



**SREE NARAYANA GURUKULAM
COLLEGE OF ENGINEERING
KADAYIRUPPU, KOLENCHERY 682311**

LABORATORY RECORD

YEAR: 2022 TO 2023

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SEMESTER : 3

ROLL NO: 16

BRANCH : COMPUTER APPLICATIONS

Certified that this is a Bonafide Record of Practical work done in partial fulfillment of the requirements for the award of the Degree in Master of Computer Applications of Sree Narayana Gurukulam College of Engineering.

Kadayiruppu

Date:

Head of the Department

Course Instructor

Submitted for University Practical Examination

Reg. No: SNG21MCA-2016 on_____

External Examiner

Internal Examiner

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COURSE OUTCOME 1

PROGRAM 1

AIM

Design a Login Form with username and password using Linear Layout and toast valid credentials.

MainActivity.java

```
package com.example.firstapp;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    EditText EditUser, EditPass;
    Button BtnLogin;

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

        EditUser=findViewById(R.id.txt_uname);
        EditPass=findViewById(R.id.txt_pwd);
        BtnLogin=findViewById(R.id.btn_login);
    }

    public void login_user(View view) {
        String s1=EditUser.getText().toString();
        String s2=EditPass.getText().toString();
        if (s1.equals("GOPIKAUDAYAN") && s2.equals("GOPIKA123"))
        {
            Toast.makeText(this, "LOGIN SUCCESS ", Toast.LENGTH_SHORT).show();
        }
        else
        {
            Toast.makeText(this, "Invalid Username or Password", Toast.LENGTH_SHORT).show();
        }
    }
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/a
pk/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">

<LinearLayout
android:layout_width="409dp"
android:layout_height="729dp"
android:orientation="vertical"
tools:layout_editor_absoluteX="1dp"
tools:layout_editor_absoluteY="1dp">

<TextView
android:id="@+id/textView5"
android:layout_width="match_parent"
android:layout_height="37dp"
android:text="USERNAME"
android:textSize="20dp"/>

<EditText
android:id="@+id/txt_uname"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:ems="10"
android:hint="user name"
android:inputType="textPersonName" />

<TextView
android:id="@+id/textView6"
android:layout_width="match_parent"
android:layout_height="35dp"
android:text="PASSWORD"
android:textSize="20dp"/>

<EditText
android:id="@+id/txt_pwd"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:ems="10"
android:hint="password"
android:inputType="textPassword" />

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

```
android:layout_height="wrap_content"  
android:background="#1B0000"  
android:onClick="login_user"  
android:text="LOGIN" />  
</LinearLayout>  
</androidx.constraintlayout.widget.ConstraintLayout>
```

OUTPUT



PROGRAM 2

AIM

Write a program that demonstrates Activity Lifecycle.

MainActivity.java

```
package com.example.lifecycle;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Toast.makeText(this,"onCreate", Toast.LENGTH_LONG).show();
    }

    @Override
    protected void onStart() {
        super.onStart();
        Toast.makeText(this,"onStart",Toast.LENGTH_LONG).show();
    }

    @Override
    protected void onResume() {
        super.onResume();
        Toast.makeText(this,"onResume",Toast.LENGTH_LONG).show();
    }

    @Override
    protected void onPause() {
        super.onPause();
        Toast.makeText(this,"onPause",Toast.LENGTH_LONG).show();
    }

    @Override
    protected void onStop() {
        super.onStop();
        Toast.makeText(this,"onStop",Toast.LENGTH_LONG).show();
    }

    @Override
    protected void onDestroy() {
        super.onDestroy();
        Toast.makeText(this,"onDestroy",Toast.LENGTH_LONG).show();
    }

}
```

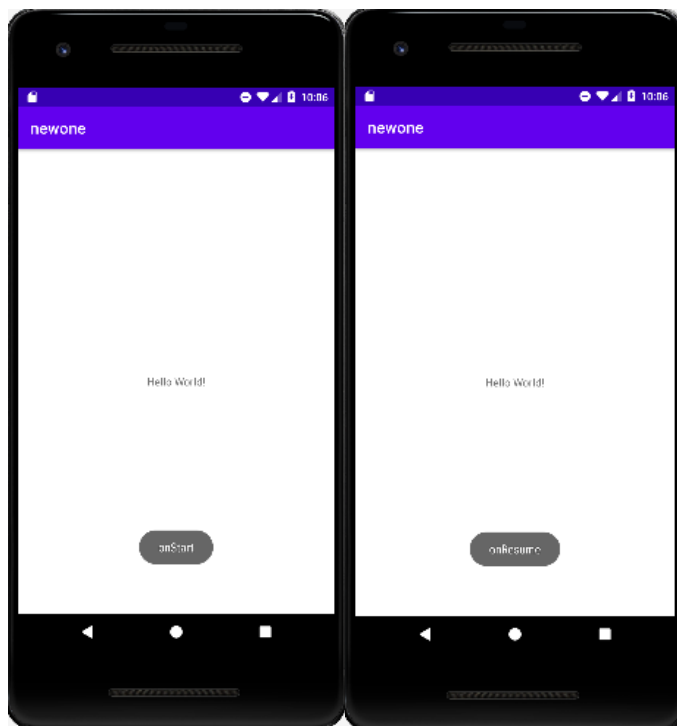
activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/a
pk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

OUTPUT



PROGRAM 3

AIM

Implementing basic arithmetic operations of a simple calculator.

MainActivity.java

```
package com.example.add;
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;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    EditText num1,num2;
    Button btn1,btn2,btn3,btn4;
    TextView num3;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        num1 = findViewById(R.id.txt1);
        num2 = findViewById(R.id.txt2);
        btn1 = findViewById(R.id.butt);
        btn2 = findViewById(R.id.butt2);
        btn3 = findViewById(R.id.butt3);
        btn4 = findViewById(R.id.butt4);
        num3 = findViewById(R.id.txt3);

    }
    public void sum(View view) {
        int a = Integer.parseInt(num1.getText().toString());
        int b = Integer.parseInt(num2.getText().toString());
        int c = a + b;
        num3.setText("Sum=" + c);

    }
    public void sub(View view) {
        int a = Integer.parseInt(num1.getText().toString());
        int b = Integer.parseInt(num2.getText().toString());
        int v = a - b;
        num3.setText("Sub=" + v);

    }

    public void mul(View view) {
        int a = Integer.parseInt(num1.getText().toString());
        int b = Integer.parseInt(num2.getText().toString());
        int m = a * b;
        num3.setText("Mul=" + m);
    }
}
```

```

    }
    public void div(View view) {
    int a = Integer.parseInt(num1.getText().toString());
    int b = Integer.parseInt(num2.getText().toString());
    int t = a / b;
    num3.setText("div=" + t);

    }

}

```

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">
<LinearLayout
android:layout_width="276dp"
android:layout_height="565dp"
android:gravity="center"
android:orientation="vertical"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.496"
app:layout_constraintStart_toStartOf="parent"
tools:layout_editor_absoluteY="16dp">
<EditText
android:id="@+id/txt1"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:ems="10"
android:hint="Number 1"
android:inputType="number"
android:textColorHint="#101010"
android:textSize="24sp" />
<EditText
android:id="@+id/txt2"
android:layout_width="match_parent"
android:layout_height="66dp"
android:ems="10"
android:hint="Number 2"
android:inputType="number"
android:textColorHint="#050505"
android:textSize="24sp" />

<Button
android:id="@+id/butt"
android:layout_width="112dp

```

```
    android:layout_height="wrap_content"
    android:onClick="sum"
    android:text="ADD" />
    <Button
    android:id="@+id/butt2"
    android:layout_width="113dp"
    android:layout_height="wrap_content"
    android:onClick="sub"
    android:text="SUB" />
    <Button
    android:id="@+id/butt3"
    android:layout_width="113dp"
    android:layout_height="wrap_content"
    android:onClick="mul"
    android:text="MUL" />
    <Button
    android:id="@+id/butt4"
    android:layout_width="111dp"
    android:layout_height="wrap_content"
    android:onClick="div"
    android:text="DIV" />
    <TextView
    android:id="@+id/txt3"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Answer"
    android:textColorHint="#000000"
    android:textSize="24sp" />
</LinearLayout>
</androidx.constraintlayout.widget.ConstraintLayout>
```

OUTPUT



3
4

- ADD
- SUB
- MUL
- DIV

Mul=12



PROGRAM 4

AIM

Implement validations on various UI controls.

MainActivity.java

```
package com.example.reg_form;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    EditTextedtFirstName,edtSecondName,edtEmail,edtDate,edtPassword;
    Button reg;
    RadioGroup sex;
    RadioButtonmale,female,other;
    CheckBoxch_agree;

    booleanisAllFieldChecked = false;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        edtFirstName = findViewById(R.id.editTextTextFirstName);
        edtSecondName = findViewById(R.id.editTextTextSecondName);
        edtEmail = findViewById(R.id.editTextEmailAddress);
        edtDate = findViewById(R.id.editTextDate);
        edtPassword = findViewById(R.id.editTextPassword);
```

```
sex = findViewById(R.id.sex);
male = findViewById(R.id.male);
female = findViewById(R.id.female);
other = findViewById(R.id.other);
ch_agree = findViewById(R.id.ch_agree);
```

```
}
```

```
public void submit(View view) {
isAllFieldChecked = CheckAllFields();
    if(isAllFieldChecked) {
Toast.makeText(this, "Successs", Toast.LENGTH_SHORT).show();
    }
}
```

```
private booleanCheckAllFields(){
    if (edtFirstName.length()==0){
edtFirstName.setError("first name is Required");
        return false;
    }
    if (edtSecondName.length()==0){
edtSecondName.setError("Second name is Required");
        return false;
    }
    if (edtEmail.length()==0){
edtEmail.setError("Email is Required");
        return false;
    }
    else{
        String s_email=edtEmail.getText().toString();
        String checkEmail="[a-zA-Z0-9._-]+@[a-z]+.[a-z]+";
        if(!s_email.matches(checkEmail)){
edtEmail.setError("Invalid Email");
            return false;
        }
    }
    if (sex.getCheckedRadioButtonId() == -1){
other.setError("Select Gender");
other.requestFocus();
        return false;
    }
}
```

```
    if (edtDate.length()==0){
edtDate.setError("Dob is Required");
        return false;
    }
    if (edtPassword.length()==0){
edtPassword.setError("Password is Required");
        return false;
    }
}
```

```

    }
    else if (edtPassword.length()<8){
edtPassword.setError("Password must be minimum 8 characters .... ");
        return false;

    }

    if (!ch_agree.isChecked()){
ch_agree.setError("Please Agree...");
ch_agree.requestFocus();
        return false;
    }

    return true;

}
}

```

activity_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayoutxmlns:android="http://schemas.android.com/a
pk/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:background="#DCECCA"
tools:context=".MainActivity">

<LinearLayout
android:layout_width="409dp"
android:layout_height="729dp"
android:orientation="vertical"
tools:layout_editor_absoluteX="1dp"
tools:layout_editor_absoluteY="1dp">

<LinearLayout
android:layout_width="match_parent"
android:layout_height="69dp"
android:orientation="vertical">

<TextView
android:id="@+id/textView"
android:layout_width="match_parent"
android:layout_height="49dp"
android:background="#85CC34"
android:fontFamily="sans-serif"
android:text="Enter the Details For Registration"

```

```
android:textSize="20dp"
android:textStyle="bold|italic"
android:textAlignment="center"/>
</LinearLayout>
```

```
<LinearLayout
android:layout_width="match_parent"
android:layout_height="79dp"
android:orientation="vertical">
```

```
<LinearLayout
android:layout_width="match_parent"
android:layout_height="58dp"
android:orientation="horizontal">
```

```
<EditText
android:id="@+id/editTextTextFirstName"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_weight="1"
android:ems="10"
android:hint="First Name"
android:inputType="textPersonName" />
```

```
<EditText
android:id="@+id/editTextTextSecondName"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_weight="1"
android:ems="10"
android:hint="Second Name"
android:inputType="textPersonName" />
</LinearLayout>
</LinearLayout>
```

```
<LinearLayout
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:orientation="vertical">
```

```
<EditText
android:id="@+id/editTextEmailAddress"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:ems="10"
android:hint="abcde@gmail.com"
android:inputType="textEmailAddress" />
</LinearLayout>
```

```
<LinearLayout
```



```
android:layout_width="match_parent"
android:layout_height="64dp"
android:orientation="horizontal">
```

```
<RadioGroup
android:id="@+id/sex"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:orientation="horizontal">
```

```
<RadioButton
android:id="@+id/male"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_weight="1"
android:checked="false"
android:duplicateParentState="true"
android:text="Male" />
```

```
<RadioButton
android:id="@+id/female"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_weight="1"
android:text="Female" />
```

```
<RadioButton
android:id="@+id/other"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_weight="1"
android:text="Others" />
```

```
</RadioGroup>
</LinearLayout>
```

```
<LinearLayout
android:layout_width="match_parent"
android:layout_height="56dp"
android:orientation="vertical">
```

```
<EditText
android:id="@+id/editTextDate"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:ems="10"
android:hint="DD/MM/YYYY  DOB here "
android:inputType="date" />
</LinearLayout>
```

```
<LinearLayout
```

```
android:layout_width="match_parent"
android:layout_height="49dp"
android:orientation="vertical">
```

```
<EditText
android:id="@+id/editTextPassword"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:ems="10"
android:hint="Enter Password"
android:inputType="textPersonName" />
</LinearLayout>
```

```
<LinearLayout
android:layout_width="match_parent"
android:layout_height="55dp"
android:orientation="vertical">
```

```
<CheckBox
android:id="@+id/ch_agree"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="Agree ?Privacy policy" />
</LinearLayout>
```

```
<LinearLayout
android:layout_width="match_parent"
android:layout_height="56dp"
android:orientation="vertical">
```

```
<Button
android:id="@+id/reg"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:insetLeft="150dp"
android:onClick="submit"
android:text="REGISTER"
tools:visibility="visible" />
</LinearLayout>
```

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

OUTPUT

Reg_form

Enter the Details For Registration

GOPIKA UDAYAN

gopikaudayan@gmail.com

☐ Male ☒ Female ☐ Others

25/05/2000

7k8hjjkj

☒ Agree Privacy policy

REGISTER

COURSE OUTCOME 2

PROGRAM 5

AIM

Design a registration activity and store registration details in local memory of phone using Intents and Shared Preferences

PAGE 1

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/a
    pk/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">

    <LinearLayout
        android:layout_width="409dp"
        android:layout_height="729dp"
        android:orientation="vertical"
        tools:layout_editor_absoluteX="1dp"
        tools:layout_editor_absoluteY="1dp">

        <TextView
            android:id="@+id/textView"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="ENTER THE DETAILS"
            android:textSize="30dp"
            android:textStyle="italic"
            android:background="@color/teal_700"
            android:textColor="@color/white"
            android:gravity="center"/>

        <EditText
            android:id="@+id/name"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:ems="10"
            android:inputType="textPersonName"
            android:hint="NAME:"
            android:textColorHint="@color/white"
            android:background="@color/teal_200"
            android:layout_margin="30dp"
```

```

        android:padding="15dp"
    />

    <EditText
        android:id="@+id/email"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="EMAIL_ID:"
        android:textColorHint="@color/white"
        android:background="@color/teal_200"
        android:layout_margin="30dp"
        android:padding="15dp"/>

    <EditText
        android:id="@+id/location"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="textPersonName"
        android:hint="LOCATION:"
        android:textColorHint="@color/white"
        android:background="@color/teal_200"
        android:layout_margin="30dp"
        android:padding="15dp"/>

    <Button
        android:id="@+id/button"
        android:layout_width="115dp"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_margin="30dp"
        android:backgroundTint="@color/teal_700"
        android:onClick="reg"
        android:padding="15dp"
        android:text="Button" />
</LinearLayout>
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.exam_shared_preference_and_intent;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.content.SharedPreferences;

```

```

import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    EditText name, email, location;
    SharedPreferences sp;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        name = findViewById(R.id.name);
        email = findViewById(R.id.email);
        location = findViewById(R.id.location);
        sp = getSharedPreferences("register", MODE_MULTI_PROCESS);

    }
    public void reg(View view) {
        Toast.makeText(this, "REGISTERED SUCCESSFULLY", Toast.LENGTH_SHORT).show();
        Intent i = new Intent(MainActivity.this, MainActivity2.class);
        String val1 = name.getText().toString();
        String val2 = email.getText().toString();
        i.putExtra("name", val1);
        i.putExtra("email", val2);
        SharedPreferences.Editor ed = sp.edit();
        ed.putString("location", location.getText().toString());
        ed.commit();
        startActivity(i);

    }
}

```

PAGE 2

activity_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/a
    pk/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">

    <LinearLayout
        android:layout_width="409dp"

```

```

android:layout_height="729dp"
android:orientation="vertical"
tools:layout_editor_absoluteX="1dp"
tools:layout_editor_absoluteY="1dp"
tools:ignore="MissingConstraints">

<TextView
android:id="@+id/textView2"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="....." />

<TextView
android:id="@+id/n1"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="NAME" />

<TextView
android:id="@+id/e1"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="EMAIL" />

<TextView
android:id="@+id/l1"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="LOCATION" />
</LinearLayout>
</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.exam_shared_preference_and_intent;
import androidx.appcompat.app.AppCompatActivity;
import android.annotation.SuppressLint;
import android.content.Intent;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.widget.TextView;

public class MainActivity2 extends AppCompatActivity {
    TextView t1,t2,t3;
    SharedPreferences sp;
    @SuppressLint("MissingInflatedId")
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2);
    }
}

```



```

t1=findViewById(R.id.n1);
t2=findViewById(R.id.e1);
t3=findViewById(R.id.l1);
sp=getSharedPreferences("register",MODE_PRIVATE);
Intent intent=getIntent();
String val1=intent.getStringExtra("name");
String val2=intent.getStringExtra("email");
String val3=sp.getString("location","");
t1.setText("NAME"+val1);
t2.setText("EMAIL:"+val2);
t3.setText("locATion"+val3);
}
}

```

OUTPUT

ENTER THE DETAILS	
GOPIKA UDAYAN	NAMEGOPIKA UDAYAN
gopikaudayan701@gmail.com	EMAIL:gopikaudayan701@gmail.com
thiruvananthapuram	locATionthiruvananthapuram
<div>BUTTON</div>	

PROGRAM 6

AIM

Design a simple Calculator using GridLayout and Cascaded LinearLayout

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:gravity="center"
    tools:context=".MainActivity">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="vertical">

            <Space
                android:layout_width="match_parent"
                android:layout_height="24dp" />

            <EditText
                android:id="@+id/editTextTextPersonName"
                android:layout_width="match_parent"
                android:layout_height="100dp"
                android:ems="10"
                android:inputType="textPersonName"
                android:textSize="50dp" />
            <Space
                android:layout_width="match_parent"
                android:layout_height="10dp" />
        </LinearLayout>
        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:gravity="center"
            android:orientation="vertical">
            <androidx.gridlayout.widget.GridLayout
```

```
android:layout_width="wrap_content"
android:layout_height="wrap_content"
app:rowCount="5">
<Button
android:id="@+id/button"
android:layout_width="wrap_content"
android:layout_height="70dp"
android:layout_margin="5dp"
android:text="C"
android:textSize="24sp"
app:layout_column="0"
app:layout_row="0" />
<Button
android:id="@+id/button2"
android:layout_width="wrap_content"
android:layout_height="70dp"
android:layout_margin="5dp"
android:text="%"
android:textSize="24sp"
app:layout_column="1"
app:layout_row="0" />
<Button
android:id="@+id/button3"
android:layout_width="wrap_content"
android:layout_height="70dp"
android:layout_margin="5dp"
android:text="b"
android:textSize="24sp"
app:layout_column="2"
app:layout_row="0" />
<Button
android:id="@+id/button4"
android:layout_width="wrap_content"
android:layout_height="70dp"
android:layout_margin="5dp"
android:text="/"
android:textSize="24sp"
app:layout_column="3"
app:layout_row="0" />
<Button
android:id="@+id/button5"
android:layout_width="wrap_content"
android:layout_height="70dp"
android:layout_margin="5dp"
android:text="7"
android:textSize="24sp"
app:layout_column="0"
app:layout_row="1" />
<Button
android:id="@+id/button6"
android:layout_width="wrap_content"
```

```
android:layout_height="70dp"
android:layout_margin="5dp"
android:text="8"
android:textSize="24sp"
app:layout_column="1"
app:layout_row="1" />
<Button
android:id="@+id/button7"
android:layout_width="wrap_content"
android:layout_height="70dp"
android:layout_margin="5dp"
android:text="9"
android:textSize="24sp"
app:layout_column="2"
app:layout_row="1" />
```

```
<Button
android:id="@+id/button8"
android:layout_width="wrap_content"
android:layout_height="70dp"
android:layout_margin="5dp"
android:text="*"
android:textSize="24sp"
app:layout_column="3"
app:layout_row="1" />
```

```
<Button
android:id="@+id/button9"
android:layout_width="wrap_content"
android:layout_height="70dp"
android:layout_margin="5dp"
android:text="4"
android:textSize="24sp"
app:layout_column="0"
app:layout_row="2" />
```

```
<Button
android:id="@+id/button10"
android:layout_width="wrap_content"
android:layout_height="70dp"
android:layout_margin="5dp"
android:text="5"
android:textSize="24sp"
app:layout_column="1"
app:layout_row="2" />
```

```
<Button
android:id="@+id/button11"
android:layout_width="wrap_content"
android:layout_height="70dp"
android:layout_margin="5dp"
android:text="6"
android:textSize="24sp"
app:layout_column="2"
```

```
app:layout_row="2" />
<Button
android:id="@+id/button12"
android:layout_width="wrap_content"
android:layout_height="70dp"
android:layout_margin="5dp"
android:text="-"
android:textSize="24sp"
app:layout_column="3"
app:layout_row="2" />
<Button
android:id="@+id/button13"
android:layout_width="wrap_content"
android:layout_height="70dp"
android:layout_margin="5dp"
android:text="1"
android:textSize="24sp"
app:layout_column="0"
app:layout_row="3" />
<Button
android:id="@+id/button14"
android:layout_width="wrap_content"
android:layout_height="70dp"
android:layout_margin="5dp"
android:text="2"
android:textSize="24sp"
app:layout_column="1"
app:layout_row="3" />
<Button
android:id="@+id/button15"
android:layout_width="wrap_content"
android:layout_height="70dp"
android:layout_margin="5dp"
android:text="3"
android:textSize="24sp"
app:layout_column="2"
app:layout_row="3" />
<Button
android:id="@+id/button16"
android:layout_width="wrap_content"
android:layout_height="70dp"
android:layout_margin="5dp"
android:text="+"
android:textSize="24sp"
app:layout_column="3"
app:layout_row="3" />
<Button
android:id="@+id/button17"
android:layout_width="wrap_content"
android:layout_height="70dp"
android:layout_margin="5dp"
```

```

        android:text="00"
        android:textSize="24sp"
        app:layout_column="0"
        app:layout_row="4" />
        <Button
            android:id="@+id/button18"
            android:layout_width="wrap_content"
            android:layout_height="70dp"
            android:layout_margin="5dp"
            android:text="0"
            android:textSize="24sp"
            app:layout_column="1"
            app:layout_row="4" />
        <Button
            android:id="@+id/button19"
            android:layout_width="wrap_content"
            android:layout_height="70dp"
            android:layout_margin="5dp"
            android:text="."
            android:textSize="24sp"
            app:layout_column="2"
            app:layout_row="4" />
        <Button
            android:id="@+id/button20"
            android:layout_width="wrap_content"
            android:layout_height="70dp"
            android:layout_margin="5dp"
            android:text="="
            android:textSize="24sp"
            app:layout_column="3"
            app:layout_row="4" />
    </androidx.gridlayout.widget.GridLayout>
</LinearLayout>
</LinearLayout>
</LinearLayout>

```

MainActivity.java

```

package com.example.fullcalculator;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
public class MainActivity extends AppCompatActivity implements View.OnClickListener {
    EditText number;
    double num1=0;
    double num2=0;
    String op="";

```

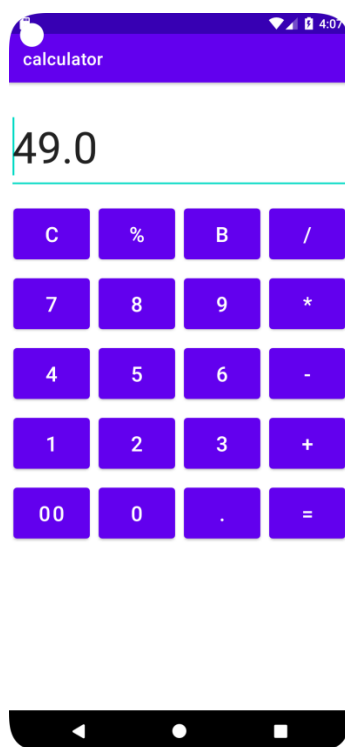
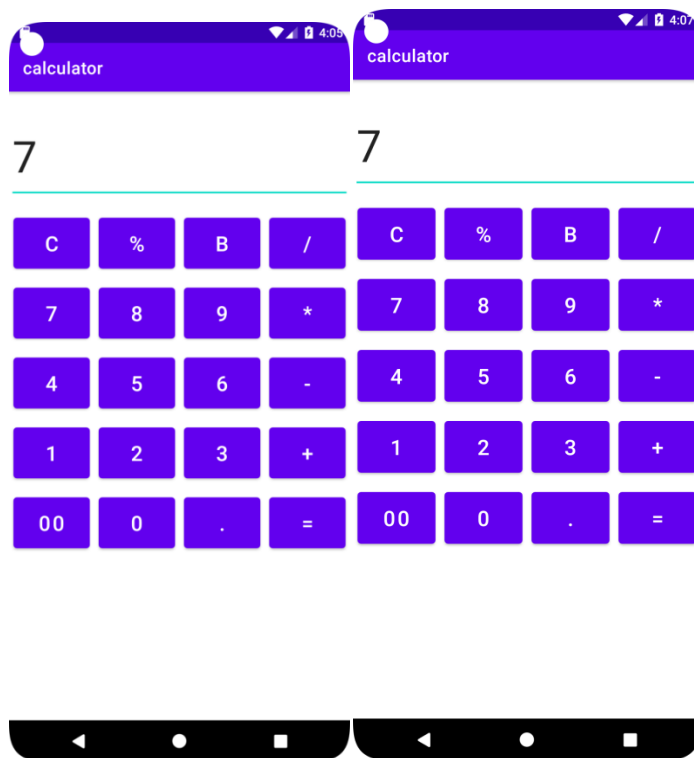
```

    Button b1,b2,b3,b4,b5,b6,b7,b8,b9,b0,b00,bdot,bsum,bsub,bmulti,bdiv,beq,bc;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
        b0=findViewById(R.id.button18);
        b0=findViewById(R.id.button18);
        bdot=findViewById(R.id.button19);
        b00=findViewById(R.id.button17);
        b1=findViewById(R.id.button13);
        b2=findViewById(R.id.button14);
        b3=findViewById(R.id.button15);
        b4=findViewById(R.id.button9);
        b5=findViewById(R.id.button10);
        b6=findViewById(R.id.button11);
        b7=findViewById(R.id.button5);
        b8=findViewById(R.id.button6);
        b9=findViewById(R.id.button7);
        bsum=findViewById(R.id.button16);
        bsub=findViewById(R.id.button12);
        bmulti=findViewById(R.id.button8);
        bdiv=findViewById(R.id.button4);
        beq=findViewById(R.id.button20);
        bc=findViewById(R.id.button);
        number=findViewById(R.id.editTextTextPersonName);
        b1.setOnClickListener(this);
        bdot.setOnClickListener(this);
        b0.setOnClickListener(this);
        b00.setOnClickListener(this);
        b2.setOnClickListener(this);
        b3.setOnClickListener(this);
        b4.setOnClickListener(this);
        b5.setOnClickListener(this);
        b6.setOnClickListener(this);
        b7.setOnClickListener(this);
        b8.setOnClickListener(this);
        b9.setOnClickListener(this);
        bsub.setOnClickListener(this);
        bsum.setOnClickListener(this);
        bc.setOnClickListener(this);
        bmulti.setOnClickListener(this);
        bdiv.setOnClickListener(this);
        beq.setOnClickListener(this);
    }
    @Override
    public void onClick(View view) {
        Button b=(Button) view;
        if(view==bc){
number.setText("");
            op="";
        }
    }

```

```
        else if(view==bsum | |view==bsub | |view==bmulti | |view==bdiv){
            num1=Integer.parseInt(number.getText().toString());
            op=b.getText().toString();
            number.setText("");
        }
        else if(view==beq)
        {
            num2=Integer.parseInt(number.getText().toString());
            if(op.equals("+"))
            {
                number.setText(num1+num2+"");
            }
            else if(op.equals("-"))
            {
                number.setText(num1-num2+"");
            }
            else if(op.equals("*"))
            {
                number.setText(num1*num2+"");
            }
            else if(op.equals("/")){
                number.setText(num1/num2+"");
            }
        }
        else {
            String s = number.getText().toString();
            number.setText(s + b.getText().toString());
        }
    }
}
```


OUTPUT



PROGRAM 7

AIM

Create a Facebook page using RelativeLayout; set properties using .xml file

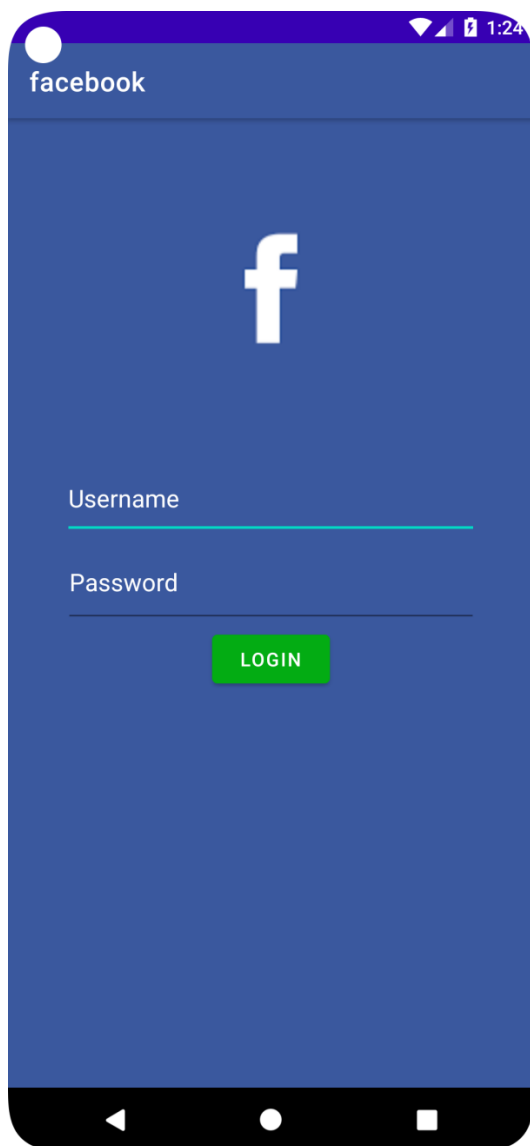
activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayoutxmlns: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"
android:background="#3a589e">
<ImageView
android:id="@+id/imageView"
android:layout_width="match_parent"
android:layout_height="254dp"
app:srcCompat="@drawable/download" />
<EditText
android:id="@+id/editTextTextPersonName"
android:layout_width="310dp"
android:layout_height="59dp"
android:layout_below="@id/imageView"
android:layout_centerHorizontal="true"
android:ems="10"
android:hint="Username"
android:textColorHint="#ffffff"
android:inputType="textPersonName" />
<EditText
android:id="@+id/editTextTextPersonName2"
android:layout_width="309dp"
android:layout_height="66dp"
android:layout_below="@id/editTextTextPersonName"
android:layout_centerHorizontal="true"
android:ems="10"
android:hint="Password"
android:textColorHint="#ffffff"
android:inputType="textPersonName" />
<Button
android:id="@+id/button"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_below="@id/editTextTextPersonName2"
android:layout_centerHorizontal="true"
android:backgroundTint="#03AC13"
android:text="Login" />
</RelativeLayout>
```

MainActivity.java

```
package com.example.facebook;  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
public class MainActivity extends AppCompatActivity {  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_main);  
    }  
}
```

OUTPUT



PROGRAM 8

AIM

Develop an application that toggles image using FrameLayout

activity_main.xml

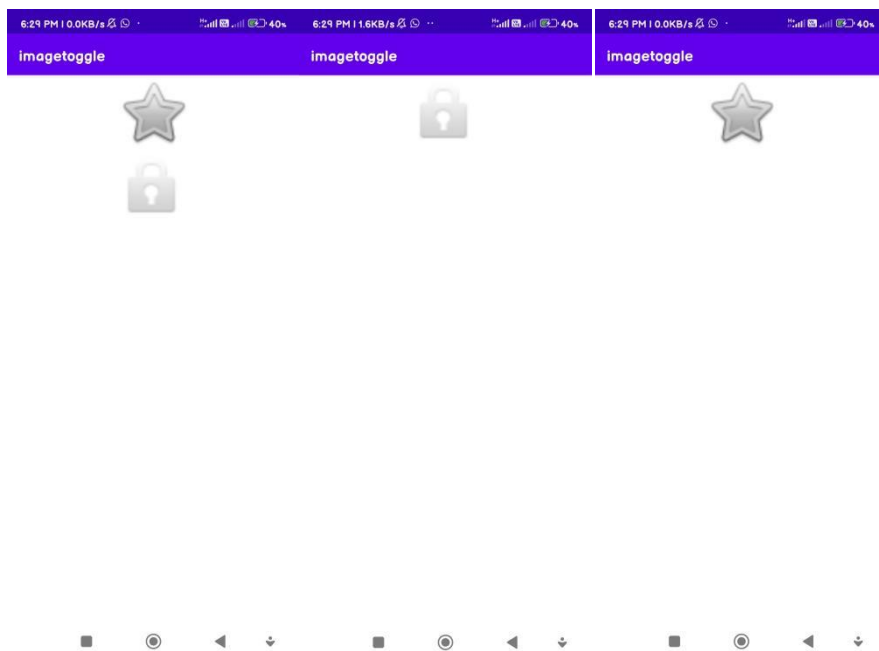
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <ImageView
        android:id="@+id/imageView3"
        android:layout_width="366dp"
        android:layout_height="297dp"
        android:src="@drawable/c" />
    <ImageView
        android:id="@+id/imageView4"
        android:layout_width="362dp"
        android:layout_height="301dp"
        android:src="@drawable/b" />
</LinearLayout>
```

MainActivity.java

```
package com.example.imagetoggle;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.ImageView;
public class MainActivity extends AppCompatActivity implements View.OnClickListener{
    ImageView img,img2;
    @Override
    protected void onCreate(Bundle savedInstanceState){
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        img=findViewById(R.id.imageView3);
        img2=findViewById(R.id.imageView4);
        img.setOnClickListener(this);
        img2.setOnClickListener(this);
    }
    public void onClick(View v){
        if(v==img){
            img.setVisibility(View.GONE);
            img2.setVisibility(View.VISIBLE);
        }
```

```
    }  
else{  
    img2.setVisibility(View.GONE);  
img.setVisibility(View.VISIBLE);  
    }  
}  
}
```

OUTPUT



COURSE OUTCOME 3

PROGRAM 9

AIM

Implement Intent to navigate between multiple activities

PAGE 1

activity_main.xml

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

<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/a
pk/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">
    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Next Page"
        android:onClick="click"
        tools:layout_editor_absoluteX="144dp"
        tools:layout_editor_absoluteY="157dp"
        tools:ignore="MissingConstraints" />
    </androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.intent;
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 b1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        b1=findViewById(R.id.button);
    }
    public void click(View view) {
        Intent i=new Intent(MainActivity.this,MainActivity2.class);
```

```
startActivity(i);
    }
}
```

PAGE 2

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/a
pk/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="wrap_content"
        android:layout_height="wrap_content"
        android:text="previous page"
        android:onClick="click"
        tools:layout_editor_absoluteX="149dp"
        tools:layout_editor_absoluteY="113dp" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

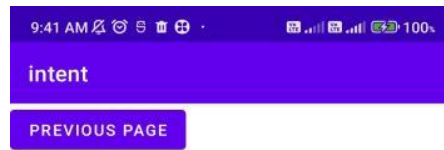
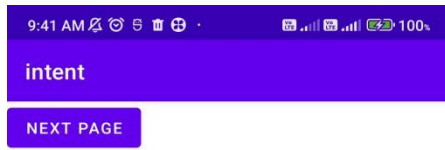
MainActivity.java

```
package com.example.intent;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;

public class MainActivity2 extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2);
    }

    public void click(View view) {
        Intent i=new Intent(MainActivity2.this,MainActivity.class);
        startActivity(i);
    }
}
```


OUTPUT



PROGRAM 10

AIM

Implement Options Menu to navigate to activities

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
<item
    android:id="@+id/item1"
    android:title="DEPARTMENT">
<menu>
<item
    android:id="@+id/inside1"
    android:title="MCA" />
<item
    android:id="@+id/inside2"
    android:title="MBA" />
</menu>
</item>
<item
    android:id="@+id/item2"
    android:title="STUDENTS" />
</menu>
```

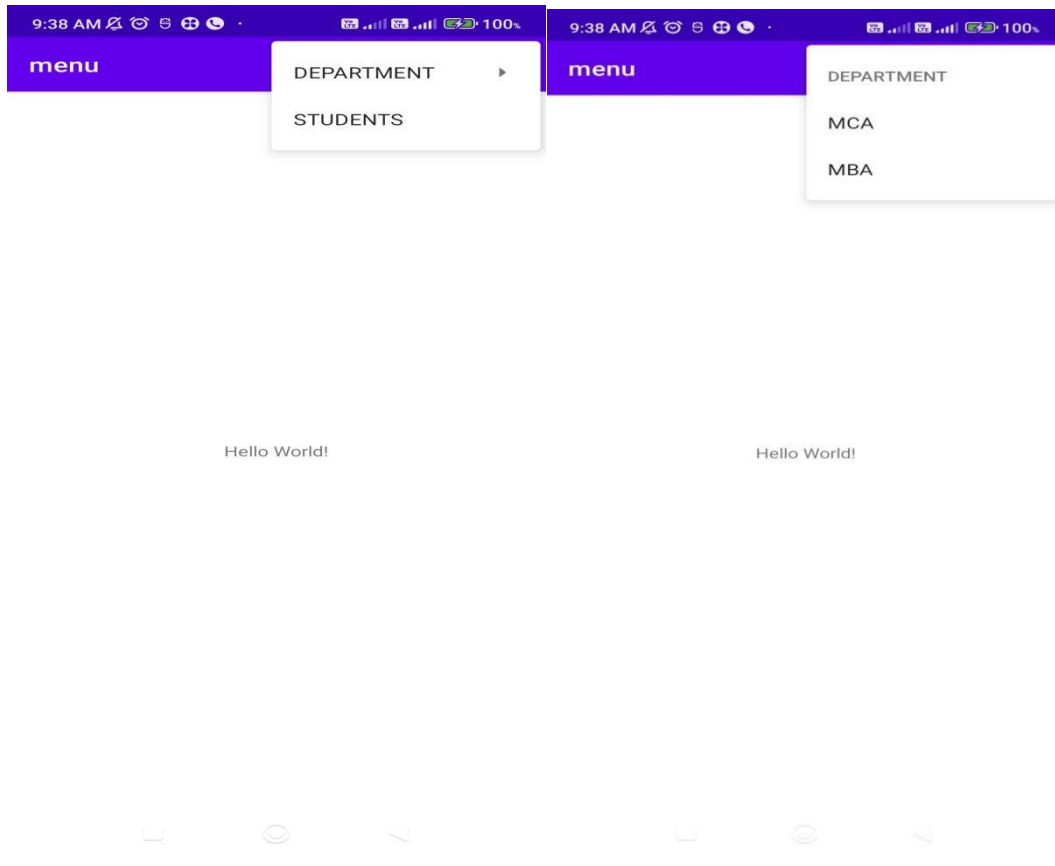
activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Hello World!"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
package com.example.menu;
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        MenuInflater inflater=getMenuInflater();
        inflater.inflate(R.menu.menu,menu);
        return true;
    }
    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item) {
        switch (item.getItemId()){
            case R.id.inside1:
                Toast.makeText(this,"mca department",Toast.LENGTH_LONG).show();
                break;
            case R.id.inside2:
                Toast.makeText(this, "mba department", Toast.LENGTH_SHORT).show();
                break;
            case R.id.item2:
                Toast.makeText(this, "students", Toast.LENGTH_SHORT).show();
                break;
        }
        return true;
    }
}
```

OUTPUT



COURSE OUTCOME 5

PROGRAM 11

AIM

Create database using SQLite and perform INSERT,SELECT,UPDATE AND DELETE

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayoutxmlns: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"
tools:context=".MainActivity">
<TextView
android:id="@+id/textView"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="TextView" />
<EditText
android:id="@+id/id"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:ems="10"
android:inputType="textPersonName"
android:hint="id" />

<EditText
android:id="@+id/name"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:ems="10"
android:inputType="textPersonName"
android:hint="name" />
<EditText
android:id="@+id/place"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:ems="10"
android:inputType="textPersonName"
android:hint="place" />
<Button
android:id="@+id/insert"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="insert" />
```

```

<Button
android:id="@+id/select"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="select" />
<Button
android:id="@+id/update"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="update" />
<Button
android:id="@+id/delete"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="delete" />
<Button
android:id="@+id/clear"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:text="clear" />
</LinearLayout>

```

MainActivity.java

```

package com.example.database_management;
import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    EditText id,name,place;
    Button insert,select,update,delete,clear;
    AlertDialog.Builder builder;
    SQLiteDatabase db;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        id = findViewById(R.id.id);
        name = findViewById(R.id.name);
        place = findViewById(R.id.place);
        insert = findViewById(R.id.insert);
        select = findViewById(R.id.select);
        update = findViewById(R.id.update);
    }
}

```

```

        delete = findViewById(R.id.delete);
        clear = findViewById(R.id.clear);
        builder = new AlertDialog.Builder(this);
        try {
db=openOrCreateDatabase("empdb",MODE_PRIVATE,null);
db.execSQL("create table employee(id integer primary key,nameText,place Text)");
Toast.makeText(getApplicationContext(),
"table created successfully",Toast.LENGTH_SHORT).show();
        } catch (Exception e) {
        }
insert.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        try {
db.execSQL("insert into employee values(" + id.getText().toString() + "," + name.getText().toString()
+ "," + place.getText().toString() + ")");
Toast.makeText(getApplicationContext(),
"inserted successfully", Toast.LENGTH_SHORT).show();
        }
catch(Exception e)
        {
Toast.makeText(getApplicationContext(),
"error", Toast.LENGTH_SHORT).show();
        }
        });
clear.setOnClickListener();
select.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        Cursor c=db.rawQuery("select * from employee",null);
        if(c.getCount()==0)
        {
Toast.makeText(getApplicationContext(),
"no record", Toast.LENGTH_SHORT).show();
        }
        else
        {
StringBuffer b=new StringBuffer();
        while(c.moveToNext())
        {
b.append("id:"+c.getString(0)+"\n");
b.append("name:"+c.getString(1)+"\n");
b.append("place:"+c.getString(2)+"\n");
Toast.makeText(getApplicationContext(),
b.toString(), Toast.LENGTH_SHORT).show();
builder.setMessage(b.toString());
AlertDialog alert=builder.create();
alert.setTitle("Employee data");
alert.show();
        }
    }
}

```



```

    }
}
});
update.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        db.execSQL("update
employee set name='"+name.getText().toString()+"',place='"+place.getText().toString()+"' where
id='"+id.getText().toString()+"");
        Toast.makeText(getApplicationContext(),
        "updated....", Toast.LENGTH_SHORT).show();
    }
});
delete.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        db.execSQL("delete from employee where id="+id.getText().toString());
        Toast.makeText(getApplicationContext(),"ItemDeleted", Toast.LENGTH_SHORT).show();
    }
});
clear.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        id.setText("");
        name.setText("");
        place.setText("");
    }
});
clear.callOnClick();
}
}

```

OUTPUT

