Email.

Procedure:

Creating a New project:

- Open Android Studio and then click on **File -> New -> New project**.
- Then type the Application name as **"exno11"** and click Next.
- Then **select the Minimum SDK** as shown below and click Next.
- Then **select the Empty Activity** and click Next.
- Finally click **Finish**.
- It will take some time to build and load the project.
- After completion it will look as given below.

Designing layout for the Android Application:

- Click on **app -> res -> layout -> activity_main.xml.**
- Now click on Text as shown below.
- Then delete the code which is there and type the code as given below.

PROGRAMS:

Code forActivity_main.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:paddingLeft="20dp"
  android:paddingRight="20dp"
  android:orientation="vertical" >
  <EditText
    android:id="@+id/txtTo"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="To"/>
  <EditText
    android:id="@+id/txtSub"
```

```
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Subject"/>


<EditText

    android:id="@+id/txtMsg"
    android:layout_width="match_parent"
    android:layout_height="0dp"
    android:layout_weight="1"
    android:gravity="top"
    android:hint="Message"/>
  <Button
    android:layout_width="100dp
    "
    android:layout_height="wrap_content"
    android:layout_gravity="right"
    android:text="Send"
    android:id="@+id/btnSend"/>
 </LinearLayout>
```

Adding permissions in Manifest for the Android Application:

- Click on **app -> manifests -> AndroidManifest.xml.**
- Now include the INTERNET permissions in the AndroidManifest.xml file as shown below.

Code for AndroidManifest.xml:

```
 <?xml version="1.0" encoding="utf-8"?>
 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:tools="http://schemas.android.com/tools"
   package="com.example.exno11" >
   <uses-permission android:name="android.permission.INTERNET"/>
   <application
    android:allowBackup="true"
    android:icon="@mipmap/ic_launcher"
    android:label="@string/app_name"
    android:theme="@style/AppTheme"
    tools:ignore="GoogleAppIndexingWarning">
```

```
      <activity
        android:name="com.example.exno11.MainActivity"
        android:label="@string/app_name">

        <intent-filter>
          <action android:name="android.intent.action.MAIN" />
          <category android:name="android.intent.category.LAUNCHER" /
<action android:name="android.intent.action.SEND"/>
          <category android:name="android.intent.category.DEFAULT"/>
          <data android:mimeType="message/rfc822"/>
        </intent-filter>
    </activity>
  </application>
 </manifest
      >
```

- So now the Permissions are added in the Manifest.

Java Coding for the Android Application:

- Click on **app -> java -> com.example.exno10 -> MainActivity**.
- Then delete the code which is there and type the code as given below.

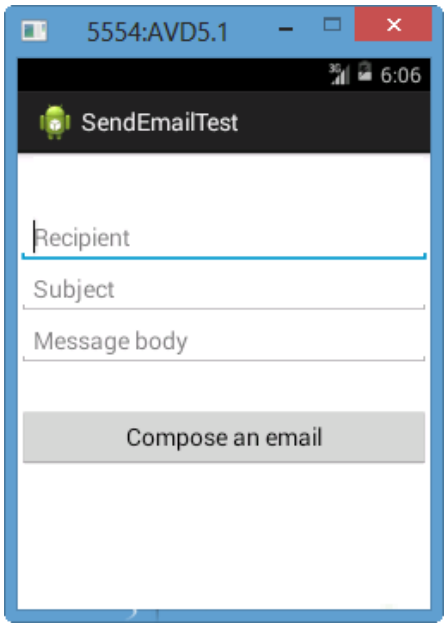
Code forMainActivity.java:

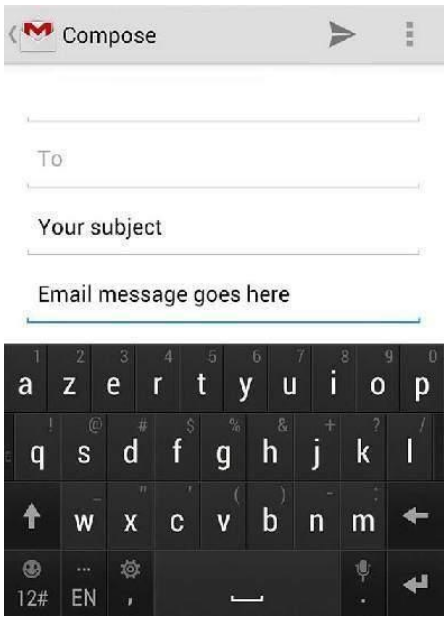
```
package com.example.exno11;
import android.content.Intent;
//import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import  android.widget.EditText;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
```

```
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    eTo = (EditText)findViewById(R.id.txtTo);
    eSubject = (EditText)findViewById(R.id.txtSub);
    eMsg = (EditText)findViewById(R.id.txtMsg);
    btn = (Button)findViewById(R.id.btnSend);
    btn.setOnClickListener(new View.OnClickListener() {
      @Overridepublic void onClick(View v) {
        Intent it = new Intent(Intent.ACTION_SEND);
        it.putExtra(Intent.EXTRA_EMAIL, new String[]{eTo.getText().toString()});
        it.putExtra(Intent.EXTRA_SUBJECT,eSubject.getText().toString());
        it.putExtra(Intent.EXTRA_TEXT,eMsg.getText()); it.setType("message/rfc822");
        startActivity(Intent.createChooser(it,"Choose Mail App"));
      }
    });
  }
}
```

- So now the Coding part is also completed.
- Now run the application to see the output.

Output:





Result:

Thus Android Application for sending an email is developed and executed successfully.

Ex. No:12	**Develop a Mobile application for simple needs (Mini Project)**
Date :	

Aim:

To develop a Simple Android Application for Native Calculator.

Procedure:

Creating a New project:

- Open Android Studio and then click on **File -> New -> New project**.
- Then type the Application name as **"exno12"** and click Next.
- Then **select the Minimum SDK** as shown below and click Next.
- Then **select the Empty Activity** and click Next.
- Finally click **Finish**.
- It will take some time to build and load the project.
- After completion it will look as given below.

Designing layout for the Android Application:

- Click on **app -> res -> layout -> activity_main.xml**.
- Now click on Text as shown below.
- Then delete the code which is there and type the code as given below.

PROGRAMS:

Code for Activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
   xmlns:android="http://schemas.android.com/apk/res/android"
   android:orientation="vertical" android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:layout_margin="20dp">

<LinearLayout
      android:id="@+id/linearLayout1"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:layout_margin="20dp">

<EditText
```

```
        android:id="@+id/editText1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"

        android:layout_weight="1"
        android:inputType="numberDecimal"
        android:textSize="20sp" />

<EditText
        android:id="@+id/editText2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:inputType="numberDecimal"
        android:textSize="20sp" />

</LinearLayout>

<LinearLayout
    android:id="@+id/linearLayout2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_margin="20dp">

<Button
        android:id="@+id/Add"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="+" android:textSize="30sp"/>

<Button
        android:id="@+id/Sub"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="-"
        android:textSize="30sp"/>
```

```
        <Button
        android:id="@+id/Mul"
        android:layout_width="match_parent"
         android:layout_height="wrap_content"
android:layout_weight="1" android:text="*"
android:textSize="30sp"/>
<Button
        android:id="@+id/Div"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="1"
        android:text="/" android:textSize="30sp"/>
</LinearLayout>
<TextView
      android:id="@+id/textView"
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:layout_marginTop="50dp"
      android:text="Answer is"
      android:textSize="30sp"
      android:gravity="center"/>
</LinearLayout>
```

- Now click on Design and your application will look as given below.
- So now the designing part is completed.

Java Coding for the Android Application:

- Click on **app -> java -> com.example.exno12 -> MainActivity**.
- Then delete the code which is there and type the code as given below.

Code for MainActivity.java:

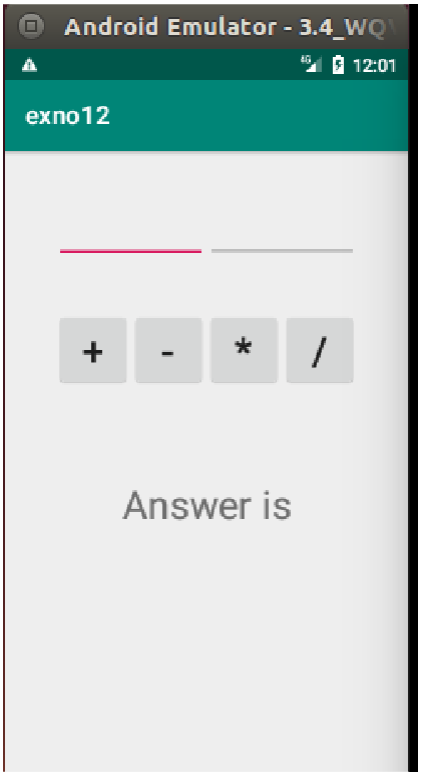
```
packagecom.example.exno12;
import android.os.Bundle;
//import android.support.v7.app.AppCompatActivity;
import android.text.TextUtils;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
```

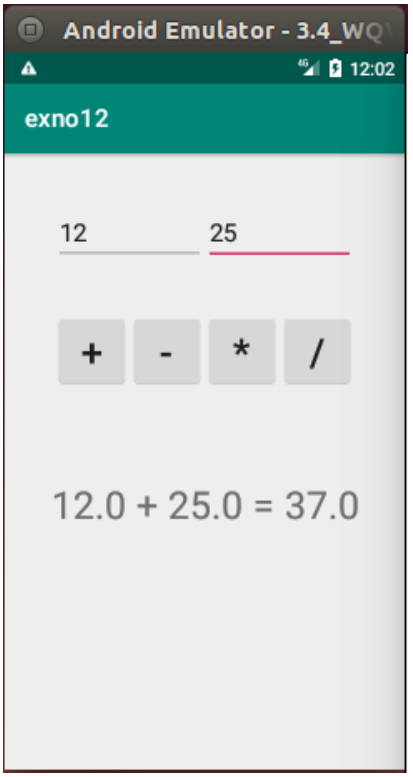
```
public class MainActivity extends AppCompatActivity implements OnClickListener
{
   //Defining the Views
   EditText Num1;
   EditText Num2;
   Button Add;
   Button Sub; Button
   Mul; Button Div;
   TextView Result;
@Override
   public void onCreate(Bundle savedInstanceState)
   {  super.onCreate(savedInstanceState);
   setContentView(R.layout.activity_main);
      //Referring the Views
      Num1 = (EditText) findViewById(R.id.editText1);
      Num2 = (EditText) findViewById(R.id.editText2);
      Add = (Button) findViewById(R.id.Add);
      Sub = (Button) findViewById(R.id.Sub);
      Mul = (Button) findViewById(R.id.Mul);
      Div = (Button) findViewById(R.id.Div);
      Result = (TextView) findViewById(R.id.textView);
// set a listener
 Add.setOnClickListener(this);
      Sub.setOnClickListener(this);
      Mul.setOnClickListener(this);
      Div.setOnClickListener(this);
   }
@Override
   public void onClick (View v)
      { float num1 = 0;
      float num2 = 0;
      float result = 0;
      String oper = "";
      // check if the fields are empty
      if (TextUtils.isEmpty(Num1.getText().toString()) || TextUtils.isEmpty(Num2.getText().toString()))
          return;
// read EditText and fill variables with numbers
      num1 = Float.parseFloat(Num1.getText().toString());
      num2 = Float.parseFloat(Num2.getText().toString());
```

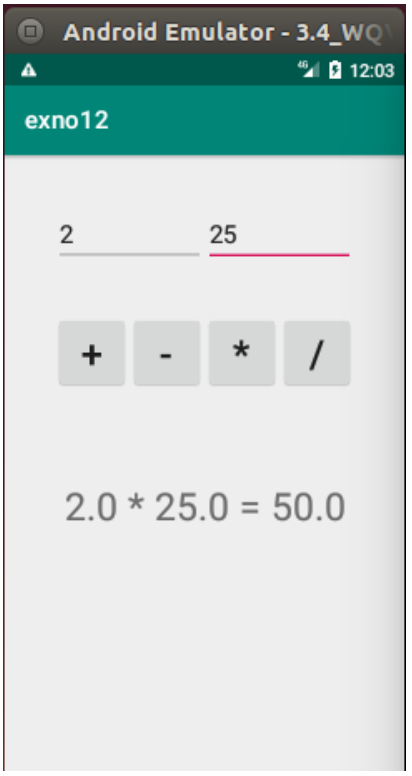
```
// defines the button that has been clicked and performs the corresponding operation
    // write operation into oper, we will use it later for output
    switch (v.getId())
    { case R.id.Add:
        oper = "+";
        result = num1 + num2;
        break;
      case R.id.Sub:
        oper = "-";
        result = num1 - num2; break;
      case R.id.Mul:
        oper = "*";
        result = num1 * num2;
        break;
      case R.id.Div:
        oper = "/";
        result = num1 / num2;
        break;
      default:
        break;
    }// form the output line
    Result.setText(num1 + " " + oper + " " + num2 + " = " + result);
  }
```

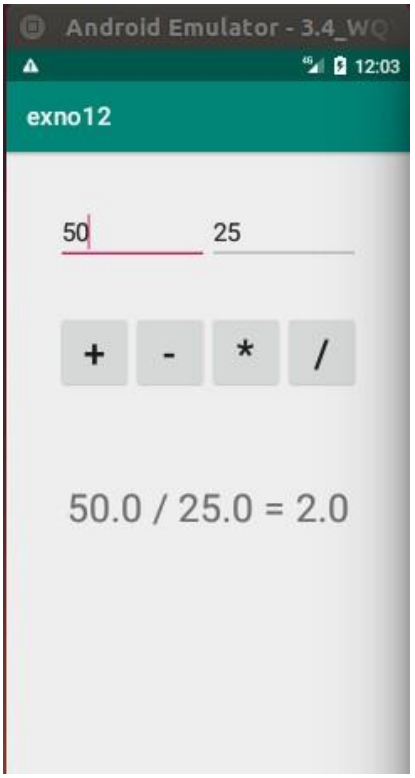
- So now the Coding part is also completed.
- Now run the application to see the output.

Output:









Result:

Thus a Simple Android Application for Native Calculator is developed and executed successfully