20MCA243–MOBILEAPPLICATIONDEVELOPMENT

LABORATORY RECORD

Submittedinpartialfulfilmentoftherequirementsfortheawardof Masters ofComputer Applications

At

COLLEGEOFENGINEERINGPOONJAR

ManagedbyI.H.R.D.,AGovt.ofKeralaundertaking

SUBMITTEDBY

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COLLEGEOFENGINEERINGPOONJAR

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CERTIFICATE

CertifiedthatthisisaBonafiderecordofpracticalworkdoneinMobileApplicationDevelopmentLab (20MCA243) Laboratory by **SANITHA K S** Reg No. **PJR24MCA-2016** of College of Engineering, Poonjar during the academic year 2024- 2026.

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SubmittedtotheUniversityExaminationheldon:

INTERNALEXAMINER

EXTERNAL EXAMINER

INDEX

ExperimentNo.1

Aim: ToimplementaprogramtoToastamessagehelloworldonabutton click.

Procedure:

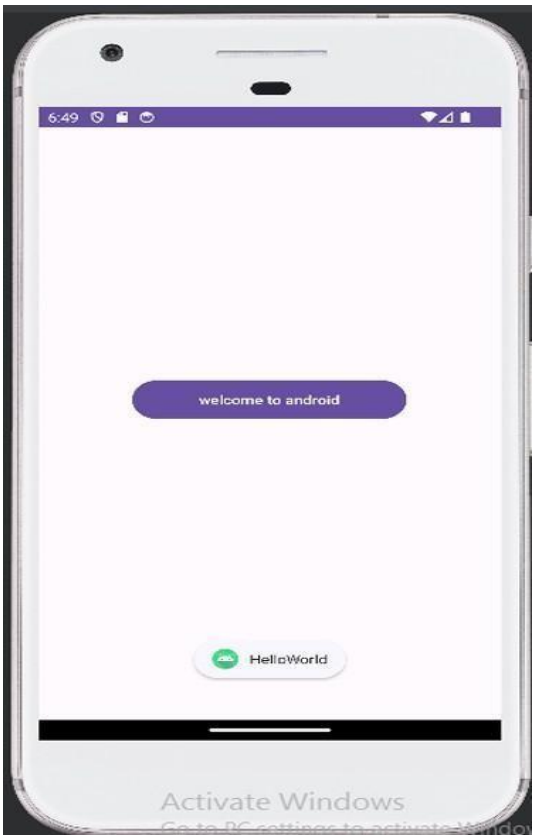
Activity_main.xml

```
<?xmlversion="1.0"encoding="utf-8"?>
 <androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"x
mlns: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="match_parent"
        android:layout_height="match_parent"android:text="
        Activity Life Cycle"android:textAlignment="center"
        android:layout_marginTop="50dp"
        android:textSize="30dp"/>
 </androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
packagecom.example.toastydemo;
importandroidx.appcompat.app.AppCompatActivity;
importandroid.os.Bundle;
importandroid.view.View;
importandroid.widget.Button;

importandroid.widget.Toast;
publicclassMainActivityextendsAppCompatActivity
{ButtonbtnToast; @Override
protectedvoidonCreate(BundlesavedInstanceState)
      { super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      btnToast=findViewById(R.id.btnToast);

       btnToast.setOnClickListener(newView.OnClickListener()
            {@Override
             public void onClick(View view)
Toast.makeText(MainActivity.this,"HelloWorld",Toast.LENGTH_LONG).show();
                  }
         });
        }
 }
```

Output:



ExperimentNo.2

Aim: To design login page in android studio

Procedure:

Activity_main.xml

```
<?xmlversion="1.0"encoding="utf-8"?>
<LinearLayoutxmlns:android="http://schemas.android.com/apk/res/android"x
        mlns:app="http://schemas.android.com/apk/res-auto"
        xmlns:tools="http://schemas.android.com/tools"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        android:padding="20dp"android:background="@col
        or/white"tools:context=".MainActivity">
<EditText
        android:id="@+id/etEmail"android:layout
        _width="wrap_content"
        android:layout_height="wrap_content"andr
        oid:layout_margin="20dp"
        android:ems="110"
        android:hint="enteremail"
        android:inputType="text"/>
<EditText
        android:id="@+id/etpassword"
        android:layout_margin="20dp"android:layout_widt
        h="match_parent"android:layout_height="wrap_cont
        ent"
```

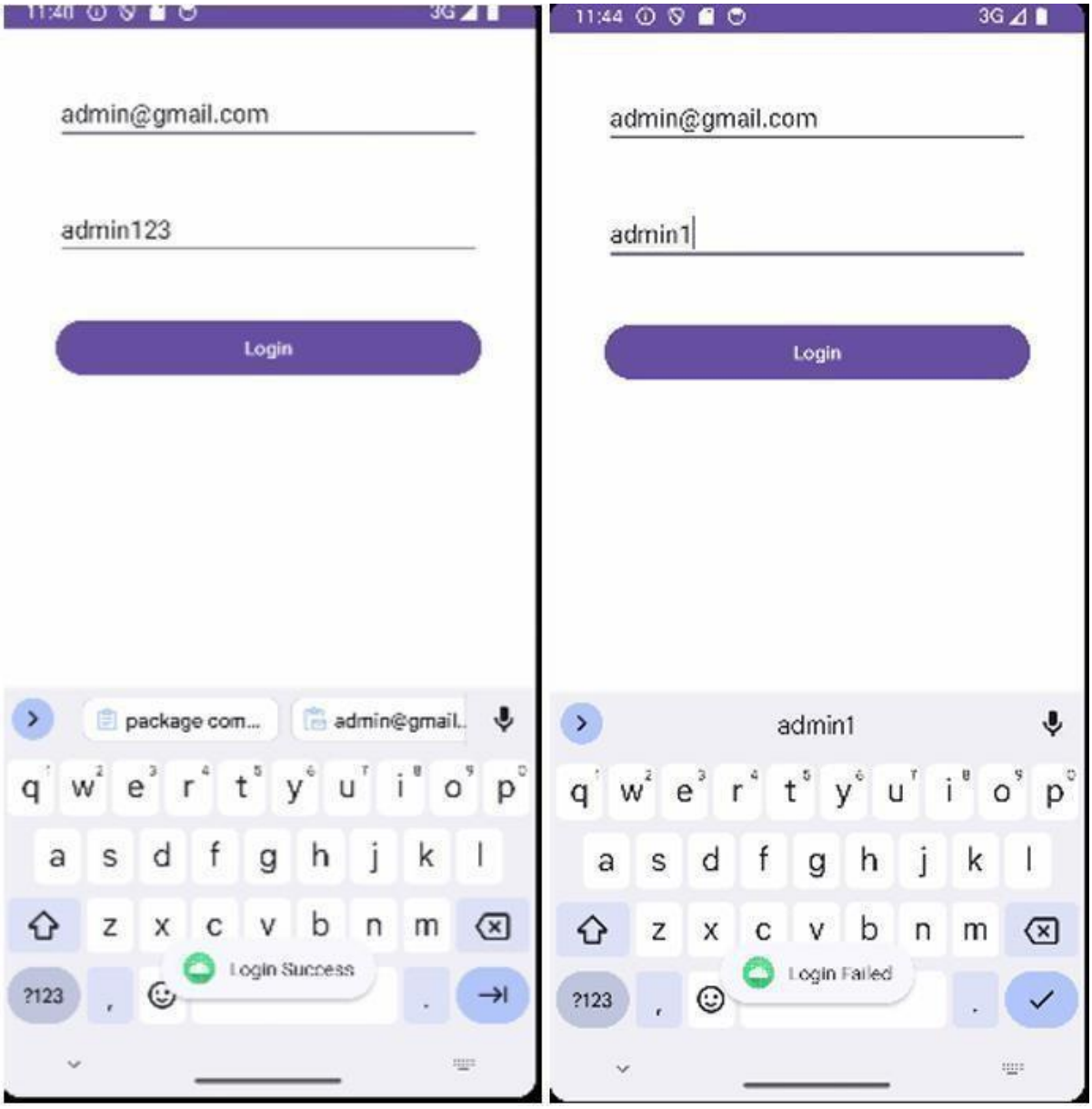
```
        android:ems="10"android:hint="Enterpass
        word"android:inputType="text"/>
 <Button
        android:id="@+id/btLogin"
        android:layout_margin="20dp"android:layout_widt
        h="match_parent"
        android:layout_height="wrap_content"android:text=
        "Login"/>
 </LinearLayout>
```

MainActivity.java

```
 packagecom.example.loginpage;
import android.os.Bundle;import
android.widget.Button;
importandroid.widget.EditText;
import android.widget.Toast;
import android.view.View;
importandroidx.appcompat.app.AppCompatActivity;

publicclassMainActivityextendsAppCompatActivity{

    EditTextetEmail,etPassword;
    Button btLogin;

    @Override
    protectedvoidonCreate(BundlesavedInstanceState){
```

```
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        //InitializeUIcomponents
        btLogin = findViewById(R.id.btLogin);
        etEmail = findViewById(R.id.etEmail);
        etPassword=findViewById(R.id.etPassword);

        // Set up login button click listener
        btLogin.setOnClickListener(new View.OnClickListener() {
            @Override
            publicvoidonClick(Viewv){
                Stringemail=etEmail.getText().toString().trim();
                Stringpassword =etPassword.getText().toString().trim();

                if(email.equals("admin@gmail.com")&&password.equals("admin123"))
                    { Toast.makeText(MainActivity.this, "Login Success",
Toast.LENGTH_SHORT).show();
                }else{
                    Toast.makeText(MainActivity.this, "Login Failed",
Toast.LENGTH_SHORT).show();
                }
            }
        });
    }
}
```

Output:


admin@gmail.com
admin123
Login
Login Success
admin@gmail.com
admin1
Login
Login Failed

ExperimentNo.3

Aim: WriteaprogramthatdemonstratesActivityLifecycle.

Procedure:

Activity_main.xml

```
<?xmlversion="1.0"encoding="utf-8"?>
 <androidx.constraintlayout.widget.ConstraintLayout
        xmlns:android="http://schemas.android.com/apk/res/android"x
        mlns: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="match_parent"
         android:layout_height="match_parent"android:text=
         "Activity Life
         Cycle"android:textAlignment="center"
         android:layout_marginTop="50dp"
         android:textSize="30dp"/>
 </androidx.constraintlayout.widget.ConstraintLayout>
```

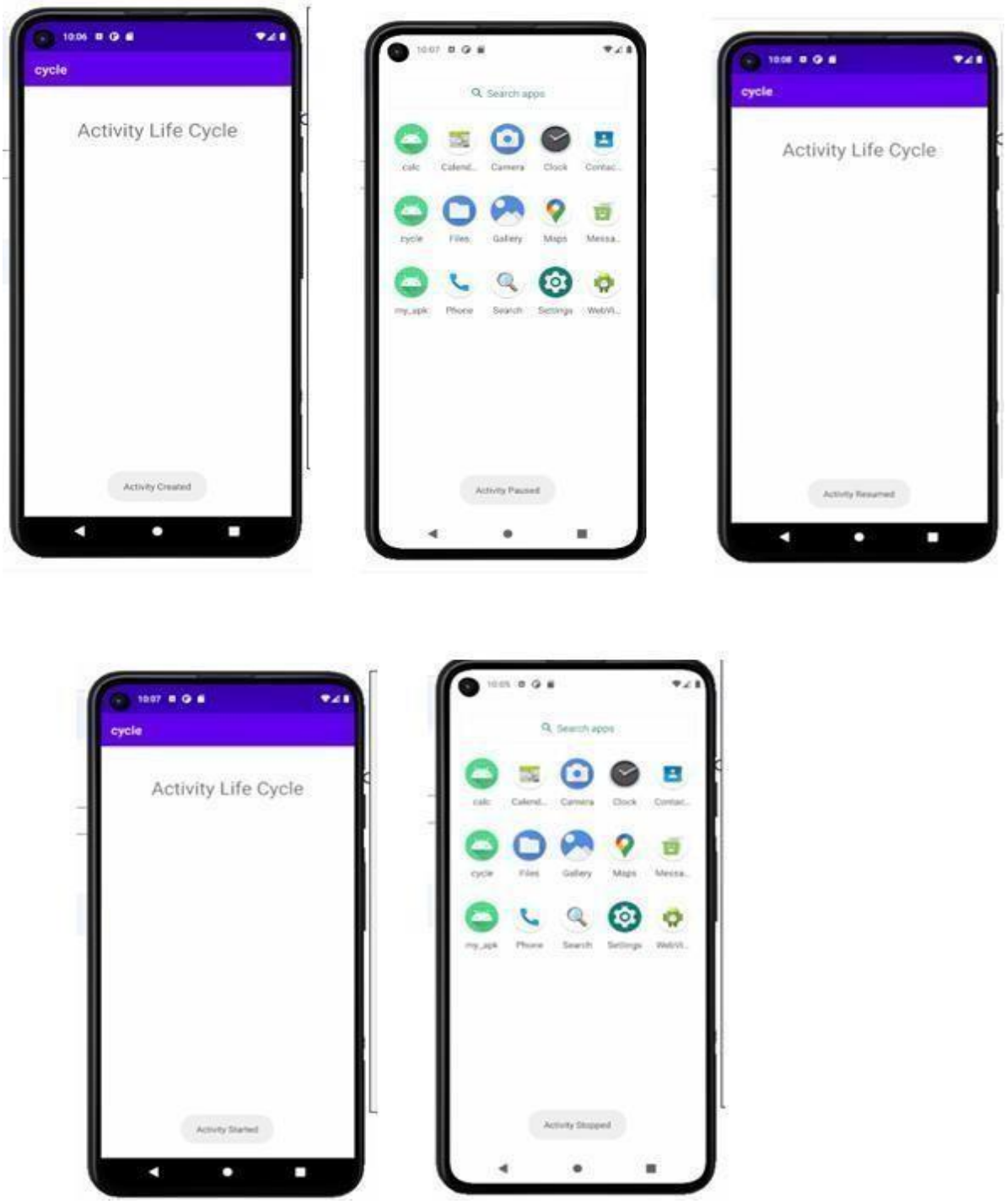
MainActivity.java

```
package com.example.cycle;
importandroidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
```

```
importandroid.widget.Toast;
publicclassMainActivityextendsAppCompatActivity
   {@Override
   protectedvoidonCreate(BundlesavedInstanceState)
      { super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      showToast("Activity Created");
   }
   protectedvoid onStart()
      { super.onStart();
      showToast("ActivityStarted");
   }
   protectedvoid onResume()
      { super.onResume();
      showToast("ActivityResumed");
   }
   protectedvoid onPause()
      { super.onPause();
      showToast("ActivityPaused");
   }
   protectedvoid onStop()
      { super.onStop();
      showToast("ActivityStopped");
   }
   protectedvoidonRestart()
 { super.onRestart();
      showToast("ActivityRestarted");
   }

   @Override
```

```
    protectedvoid onDestroy()
        { super.onDestroy();
        showToast("ActivityDestroyed");
    }

    //Helpermethodtodisplaytoastmessages
    privatevoid showToast(Stringmessage){
        Toast.makeText(this,message,Toast.LENGTH_LONG).show();
    }
}
```

Output:


cycle
Activity Life Cycle
Activity Created
Search apps
Activity Paused
cycle
Activity Life Cycle
Activity Resumed
cycle
Activity Life Cycle
Activity Started
Search apps
Activity Stopped

ExperimentNo.4

Aim: Tocreateacalculatorapplicationinandroidstudio.

Procedure:

Activity_main.xml

```
<?xmlversion="1.0"encoding="utf-8"?>
 <androidx.constraintlayout.widget.ConstraintLayout
        xmlns:android="http://schemas.android.com/apk/res/android"x
        mlns:app="http://schemas.android.com/apk/res-auto"
        xmlns:tools="http://schemas.android.com/tools"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:padding="16dp"
        tools:context=".MainActivity">
 <EditText
        android:id="@+id/num1EditText"
        android:layout_width="0dp"
        android:layout_height="48dp"
        android:layout_marginTop="44dp"
        android:hint="Enternumber1"
        android:inputType="numberDecimal"
        app:layout_constraintEnd_toEndOf="parent"app:la
        yout_constraintStart_toStartOf="parent"app:layout_c
        onstraintTop_toTopOf="parent"/>
 <EditText
        android:id="@+id/num2EditText"
        android:layout_width="0dp"
        android:layout_height="48dp"android:layout_margi
        nTop="12dp"
```

```
        android:hint="Enternumber2"
        android:inputType="numberDecimal"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.47"
        app:layout_constraintStart_toStartOf="parent"app:layout_constraint
        Top_toBottomOf="@+id/num1EditText"/>
    <Button
        android:id="@+id/addButton"android
        :layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:text="+"
        android:textSize="16sp"
        app:layout_constraintStart_toStartOf="parent"app:layout_constraintTop_toBottomOf="@+id/n
        um2EditText"/>
    <Button
        android:id="@+id/subtractButton"and
        roid:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:text="-"
        android:textSize="16sp"
        app:layout_constraintEnd_toStartOf="@+id/multiplyButton"
        app:layout_constraintStart_toEndOf="@+id/addButton"app:layout_constraintTop_toBottomO
        f="@+id/num2EditText"/>
    <Button
        android:id="@+id/multiplyButton"android:layout_
        width="wrap_content"
        android:layout_height="wrap_content"android:layou
        t_marginTop="20dp"
```

```
        android:text="x"android
        :textSize="16sp"
        app:layout_constraintEnd_toEndOf="parent"app:layout_constraintTop_toBottomOf="@+id/nu
        m2EditText"/>
    <Button
        android:id="@+id/divideButton"andr
        oid:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:text="/"
        android:textSize="16sp"
        app:layout_constraintStart_toStartOf="parent"app:layout_constraintTop_toBottomOf="@+id/a
        ddButton"/>
    <Button
        android:id="@+id/sqrtButton"android:layo
        ut_width="wrap_content"
        android:layout_height="wrap_content"andr
        oid:layout_marginTop="20dp"
        android:layout_marginEnd="140dp"
        android:text="Sqrt"
        android:textSize="16sp"
        app:layout_constraintEnd_toEndOf="parent"app:layout_constraintTop_toBottomOf="@+id/su
        btractButton"/>
    <TextView
        android:id="@+id/resultTextView"android:layout_
        width="84dp" android:layout_height="41dp"
        android:layout_marginStart="4dp"android:layout_m
        arginTop="40dp"android:text="Result:"
```

```
        android:textSize="18sp"
        app:layout_constraintStart_toStartOf="parent"app:layout_constraint
        Top_toBottomOf="@+id/divideButton"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```
packagecom.example.calculator;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
importandroid.widget.TextView;
import android.widget.Toast;
importandroidx.appcompat.app.AppCompatActivity;
import java.text.DecimalFormat;
publicclassMainActivityextendsAppCompatActivity{

   //DeclarevariablestoholdreferencestoUIelements
   private EditText num1EditText, num2EditText;
   private TextView resultTextView;

   @Override
   protectedvoid onCreate(BundlesavedInstanceState)
      { super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      num1EditText = findViewById(R.id.num1EditText);
      num2EditText=findViewById(R.id.num2EditText);
```

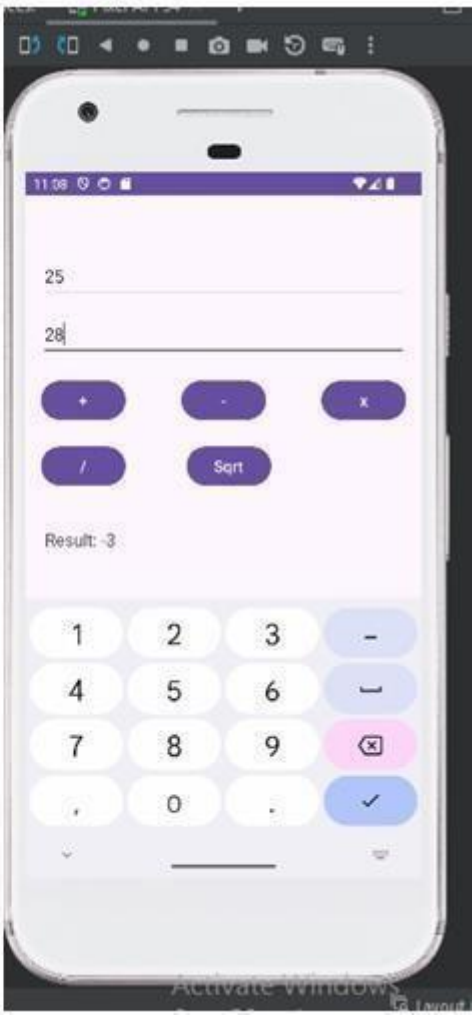
```
resultTextView=findViewById(R.id.resultTextView);

Button addButton = findViewById(R.id.addButton);
addButton.setOnClickListener(new View.OnClickListener() {
   @Override
   publicvoidonClick(Viewv)
      {performCalculation('+');
   }
});
Button subtractButton = findViewById(R.id.subtractButton);
subtractButton.setOnClickListener(new View.OnClickListener() {
   @Override
   publicvoidonClick(Viewv)
      {performCalculation('-');
   }
});
Button multiplyButton = findViewById(R.id.multiplyButton);
multiplyButton.setOnClickListener(new View.OnClickListener() {
   @Override
   publicvoidonClick(Viewv)
      {performCalculation('*');
   }
});
Button divideButton = findViewById(R.id.divideButton);
divideButton.setOnClickListener(new View.OnClickListener() {
   @Override
   publicvoidonClick(Viewv)
      {performCalculation('/');
   }
});
```

```
    Button sqrtButton = findViewById(R.id.sqrtButton);
    sqrtButton.setOnClickListener(new View.OnClickListener() {
        @Override
        publicvoidonClick(Viewv)
            {calculateSquareRoot();
        }
    });
}
privatevoidperformCalculation(charoperator){
    //Getthevaluesenteredin theinput fields
    Stringnum1Str=num1EditText.getText().toString();
    Stringnum2Str=num2EditText.getText().toString();

    //Checkifeitherinputfieldis empty
    if(num1Str.isEmpty()||num2Str.isEmpty()){
        Toast.makeText(this,"Pleaseenterbothnumbers",Toast.LENGTH_SHORT).show();
        return; // Exit the method to prevent calculations with empty inputs
    }

    // Convert the input values to numeric format
    doublenum1=Double.parseDouble(num1Str);
    doublenum2=Double.parseDouble(num2Str);
    double result = 0;

    //Performtheselectedcalculationbasedontheoperator
    switch (operator) {
        case'+':
            result=num1+num2;
            break;
        case'-':
```

```
            result=num1-num2;
            break;
        case'*':
            result=num1*num2;
            break;
        case'/':
            if(num2!=0){
                result=num1 / num2;
            }else{
                Toast.makeText(this,"Cannotdividebyzero",Toast.LENGTH_SHORT).show();
                return; // Exit the method if division by zero is attempted
            }
            break;
    }

    // Format and display the calculation result
    DecimalFormat df = new DecimalFormat("#.##");
    resultTextView.setText("Result:"+df.format(result));
}

privatevoidcalculateSquareRoot(){
    Stringnum1Str=num1EditText.getText().toString();

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

    doublenum=Double.parseDouble(num1Str);
```

```
        doublesqrtResult=Math.sqrt(num);

        // Format and display the square root result
        DecimalFormatdf=new DecimalFormat("#.##");
        resultTextView.setText("SquareRoot:"+df.format(sqrtResult));
    }
}
```

Output:



ExperimentNo.5

Aim: Tocreateanandroidapplicationtounderstandpassingdatabetweenactivitiesusing intent.

Procedure:

Activity_main.xml

```
<?xmlversion="1.0"encoding="utf-8"?>
 <RelativeLayoutxmlns:android="http://schemas.android.com/apk/res/android"x
        mlns:app="http://schemas.android.com/apk/res-auto"
        xmlns:tools="http://schemas.android.com/tools"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:padding="20dp"tools:context=".MainActivit
        y">
 <EditText
        android:id="@+id/nameET"android:layout_width="
        match_parent"
        android:layout_height="wrap_content"android:hint=
        "Name"/>
 <EditText
        android:id="@+id/numberET"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"android:layo
        ut_below="@+id/nameET"android:layout_marginT
        op="10dp" android:hint="Number"
        android:inputType="number"/>
```

```
<Button
        android:id="@+id/btn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"android:layo
        ut_below="@+id/numberET"android:layout_margin
        Top="30dp" android:text="SendData"/>
<TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"android:layou
        t_centerInParent="true"
        android:text="FirstActivity"/>
</RelativeLayout>
```

MainActivity.java

```
package com.example.firstactivity;
importandroidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
importandroid.widget.EditText;
publicclassMainActivityextendsAppCompatActivity{

   EditTextname,number;
   Button btn;
   @Override
   protectedvoidonCreate(BundlesavedInstanceState)
      {super.onCreate(savedInstanceState);
```

```
        setContentView(R.layout.activity_main);
        name = findViewById(R.id.nameET);
        number=findViewById(R.id.numberET);
        btn = findViewById(R.id.btn);

        // Pass Data on Button Click
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            publicvoidonClick(Viewview){
                //Getdatafrominput fields
                String getName = name.getText().toString();
                StringgetNumber=number.getText().toString();
                //Passdatato 2nd activity
                Intent intent = new Intent(MainActivity.this, SecondActivity.class);
                intent.putExtra("name", getName);
                intent.putExtra("number",getNumber);
                startActivity(intent);
            }
        });
    }
}
```

Activity_main2.xml

```
<?xmlversion="1.0"encoding="utf-8"?>
 <RelativeLayoutxmlns:android="http://schemas.android.com/apk/res/android"x
            mlns:app="http://schemas.android.com/apk/res-auto"
            xmlns:tools="http://schemas.android.com/tools"
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:padding="20dp"
```

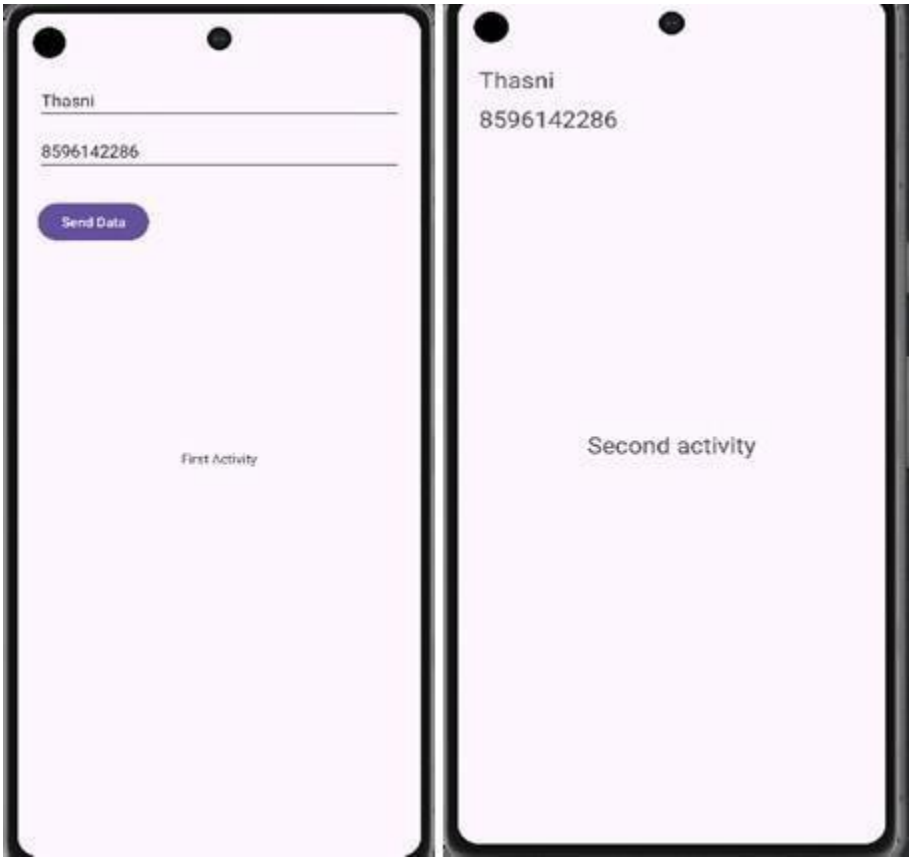
```
        tools:context=".SecondActivity">
    <TextView
        android:id="@+id/set_name"android:layou
        t_width="wrap_content"
        android:layout_height="wrap_content"andr
        oid:text="Name"
        android:textSize="24sp"/>
    <TextView
        android:id="@+id/set_number"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"and
        roid:layout_below="@+id/set_name"androi
        d:layout_marginTop="10dp"
        android:text="123"
        android:textSize="24sp"/>
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"android:layou
        t_centerInParent="true"
        android:text="Secondactivity"
        android:textSize="24sp"/>
    </RelativeLayout>
```

MainActivity2.java

```
package com.example.firstactivity;

importandroidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import
android.os.Bundle;importandroi
d.widget.TextView;
```

```
publicclassSecondActivityextendsAppCompatActivity
    {TextViewname,number;
    @Override
    protectedvoidonCreate(BundlesavedInstanceState)
        { super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_second);
        // Hooks
        name = findViewById(R.id.set_name);
        number=findViewById(R.id.set_number);
        // Get text from Intent
        Intentintent=getIntent();
        String getName = intent.getStringExtra("name");
        String getNumber = intent.getStringExtra("number");
        // Set Text
        name.setText(getName);
        number.setText(getNumber);
    }
}
```

Output:


Thasni
8596142286
Send Data
First Activity
Thasni
8596142286
Second activity

ExperimentNo.6

Aim: Designaregistrationactivityandstoreregistrationdetailsinlocalmemoryofphone using Intents and SharedPreferences.

Procedure:

Activity_main.xml

```
<?xmlversion="1.0"encoding="utf-8"?>
 <LinearLayout
        xmlns:android="http://schemas.android.com/apk/res/android"x
        mlns:app="http://schemas.android.com/apk/res-auto"
        xmlns:tools="http://schemas.android.com/tools"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        android:padding="16dp"android:gravity="c
        enter">
 <EditText
        android:id="@+id/usernameEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Username"android:inp
        utType="text" />
 <EditText
        android:id="@+id/emailEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Email"android:inputType="textEmail
        Address"/>
 <EditText
```

```
        android:id="@+id/passwordEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Password"
        android:inputType="textPassword"/>
 <Button
        android:id="@+id/registerButton"android:layout_w
        idth="wrap_content"
        android:layout_height="wrap_content"android:layou
        t_gravity="center"android:text="Register" />
 </LinearLayout>
```

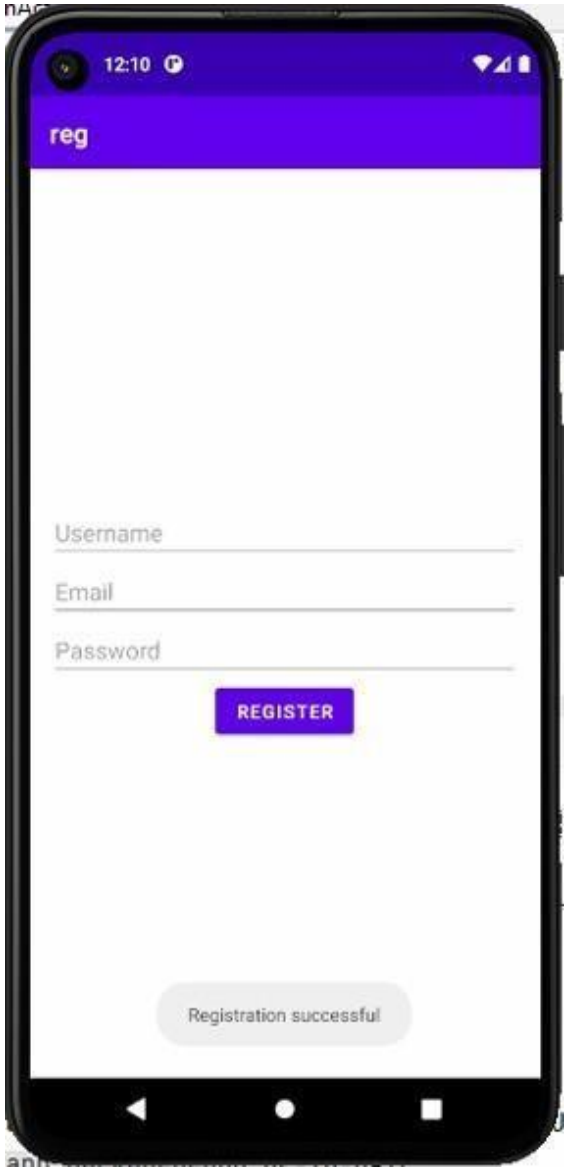
MainActivity.java

```
packagecom.example.registration;
import android.content.Intent;
importandroid.content.SharedPreferences;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
importandroid.widget.EditText;
import android.widget.Toast;
importandroidx.appcompat.app.AppCompatActivity;

publicclassMainActivityextendsAppCompatActivity{

   privateEditTextusernameEditText,emailEditText,passwordEditText;
   private Button registerButton;
```

```
@Override
protectedvoidonCreate(BundlesavedInstanceState)
{ super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);

//InitializeUIelements
usernameEditText=findViewById(R.id.usernameEditText);
emailEditText = findViewById(R.id.emailEditText);
passwordEditText=findViewById(R.id.passwordEditText);
registerButton = findViewById(R.id.registerButton);

// Set click listener for the register button
registerButton.setOnClickListener(new View.OnClickListener() {
@Override
publicvoidonClick(Viewv){
//Retrieveuserinput
Stringusername=usernameEditText.getText().toString();
String email = emailEditText.getText().toString();
Stringpassword =passwordEditText.getText().toString();

// Store registration details in SharedPreferences
SharedPreferencespreferences=getSharedPreferences("MyPrefs",
MODE_PRIVATE);
SharedPreferences.Editoreditor=preferences.edit();
editor.putString("username", username);
editor.putString("email", email);
editor.putString("password", password);
editor.apply();

Toast.makeText(MainActivity.this, "Registration successful",
Toast.LENGTH_SHORT).show();
```

```
            //Startanother activity
            Intent intent = new Intent(MainActivity.this, MainActivity.class);
            startActivity(intent);
        }
    });
  }
}
```

Output:


12:10
reg
Username
Email
Password
REGISTER
Registration successful

ExperimentNo.7

Aim: CreateaFacebook pageusingRelativeLayout;setpropertiesusing.xml file

Procedure:

Activity_main.xml

```
<?xmlversion="1.0"encoding="utf-8"?>
<RelativeLayout
   xmlns:android="http://schemas.android.com/apk/res/android"x
   mlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="fill_parent"
   android:layout_height="fill_parent"
   android:paddingLeft="16dp"
   android:paddingRight="16dp">

   <ScrollView
      android:layout_width="match_parent"android
      :layout_height="match_parent">

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

         <ImageView
            android:id="@+id/facebookView"android
            :layout_width="200dp"
            android:layout_height="80dp"
```

```
    android:layout_gravity="center"android:src="@dr
    awable/facebook"/>

<ImageView
    android:id="@+id/imageView4"android:
    layout_width="match_parent"android:lay
    out_height="281dp"android:src="@dra
    wable/post" />

<GridLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"an
    droid:layout_gravity="center"
    android:layout_marginTop="40dp"
    android:columnCount="4"
    android:rowCount="4">

    <!--LikeImageView-->
    <ImageView
        android:id="@+id/likeImageView"andr
        oid:layout_width="110dp"
        android:layout_height="83dp"
        android:layout_gravity="center"
        android:clickable="true"
        android:onClick="onLikeClick"androi
        d:src="@drawable/like" />

    <!--CommentImageView-->
    <ImageView
        android:id="@+id/commentImageView"
```

```
        android:layout_width="111dp"
        android:layout_height="66dp"
        android:layout_row="0"
        android:layout_column="1"
        android:layout_gravity="center"
        android:clickable="true"
        android:onClick="onCommentClick"android:sr
        c="@drawable/comment"/>

    <!--ShareImageView-->
    <ImageView
        android:id="@+id/shareImageView"an
        droid:layout_width="93dp"
        android:layout_height="86dp"
        android:layout_row="0"
        android:layout_column="3"
        android:layout_gravity="center"
        android:clickable="true"
        android:onClick="onShareClick"andr
        oid:src="@drawable/share" />
</GridLayout>

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

    <ImageView
        android:id="@+id/imageView7"andro
        id:layout_width="match_parent"
```

```
    android:layout_height="281dp"android:src="@
    drawable/dog"/>

<GridLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"android:l
    ayout_gravity="center"
    android:layout_marginTop="40dp"
    android:columnCount="4"
    android:rowCount="4">

    <!--LikeImageView-->
    <ImageView
        android:id="@+id/likeImageView2"android:l
        ayout_width="110dp"
        android:layout_height="83dp"
        android:layout_gravity="center"
        android:clickable="true"
        android:onClick="onLikeClick"android:src=
        "@drawable/like" />

    <!--CommentImageView-->
    <ImageView
        android:id="@+id/commentImageView2"and
        roid:layout_width="111dp"
        android:layout_height="66dp"
        android:layout_row="0"
        android:layout_column="1"
        android:layout_gravity="center"
        android:clickable="true"
```

```
            android:onClick="onCommentClick"android
            :src="@drawable/comment"/>

        <!--ShareImageView-->
        <ImageView
            android:id="@+id/shareImageView2"android:
            layout_width="93dp"
            android:layout_height="86dp"
            android:layout_row="0"
            android:layout_column="3"
            android:layout_gravity="center"
            android:clickable="true"
            android:onClick="onShareClick"android:src
            ="@drawable/share" />
      </GridLayout>
    </LinearLayout>
  </LinearLayout>
 </ScrollView>
</RelativeLayout>
```

MainActivity.java

```
package com.example.facebook;

importandroidx.appcompat.app.AppCompatActivity;
import android.app.Activity;
importandroid.os.Bundle;
importandroid.view.View;
importandroid.widget.ImageView;
```

```
importandroid.widget.Toast;

publicclassMainActivityextendsActivity
   {@Override
   protectedvoidonCreate(BundlesavedInstanceState)
      { super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);

      //FindtheImageViewelementsbytheirIDs
      ImageView facebookView = findViewById(R.id.facebookView);
      ImageView likeImageView = findViewById(R.id.likeImageView);
      ImageViewcommentImageView=findViewById(R.id.commentImageView);
      ImageView shareImageView = findViewById(R.id.shareImageView);

      // Set click listeners for the ImageViews
      likeImageView.setOnClickListener(new View.OnClickListener() {
         @Override
         public voidonClick(Viewv)
            {showToast("YouclickedtheLikebutton");
         }
      });

      commentImageView.setOnClickListener(newView.OnClickListener()
         {@Override
         publicvoidonClick(Viewv){
            showToast("YouclickedtheCommentbutton");
         }
       });

      shareImageView.setOnClickListener(newView.OnClickListener(){
```

```
        @Override
        public voidonClick(Viewv)
            {showToast("YouclickedtheSharebutton");
        }
    });
  }

  //Helpermethodtodisplayatoastmessage
  privatevoid showToast(Stringmessage){
    Toast.makeText(this,message,Toast.LENGTH_SHORT).show();
  }
}
```

Output:

ExperimentNo.8

Aim: DevelopanapplicationthattogglesimageusingFrameLayout

Procedure:

Activity_main.xml

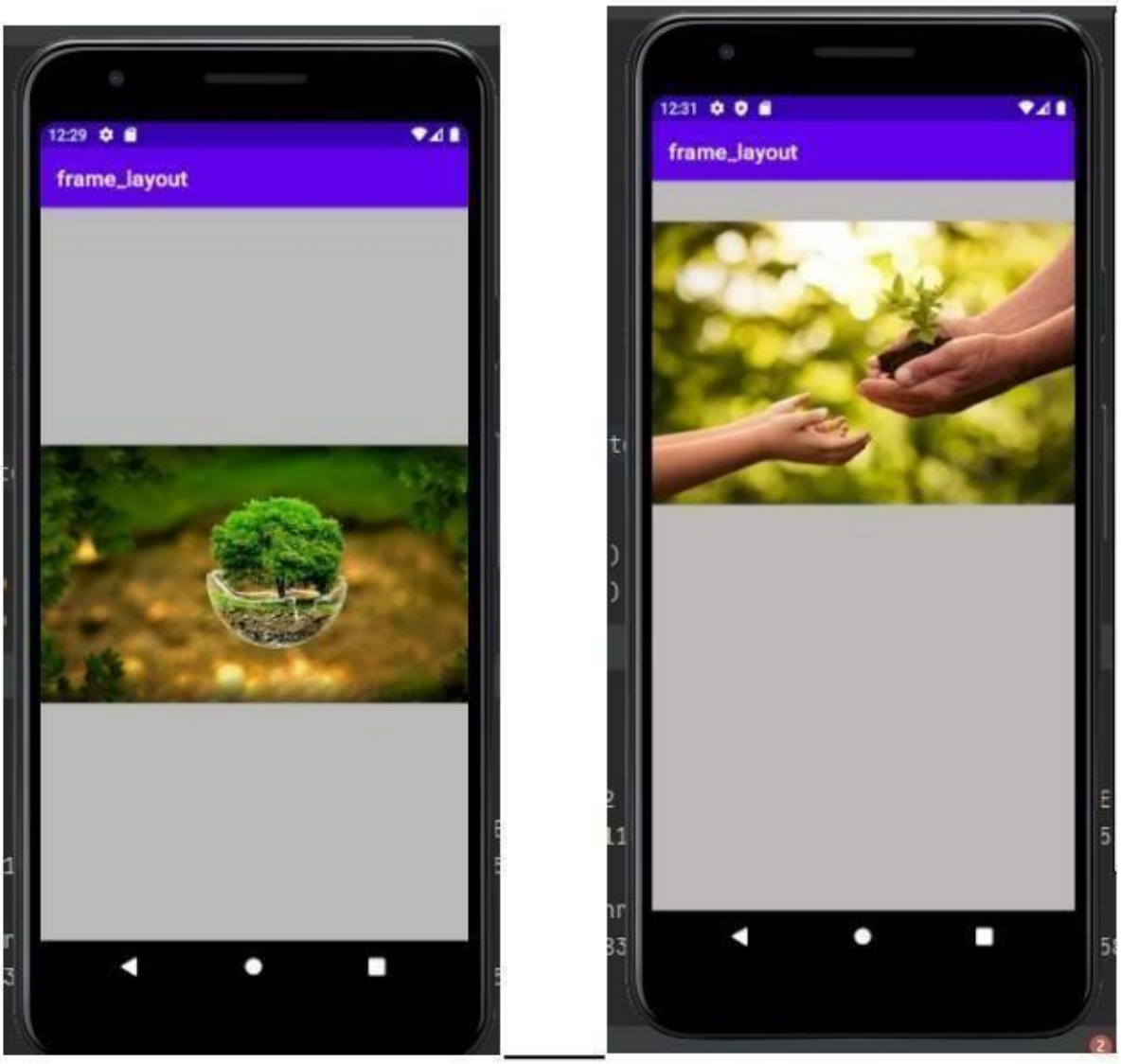
```
<?xmlversion="1.0"encoding="utf-8"?>
 <FrameLayoutxmlns:android="http://schemas.android.com/apk/res/android"x
        mlns:app="http://schemas.android.com/apk/res-auto"
        xmlns:tools="http://schemas.android.com/tools"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:background="#BDBABA"
        tools:context=".MainActivity">
 <ImageView
        android:id="@+id/imageView1"
        android:layout_width="427dp"android:layout_heigh
        t="wrap_content"android:layout_gravity="left|top"
        android:background="#CACAC8"app:srcCompat=
        "@drawable/s1" />
 <ImageView
        android:id="@+id/imageView2"
        android:layout_width="396dp"android:layout_heigh
        t="wrap_content"android:layout_gravity="left|top"
        android:visibility="gone"app:srcCompat="@drawa
        ble/f1" />
 </FrameLayout>
```

MainActivity.java

```
package com.example.frame_layout;

importandroidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
importandroid.view.View;
importandroid.widget.ImageView;

publicclassMainActivityextendsAppCompatActivityimplementsView.OnClickListener
   {ImageViewi1, i2;

   @Override
   protectedvoidonCreate(BundlesavedInstanceState)
      { super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);

      //InitializeImageViewelements
      i1=(ImageView)findViewById(R.id.imageView1);
      i2=(ImageView) findViewById(R.id.imageView2);

      // Set click listeners
      i1.setOnClickListener(this);
      i2.setOnClickListener(this);
   }

   @Override
   publicvoidonClick(Viewv){
      if(v.getId()==R.id.imageView1)
         {i1.setVisibility(View.GONE);
         i2.setVisibility(View.VISIBLE);
```

```
        }else{
            i2.setVisibility(View.GONE);
            i1.setVisibility(View.VISIBLE);
        }
    }
}
```

Output:



ExperimentNo.9

Aim: Developanandroidmobileapplicationtoillustratetheusageofalert dialogue

Procedure:

Activity_main.xml

```
<?xmlversion="1.0"encoding="utf-8"?>
<RelativeLayoutxmlns:android="http://schemas.android.com/apk/res/android"x
   mlns: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
      :layout_marginTop="180dp"
      android:gravity="center_horizontal"
      android:text="PressTheBackButtonofYourPhone."
      android:textSize="30dp"
      android:textStyle="bold"/>
</RelativeLayout>
```

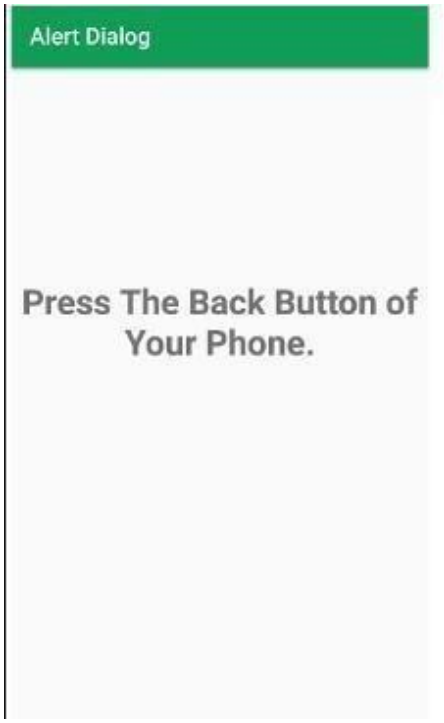
MainActivity.java

```
importandroid.content.DialogInterface;
import android.os.Bundle;
```

```
importandroidx.appcompat.app.AlertDialog;
importandroidx.appcompat.app.AppCompatActivity;

publicclassMainActivityextendsAppCompatActivity{

    @Override
    protectedvoidonCreate(BundlesavedInstanceState)
        { super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }

    //DeclaretheonBackPressedmethodwhenthebackbuttonispressedthismethodwillcall @Override
    publicvoid onBackPressed(){
        //Create theobjectofAlertDialogBuilder class
        AlertDialog.Builderbuilder=newAlertDialog.Builder(MainActivity.this);

        // Set the message show for the Alert time
        builder.setMessage("Doyouwanttoexit?");

        // Set Alert Title
        builder.setTitle("Alert!");

        //SetCancelablefalseforwhentheuserclicksontheoutsidetheDialogBoxthenitwill remain
show
        builder.setCancelable(false);

        //SetthepositivebuttonwithyesnameLambdaOnClickListenermethodisuseof DialogInterface
interface.
        builder.setPositiveButton("Yes",(DialogInterface.OnClickListener)(dialog,which)->{
            //Whentheuser clickyesbuttonthenappwillclose
```

```
            finish();
        });

        //SettheNegativebuttonwithNonameLambdaOnClickListenermethodisuseof DialogInterface interface.
        builder.setNegativeButton("No",(DialogInterface.OnClickListener)(dialog,which)->{
            //Ifuserclicknothendialogboxiscanceled.
            dialog.cancel();
        });

        //CreatetheAlert dialog
        AlertDialogalertDialog=builder.create();
        //ShowtheAlertDialogbox alertDialog.show();
    }
}
```

Output:


Alert Dialog
Press The Back Button of Your Phone.


Alert Dialog
Alert !
Do you want to exit ?
NO
YES

ExperimentNo.10Aim:

DevelopanapplicationusingarrayadapterwithList view

Procedure:

Activity_main.xml

```
<?xmlversion="1.0"encoding="utf-8"?>
<RelativeLayoutxmlns:android="http://schemas.android.com/apk/res/android"x
        mlns: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">
<ListView
        android:id="@+id/MyLists"
        android:layout_width="match_parent"android:layou
        t_height="match_parent"/>
</RelativeLayout>
```

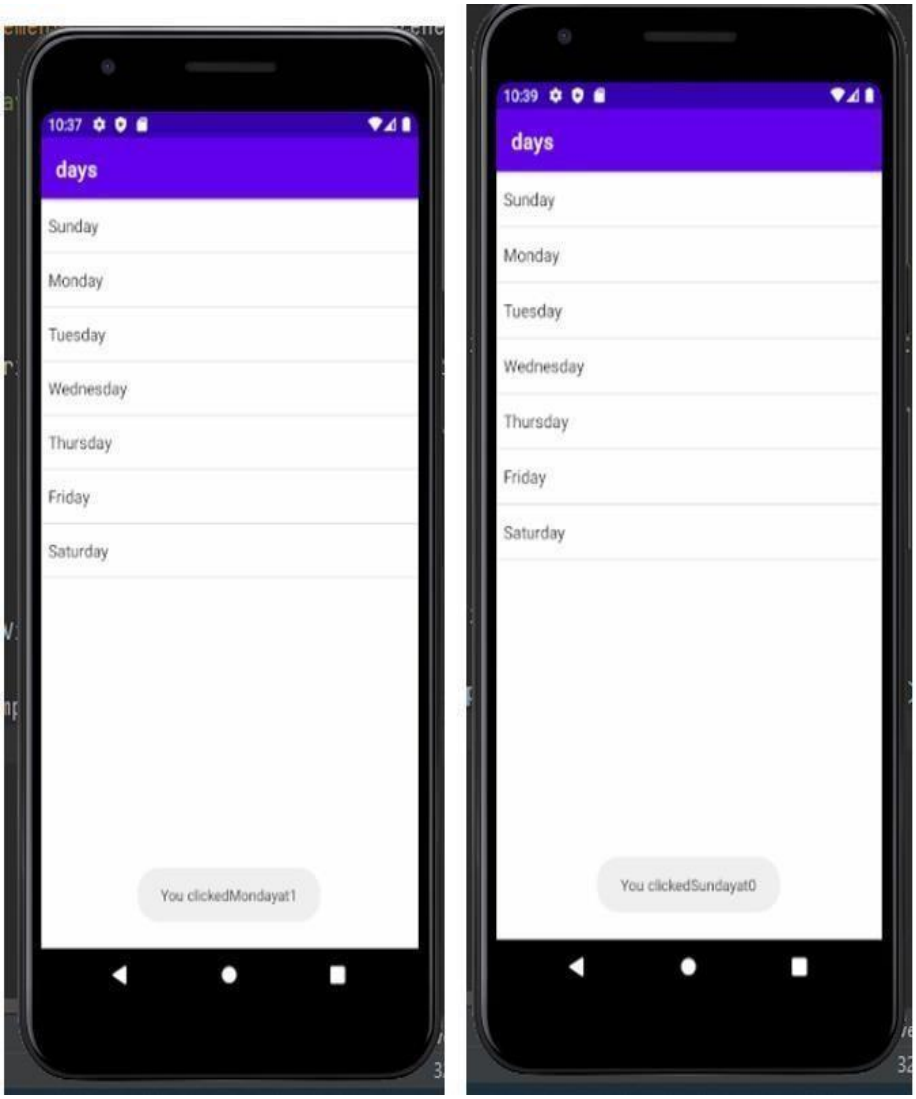
MainActivity.java

```
package com.example.days;
importandroidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
importandroid.view.View;
import  android.widget.AdapterView;
importandroid.widget.ArrayAdapter;
import android.widget.ListView;
```

```
importandroid.widget.TextView;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity implements
AdapterView.OnItemClickListener {

   ListView l;
   String[]days={"Sunday","Monday","Tuesday","Wednesday","Thursday","Friday",
"Saturday"};

   @Override
   protectedvoidonCreate(BundlesavedInstanceState)
      { super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      //InitializeListView
      l=findViewById(R.id.MyLists);
      // Set up ArrayAdapter for ListView
      ArrayAdapter<String>adapter=new
            ArrayAdapter<String>( this,
            androidx.appcompat.R.layout.support_simple_spinner_dropdown_item,
            days
      );
      //SettheadaptertoListView
      l.setAdapter(adapter);

      //SettheonItemClickListenerforListView
      l.setOnItemClickListener(this);
   }

   @Override
   publicvoidonItemClick(AdapterView<?>adapterView,Viewview,intposition,longid) {
      //GettheTextViewclickedanddisplayaToast
```

```
        TextViewtemp=(TextView)view;
        Toast.makeText(this,"YouClicked"+temp.getText()+"at"+position,
Toast.LENGTH_SHORT).show();
    }
}
```

Output:



ExperimentNo.11

Aim: CreatedatabaseusingSQLiteandperformINSERTandSELECT.

Procedure:

Activity_main.xml

```
<?xmlversion="1.0"encoding="utf-8"?>

<android.support.constraint.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"x
    mlns: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
        xmlns:android="http://schemas.android.com/apk/res/android"and
        roid:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        android:padding="16dp">

        <EditText
            android:id="@+id/editTextName"andr
            oid:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="Name" />
```

```
<EditText
    android:id="@+id/editTextAge"androi
    d:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Age"android:inputType
    ="number" />

<EditText
    android:id="@+id/editTextMark"andr
    oid:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Mark"android:inputTyp
    e="number" />

<Button
    android:id="@+id/buttonInsert"android:layout_widt
    h="wrap_content"
    android:layout_height="wrap_content"android:text=
    "InsertData" />

<Button
    android:id="@+id/buttonSelect"android:layout_widt
    h="wrap_content"
    android:layout_height="wrap_content"android:text=
    "selectData" />

<TextView
    android:id="@+id/textViewData"and
    roid:layout_width="match_parent"
```

```
        android:layout_height="wrap_content"andro
        id:layout_marginTop="16dp"
        android:text="UserData:"android:textStyle
        ="bold" />

    </LinearLayout>

</android.support.constraint.ConstraintLayout>
```

MainActivity.java

```
package com.example.database;

importandroid.support.v7.app.AppCompatActivity;
import android.database.Cursor;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
importandroid.widget.TextView;
import android.widget.Toast;

publicclassMainActivityextendsAppCompatActivity{

    privateDatabaseHelperdb;//databasename
    privateEditTexteditTextName,editTextAge,editTextMark;
    private TextView textViewData;

    @Override
```

```
protectedvoidonCreate(BundlesavedInstanceState)
{ super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);

db =new DatabaseHelper(this);

editTextName = findViewById(R.id.editTextName);
editTextAge = findViewById(R.id.editTextAge);
editTextMark=findViewById(R.id.editTextMark);
textViewData=findViewById(R.id.textViewData);

ButtonbuttonInsert=findViewById(R.id.buttonInsert);
ButtonbuttonSelect=findViewById(R.id.buttonSelect);

buttonInsert.setOnClickListener(newView.OnClickListener()
{@Override
publicvoidonClick(Viewv){
Stringname=editTextName.getText().toString();
int age = Integer.parseInt(editTextAge.getText().toString());
intmark=Integer.parseInt(editTextMark.getText().toString());

booleaninsertData=db.insertUser(name,age,mark);//insertdata if
(insertData) {
Toast.makeText(MainActivity.this,"UserInsertedSuccessfully",
Toast.LENGTH_SHORT).show();
displayData();
}else{
Toast.makeText(MainActivity.this,"FailedtoInsertUser",
Toast.LENGTH_SHORT).show();
}
}
```

```
    });

    buttonSelect.setOnClickListener(newView.OnClickListener()
        {@Override
        publicvoidonClick(Viewv)
            {displayData();
        }
    });
}

//Displaydata
privatevoiddisplayData(){
    Cursorcursor=db.getAllUsers(); if
    (cursor.getCount() == 0) {
        textViewData.setText("Nousersfound");
    }else{
        StringBuilderdata=newStringBuilder();
        while (cursor.moveToNext()) {
            intid=cursor.getInt(0);
            Stringname=cursor.getString(1);
            int age = cursor.getInt(2);
            int mark = cursor.getInt(3);
            data.append("ID:").append(id)
                .append(",Name:").append(name)
                .append(",Age:").append(age)
                .append(",Mark:").append(mark)
                .append("\n");
        }
        textViewData.setText(data.toString());
    }
```

```
    }
}
```

DatabaseHelper.java

```
package com.example.database;

importandroid.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
importandroid.database.sqlite.SQLiteOpenHelper;

publicclassDatabaseHelperextendsSQLiteOpenHelper{

    privatestaticfinalStringDATABASE_NAME="UserDatabase.db";
    private static final String TABLE_NAME = "UserTable";
    private static final String COL_1 = "ID";
    privatestaticfinalStringCOL_2="NAME";
    private static final String COL_3 = "AGE";
    privatestaticfinalStringCOL_4="MARK";

    public DatabaseHelper(Contextcontext)
        {super(context,DATABASE_NAME, null,1);
    }

    @Override
    public voidonCreate(SQLiteDatabasedb)
        {db.execSQL("CREATETABLE"+TABLE_NAME+"("
        +
              COL_1+"INTEGERPRIMARYKEYAUTOINCREMENT,"+
```

```
            COL_2 + " TEXT, " +
            COL_3+"INTEGER,"+
            COL_4 +"INTEGER)");
    }

    @Override
    publicvoidonUpgrade(SQLiteDatabasedb,intoldVersion,intnewVersion)
        {db.execSQL("DROPTABLEIF EXISTS " +TABLE_NAME);
        onCreate(db);
    }

    publicbooleaninsertUser(Stringname,intage,intmark)
        { SQLiteDatabase db = this.getWritableDatabase();
        ContentValuescontentValues=newContentValues();
        contentValues.put(COL_2, name);
        contentValues.put(COL_3, age);
        contentValues.put(COL_4, mark);

        longresult=db.insert(TABLE_NAME,null,contentValues);
        return result != -1;
    }

    publicCursorgetAllUsers(){
        SQLiteDatabasedb=this.getWritableDatabase();
        returndb.rawQuery("SELECT*FROM"+TABLE_NAME,null);
    }
}
```

Output:


10:25
LTE
c5q1
AKHILA MICHAEL
24
87
INSERT DATA
SELECT DATA
ID: 1, Name: Anjala Michael, Age: 22, Mark: 85
ID: 2, Name: AKHILA MICHAEL, Age: 24, Mark: 87
1 2 3 -
4 5 6
7 8 9
, 0 .