

20MCA243 – MOBILE APPLICATION DEVELOPMENT

LABORATORY RECORD

*Submitted in partial fulfilment of the requirements for the award of
Masters of Computer Applications*

At

COLLEGE OF ENGINEERING POONJAR

Managed by I.H.R.D., A Govt. of Kerala undertaking
(Affiliated to APJ Abdul Kalam Technological University)



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(Affiliated to APJ Abdul Kalam Technological University)



CERTIFICATE

Certified that this is a Bonafide record of practical work done in Mobile Application Development Lab (20MCA243) Laboratory by **JAYAMOHAN BABU** Reg No. **PJR24MCA-2008** of College of Engineering, Poonjar during the academic year 2024- 2026.

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INTERNAL EXAMINER

EXTERNAL EXAMINER

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Experiment No. 1

Aim: To implement a program to Toast a message hello world on a button click.

Procedure:

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="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.toastydemo;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

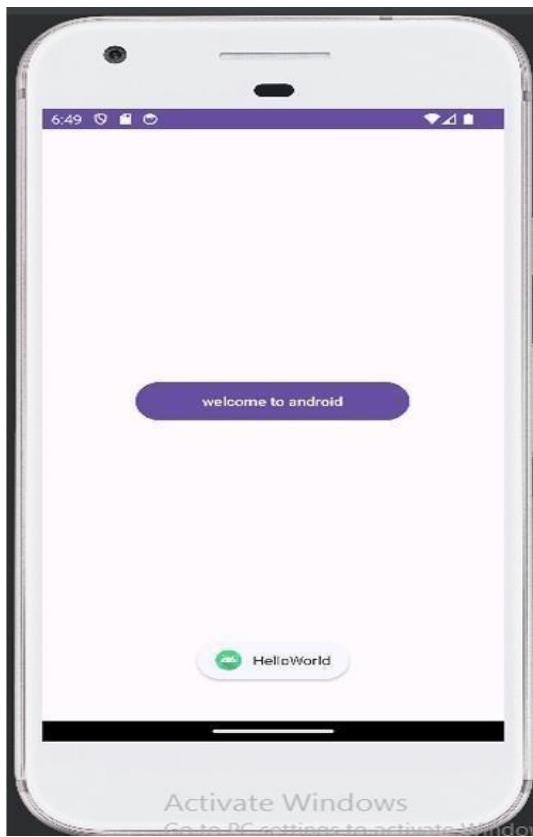
    Button btnToast;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

```
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
btnToast = findViewById(R.id.btnToast);

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

Output:



RESULT:

The program is executed and output is successfully obtained.

Experiment No. 2

Aim: To design login page in android studio

Procedure:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="20dp"
    android:background="@color/white"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/etEmail"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_margin="20dp"
        android:ems="110"
        android:hint="enteremail"
        android:inputType="text"/>

    <EditText
        android:id="@+id/etpassword"
        android:layout_margin="20dp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:ems="10"
        android:hint="Enterpassword"
        android:inputType="text"/>

    <Button
        android:id="@+id/btLogin"
        android:layout_margin="20dp"
```

```

        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Login"/>
    </LinearLayout>

MainActivity.java

package com.example.loginpage;

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

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    EditText etEmail, etPassword;
    Button btLogin;

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

        // Initialize UI components
        btLogin = findViewById(R.id.btLogin);
        etEmail = findViewById(R.id.etEmail);
        etPassword = findViewById(R.id.etPassword);

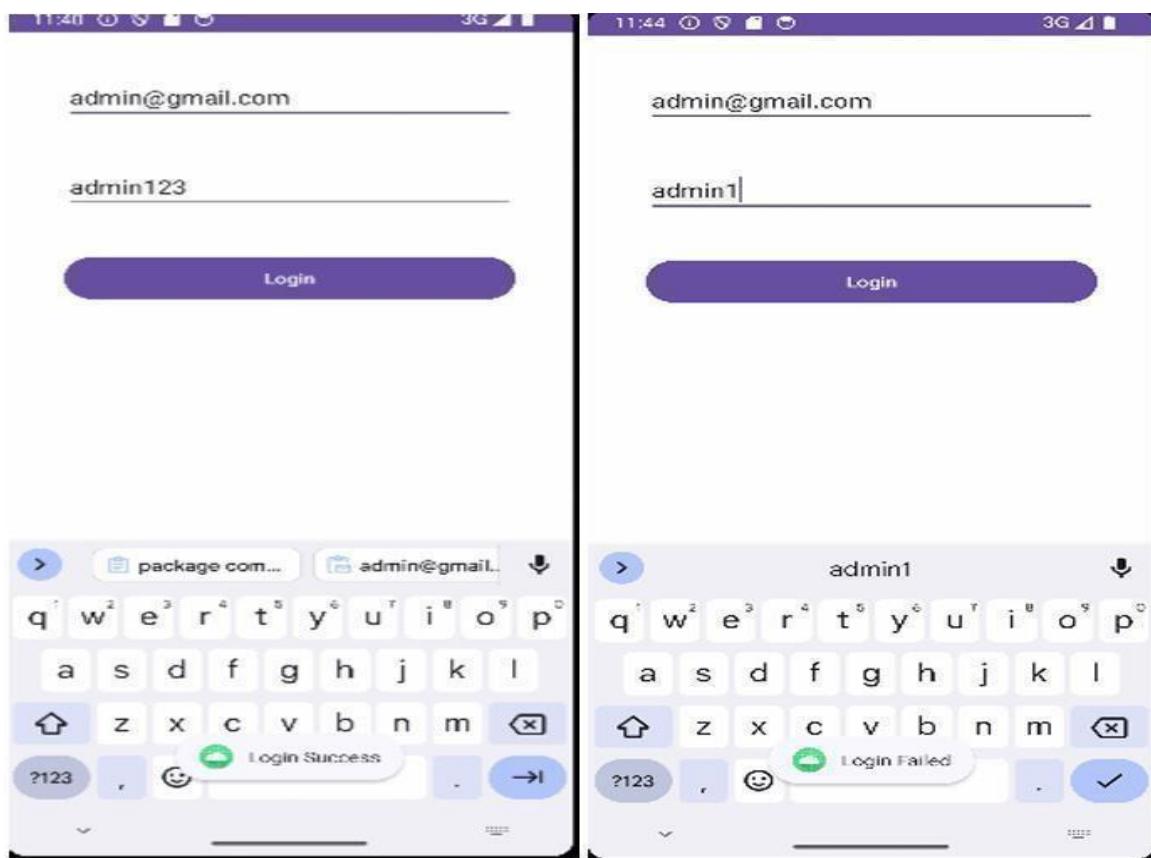
        // Set up login button click listener
        btLogin.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String email = etEmail.getText().toString().trim();
                String password = etPassword.getText().toString().trim();

                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:



RESULT:

The program is executed and output is successfully obtained.

Experiment No. 3

Aim: Write a program that demonstrates Activity Lifecycle.

Procedure:

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="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;

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);
        showToast("Activity Created");
    }
}
```

```
protected void onStart() {
    super.onStart();
    showToast("Activity Started");
}

protected void onResume() {
    super.onResume();
    showToast("Activity Resumed");
}

protected void onPause() {
    super.onPause();
    showToast("Activity Paused");
}

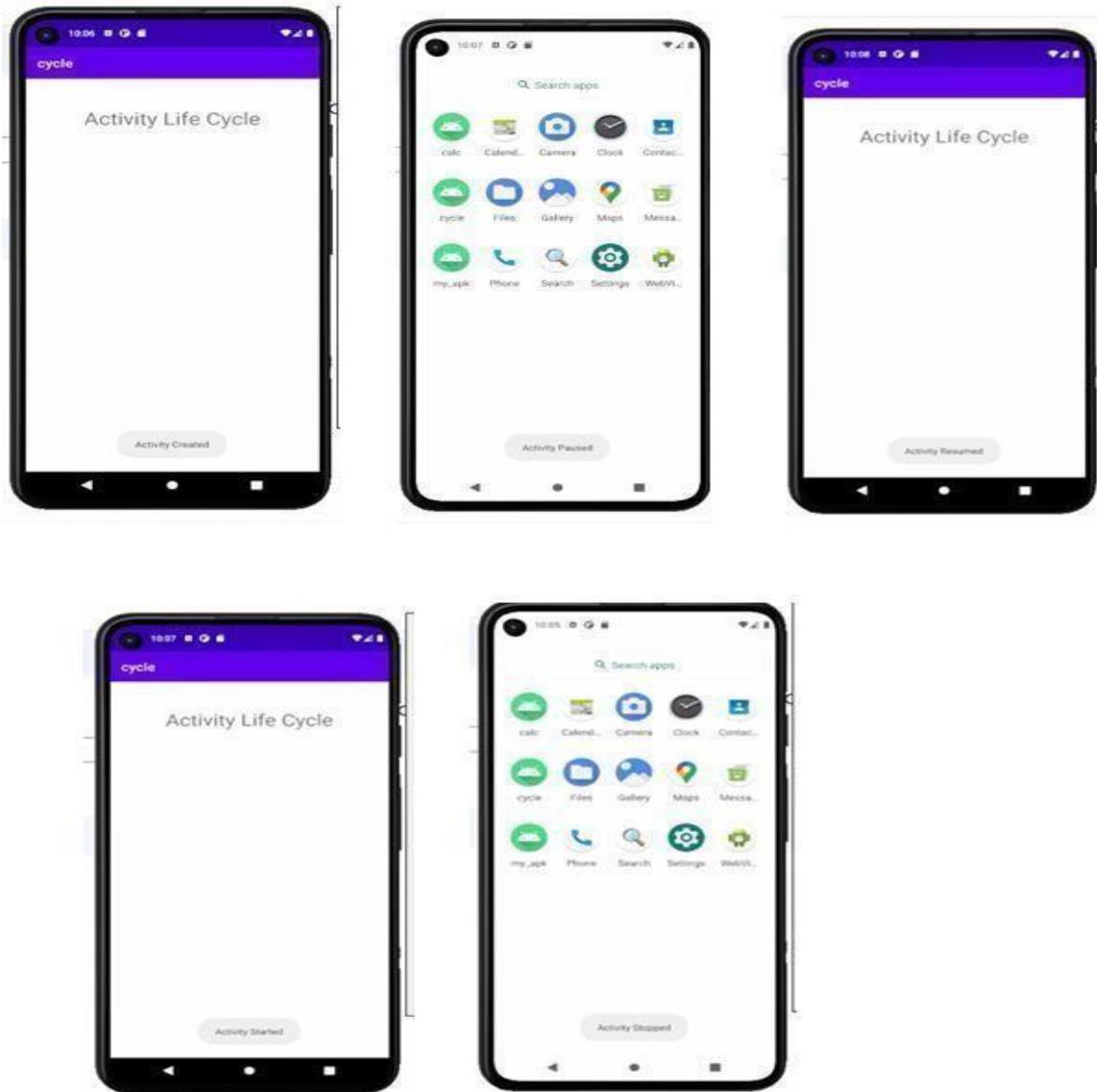
protected void onStop() {
    super.onStop();
    showToast("Activity Stopped");
}

protected void onRestart() {
    super.onRestart();
    showToast("Activity Restarted");
}

@Override
protected void onDestroy() {
    super.onDestroy();
    showToast("Activity Destroyed");
}

// Helper method to display toast messages
private void showToast(String message) {
    Toast.makeText(this, message, Toast.LENGTH_LONG).show();
}
```

Output:



RESULT:

The program is executed and output is successfully obtained.

Experiment No. 4

Aim: To create a calculator application in android studio.

Procedure:

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"
    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="Enter number1"
        android:inputType="numberDecimal"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"/>

    <EditText
        android:id="@+id/num2EditText"
        android:layout_width="0dp"
        android:layout_height="48dp"
        android:layout_marginTop="12dp"
        android:hint="Enter number2"
        android:inputType="numberDecimal"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.47"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_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/num2EditText"/>  
  
<Button  
    android:id="@+id/subtractButton"  
    android: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_toBottomOf="@+id/num2EditText"/>  
  
<Button  
    android:id="@+id/multiplyButton"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_marginTop="20dp"  
    android:text="x"  
    android:textSize="16sp"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintTop_toBottomOf="@+id/num2EditText"/>  
  
<Button  
    android:id="@+id/divideButton"  
    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/addButton"/>
```

```

<Button
    android:id="@+id/sqrtButton"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:layout_marginEnd="140dp"
    android:text="Sqrt"
    android:textSize="16sp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/subtractButton"/>

<TextView
    android:id="@+id/resultTextView"
    android:layout_width="84dp"
    android:layout_height="41dp"
    android:layout_marginStart="4dp"
    android:layout_marginTop="40dp"
    android:text="Result:"
    android:textSize="18sp"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/divideButton"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

MainActivity.java

```

package com.example.calculator;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
import java.text.DecimalFormat;

public class MainActivity extends AppCompatActivity {

    // Declare variables to hold references to UI elements
    private EditText num1EditText, num2EditText;
    private TextView resultTextView;
```

```

@Override
protected void onCreate(Bundle savedInstanceState) {
    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
        public void onClick(View v) { performCalculation('+'); }
    });

    Button subtractButton = findViewById(R.id.subtractButton);
    subtractButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) { performCalculation('-'); }
    });

    Button multiplyButton = findViewById(R.id.multiplyButton);
    multiplyButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) { performCalculation('*'); }
    });

    Button divideButton = findViewById(R.id.divideButton);
    divideButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) { performCalculation('/'); }
    });

    Button sqrtButton = findViewById(R.id.sqrtButton);
    sqrtButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) { calculateSquareRoot(); }
    });
}

private void performCalculation(char operator) {

```

```

// Get the values entered in the input fields
String num1Str = num1EditText.getText().toString();
String num2Str = num2EditText.getText().toString();

// Check if either input field is empty
if (num1Str.isEmpty() || num2Str.isEmpty()) {
    Toast.makeText(this, "Please enter both numbers",
    Toast.LENGTH_SHORT).show();
    return;
}

// Convert the input values to numeric format
double num1 = Double.parseDouble(num1Str);
double num2 = Double.parseDouble(num2Str);
double result = 0;

// Perform the selected calculation based on the operator
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, "Cannot divide by zero",
            Toast.LENGTH_SHORT).show();
            return;
        }
        break;
}

// Format and display the calculation result
DecimalFormat df = new DecimalFormat("#.###");

```

```
        resultTextView.setText("Result: " + df.format(result));
    }

private void calculateSquareRoot() {
    String num1Str = num1EditText.getText().toString();

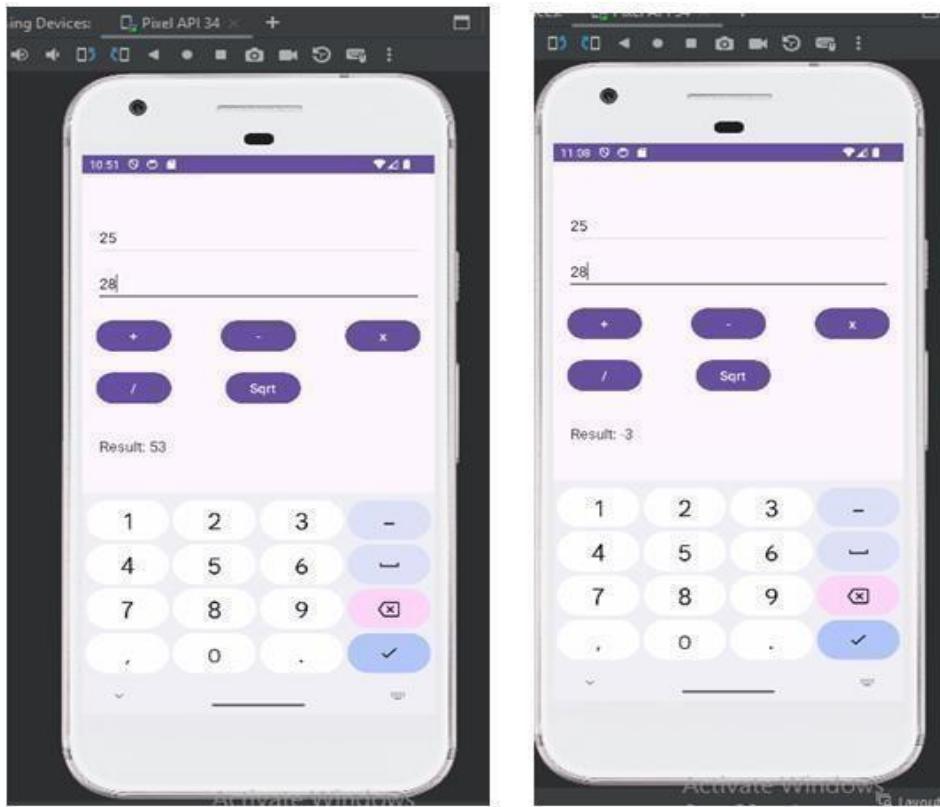
    // Check if the input field is empty
    if (num1Str.isEmpty()) {
        Toast.makeText(this, "Please enter a number", Toast.LENGTH_SHORT).show();
        return;
    }

    double num = Double.parseDouble(num1Str);
    double sqrtResult = Math.sqrt(num);

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

}
```

Output:



RESULT:

The program is executed and output is successfully obtained.

Experiment No. 5

Aim: To create an android application to understand passing data between activities using intent.

Procedure:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout 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:padding="20dp"
    tools:context=".MainActivity">

    <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:layout_below="@+id/nameET"
        android:layout_marginTop="10dp"
        android:hint="Number"
        android:inputType="number"/>

    <Button
        android:id="@+id	btn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/numberET"
        android:layout_marginTop="30dp"
        android:text="SendData"/>
```

```

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_centerInParent="true"
    android:text="FirstActivity"/>
</RelativeLayout>

```

MainActivity.java

```

package com.example.firstactivity;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

    EditText name, number;
    Button btn;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        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
            public void onClick(View view) {
                // Get data from input fields
                String getName = name.getText().toString();
                String getNumber = number.getText().toString();
                // Pass data to 2nd activity
                Intent intent = new Intent(MainActivity.this, SecondActivity.class);
                intent.putExtra("name", getName);
            }
        });
    }
}

```

```

        intent.putExtra("number", getNumber);
        startActivity(intent);
    }
});
}
}
}

```

activity_second.xml

```

<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout 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:padding="20dp"
    tools:context=".SecondActivity">

    <TextView
        android:id="@+id/set_name"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Name"
        android:textSize="24sp"/>

    <TextView
        android:id="@+id/set_number"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/set_name"
        android:layout_marginTop="10dp"
        android:text="123"
        android:textSize="24sp"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:text="Secondactivity"
        android:textSize="24sp"/>
</RelativeLayout>

```

SecondActivity.java

```
package com.example.firstactivity;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.widget.TextView;

public class SecondActivity extends AppCompatActivity {

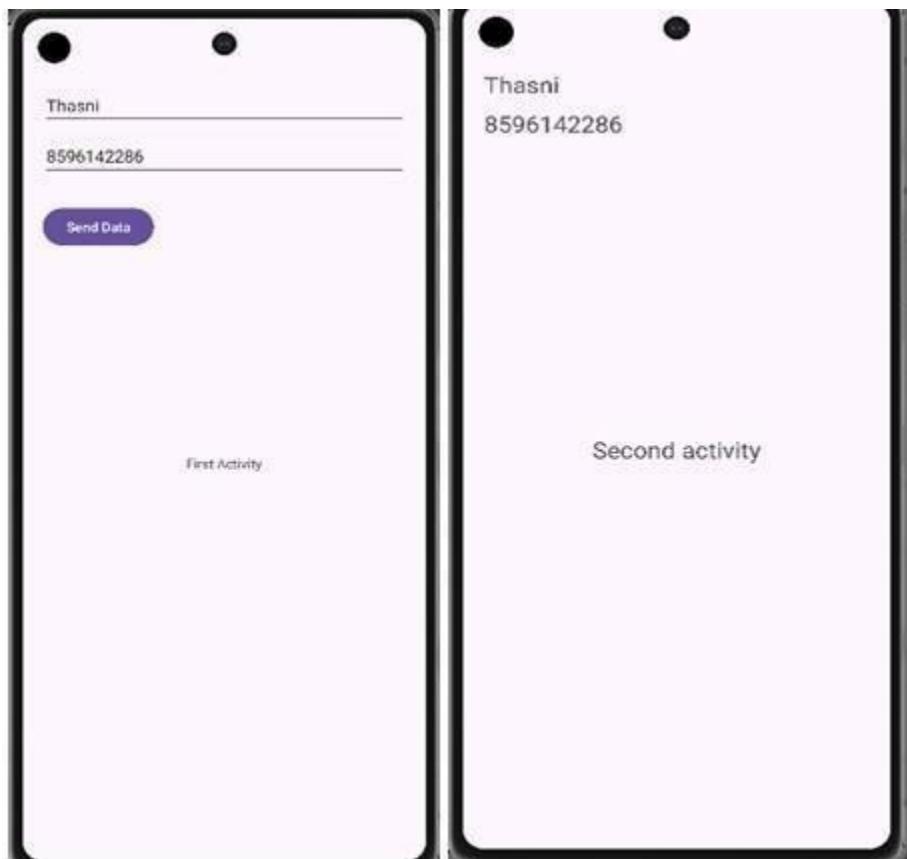
    TextView name, number;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        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
        Intent intent = getIntent();
        String getName = intent.getStringExtra("name");
        String getNumber = intent.getStringExtra("number");
        // Set Text
        name.setText(getName);
        number.setText(getNumber);
    }
}
```

Output:



RESULT:

The program is executed and output is successfully obtained.

Experiment No. 6

Aim: Design a registration activity and store registration details in local memory of phone using Intents and SharedPreferences.

Procedure:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp"
    android:gravity="center">

    <EditText
        android:id="@+id/usernameEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Username"
        android:inputType="text" />

    <EditText
        android:id="@+id/emailEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Email"
        android:inputType="textEmailAddress" />

    <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_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:text="Register" />
</LinearLayout>
```

MainActivity.java

```
package com.example.registration;

import android.content.Intent;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private EditText usernameEditText, emailEditText, passwordEditText;
    private Button registerButton;

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

        // Initialize UI elements
        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
            public void onClick(View v) {
```

```
// Retrieve user input
String username = usernameEditText.getText().toString();
String email = emailEditText.getText().toString();
String password = passwordEditText.getText().toString();

// Store registration details in SharedPreferences
SharedPreferences preferences = getSharedPreferences("MyPrefs",
MODE_PRIVATE);
SharedPreferences.Editor editor = 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();

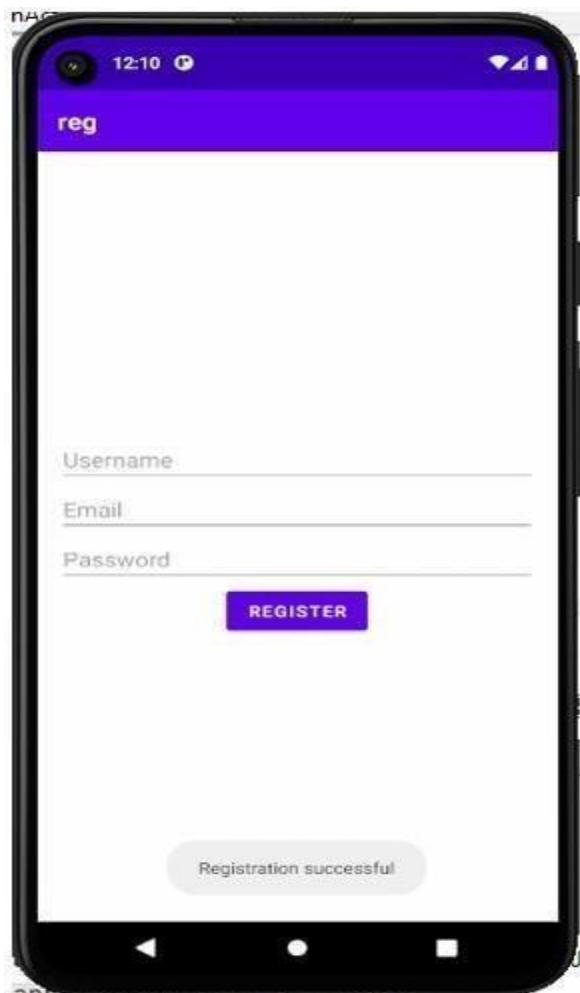
// Start another activity
Intent intent = new Intent(MainActivity.this, MainActivity.class);
startActivity(intent);

}
});

}

}
```

Output:



RESULT:

The program is executed and output is successfully obtained.

Experiment No. 7

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

Procedure:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    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="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="@drawable/facebook" />

            <ImageView
                android:id="@+id/imageView4"
                android:layout_width="match_parent"
                android:layout_height="281dp"
                android:src="@drawable/post" />

        </LinearLayout>
    </ScrollView>
</RelativeLayout>
```

```
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_marginTop="40dp"
        android:columnCount="4"
        android:rowCount="4">

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

    <!-- Comment ImageView -->
    <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:src="@drawable/comment" />

    <!-- Share ImageView -->
    <ImageView
        android:id="@+id/shareImageView"
        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
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="vertical">

    <ImageView
        android:id="@+id/imageView7"
        android:layout_width="match_parent"
        android:layout_height="281dp"
        android:src="@drawable/dog" />

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

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

        <!-- Comment ImageView -->
        <ImageView
            android:id="@+id/commentImageView2"
            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:src="@drawable/comment" />

<!-- Share ImageView -->
<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;

import androidx.appcompat.app.AppCompatActivity;
import android.app.Activity;
import android.os.Bundle;
import android.view.View;
import android.widget.ImageView;
import android.widget.Toast;

public class MainActivity extends Activity {

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

        // Find the ImageView elements by their IDs
        ImageView facebookView = findViewById(R.id.facebookView);
        ImageView likeImageView = findViewById(R.id.likeImageView);
```

```
ImageView commentImageView = findViewById(R.id.commentImageView);
ImageView shareImageView = findViewById(R.id.shareImageView);

// Set click listeners for the ImageViews
likeImageView.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) { showToast("You clicked the Like button"); }
});

commentImageView.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) { showToast("You clicked the Comment button"); }
});

shareImageView.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) { showToast("You clicked the Share button"); }
});

// Helper method to display a toast message
private void showToast(String message) {
    Toast.makeText(this, message, Toast.LENGTH_SHORT).show();
}
```

Output:



RESULT:

The program is executed and output is successfully obtained.

Experiment No. 8

Aim: Develop an application that toggles image using FrameLayout

Procedure:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout 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:background="#BDBABA"
    tools:context=".MainActivity">

    <ImageView
        android:id="@+id/imageView1"
        android:layout_width="427dp"
        android:layout_height="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_height="wrap_content"
        android:layout_gravity="left|top"
        android:visibility="gone"
        app:srcCompat="@drawable/f1" />
</FrameLayout>
```

MainActivity.java

```
package com.example.frame_layout;

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 i1, i2;

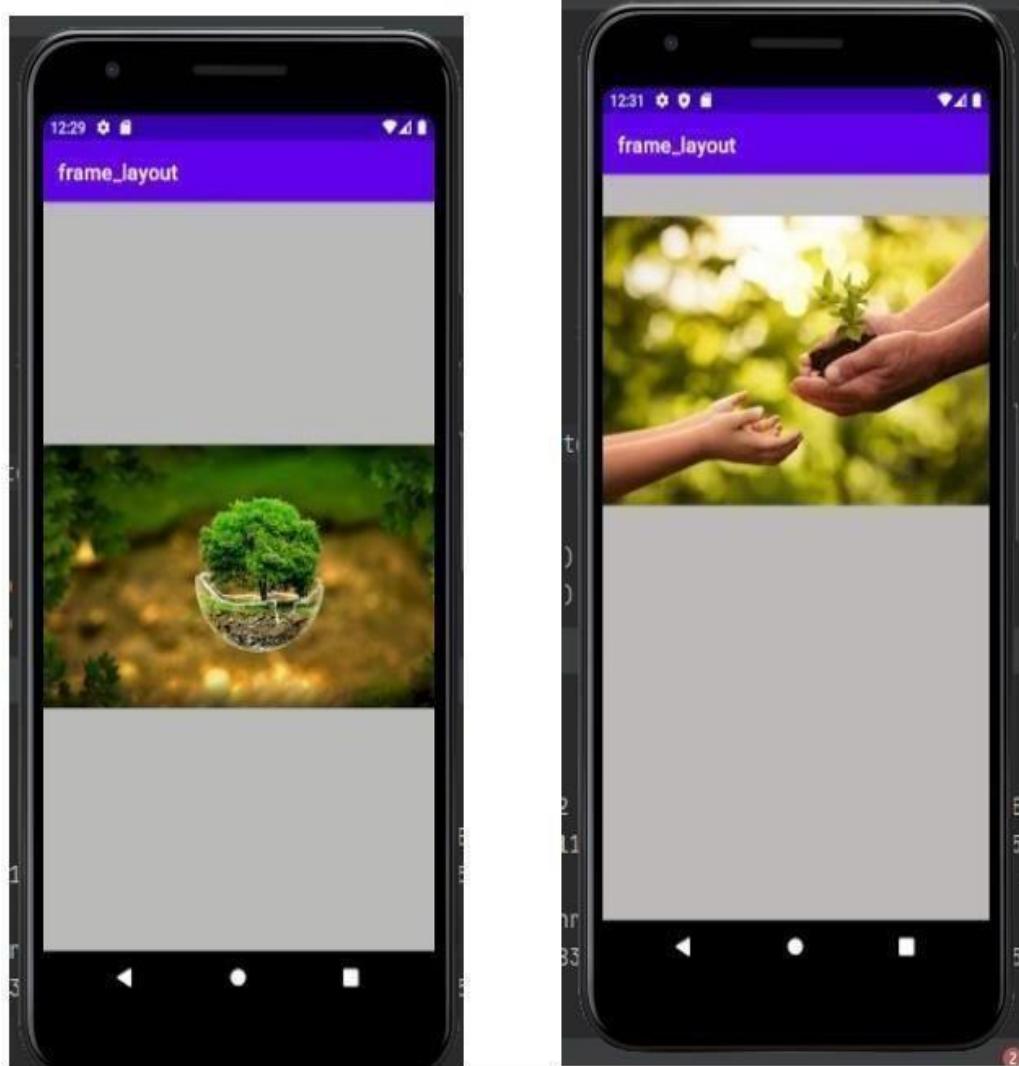
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

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

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

    @Override
    public void onClick(View v) {
        if(v.getId() == R.id.imageView1) {
            i1.setVisibility(View.GONE);
            i2.setVisibility(View.VISIBLE);
        } else {
            i2.setVisibility(View.GONE);
            i1.setVisibility(View.VISIBLE);
        }
    }
}
```

Output:



RESULT:

The program is executed and output is successfully obtained.

Experiment No. 9

Aim: Develop an android mobile application to illustrate the usage of alert dialogue

Procedure:

activity_main.xml

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

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="180dp"
        android:gravity="center_horizontal"
        android:text="Press The Back Button of Your Phone."
        android:textSize="30dp"
        android:textStyle="bold" />
</RelativeLayout>
```

MainActivity.java

```
import android.content.DialogInterface;
import android.os.Bundle;
import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

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

    // Declare the onBackPressed method when the back button is pressed this method will
    call
```

```

@Override
public void onBackPressed() {
    // Create the object of AlertDialog Builder class
    AlertDialog.Builder builder = new AlertDialog.Builder(MainActivity.this);

    // Set the message show for the Alert time
    builder.setMessage("Do you want to exit ?");

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

    // Set Cancelable false for when the user clicks on the outside the Dialog Box then it
    will remain show
    builder.setCancelable(false);

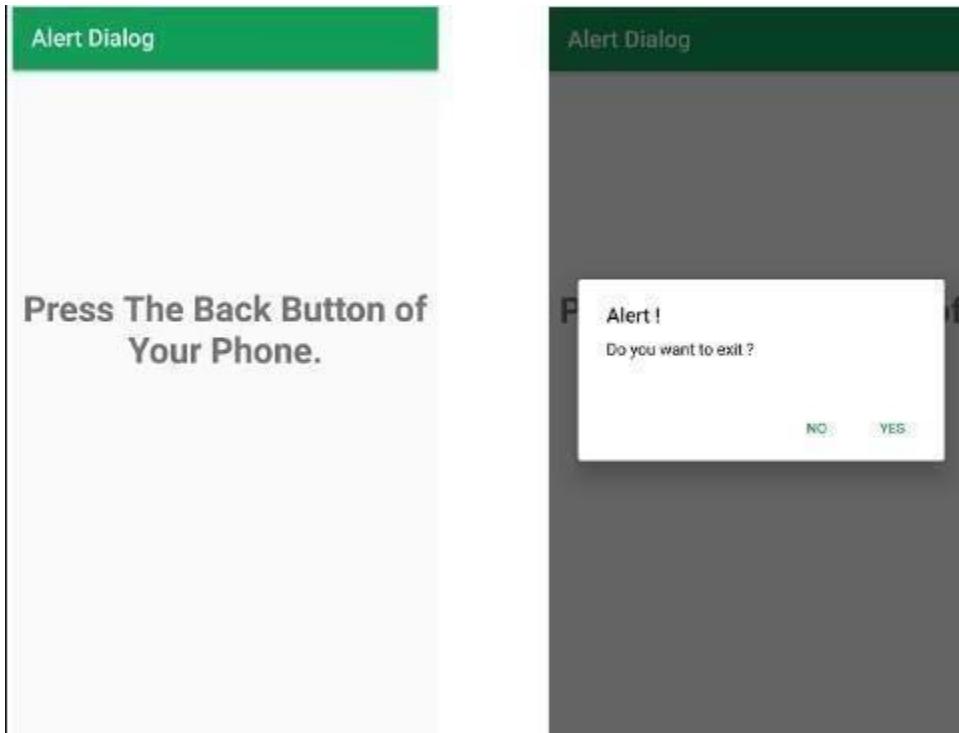
    // Set the positive button with yes name Lambda OnClickListener method is use of
    DialogInterface interface.
    builder.setPositiveButton("Yes", (DialogInterface.OnClickListener) (dialog, which)
    -> {
        // When the user click yes button then app will close
        finish();
    });

    // Set the Negative button with No name Lambda OnClickListener method is use of
    DialogInterface interface.
    builder.setNegativeButton("No", (DialogInterface.OnClickListener) (dialog, which)
    -> {
        // If user click no then dialog box is canceled.
        dialog.cancel();
    });

    // Create the Alert dialog
    AlertDialog alertDialog = builder.create();
    // Show the Alert Dialog box
    alertDialog.show();
}
}

```

Output:



RESULT:

The program is executed and output is successfully obtained.

Experiment No. 10

Aim: Develop an application using array adapter with List view

Procedure:

activity_main.xml

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

    <ListView
        android:id="@+id/MyLists"
        android:layout_width="match_parent"
        android:layout_height="match_parent" />
</RelativeLayout>
```

MainActivity.java

```
package com.example.days;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.ListView;
import android.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
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

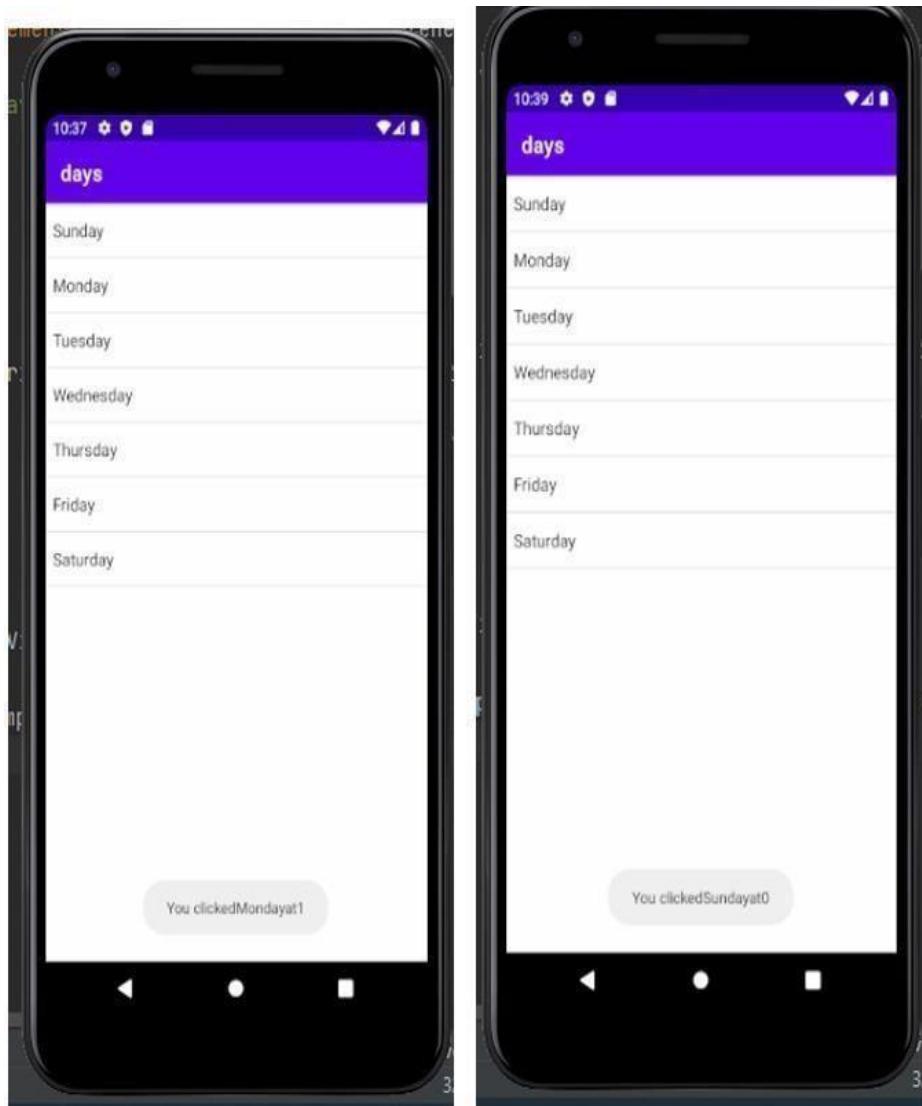
    // Initialize ListView
    l = findViewById(R.id.MyLists);

    // Set up ArrayAdapter for ListView
    ArrayAdapter<String> adapter = new ArrayAdapter<String>(
        this,
        androidx.appcompat.R.layout.support_simple_spinner_dropdown_item,
        days
    );
    // Set the adapter to ListView
    l.setAdapter(adapter);

    // Set the onItemClickListener for ListView
    l.setOnItemClickListener(this);
}

@Override
public void onItemClick(AdapterView<?> adapterView, View view, int position, long id) {
    // Get the TextView clicked and display a Toast
    TextView temp = (TextView) view;
    Toast.makeText(this, "You Clicked " + temp.getText() + " at " + position,
    Toast.LENGTH_SHORT).show();
}
```

Output:



RESULT:

The program is executed and output is successfully obtained.

Experiment No. 11

Aim: Create database using SQLite and perform INSERT and SELECT.

Procedure:

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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
        xmlns:android="http://schemas.android.com/apk/res/android"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        android:padding="16dp">

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

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

        <EditText
            android:id="@+id/editTextMark"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
```

```

        android:hint="Mark"
        android:inputType="number" />

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

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

<TextView
    android:id="@+id/textViewData"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="16dp"
    android:text="UserData:"
    android:textStyle="bold" />
</LinearLayout>
</android.support.constraint.ConstraintLayout>
```

MainActivity.java

```

package com.example.database;

import android.support.v7.app.AppCompatActivity;
import android.database.Cursor;
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 {

    private DatabaseHelper db; // database name
```

```

private EditText editTextName, editTextAge, editTextMark;
private TextView textViewData;

@Override
protected void onCreate(Bundle savedInstanceState) {
    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);

    Button buttonInsert = findViewById(R.id.buttonInsert);
    Button buttonSelect = findViewById(R.id.buttonSelect);

    buttonInsert.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {

            String name = editTextName.getText().toString();
            int age = Integer.parseInt(editTextAge.getText().toString());
            int mark = Integer.parseInt(editTextMark.getText().toString());

            boolean insertData = db.insertUser(name, age, mark); // insert data
            if (insertData) {
                Toast.makeText(MainActivity.this, "User Inserted Successfully",
                        Toast.LENGTH_SHORT).show();
                displayData();
            } else {
                Toast.makeText(MainActivity.this, "Failed to Insert User",
                        Toast.LENGTH_SHORT).show();
            }
        }
    });

    buttonSelect.setOnClickListener(new View.OnClickListener() {
        @Override

```

```

        public void onClick(View v) { displayData(); }
    });
}

// Display data
private void displayData() {
    Cursor cursor = db.getAllUsers();
    if (cursor.getCount() == 0) {
        textViewData.setText("No users found");
    } else {
        StringBuilder data = new StringBuilder();
        while (cursor.moveToNext()) {
            int id = cursor.getInt(0);
            String name = 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;

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

public class DatabaseHelper extends SQLiteOpenHelper {

    private static final String DATABASE_NAME = "UserDatabase.db";
    private static final String TABLE_NAME = "UserTable";

```

```

private static final String COL_1 = "ID";
private static final String COL_2 = "NAME";
private static final String COL_3 = "AGE";
private static final String COL_4 = "MARK";

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

@Override
public void onCreate(SQLiteDatabase db) {
    db.execSQL("CREATE TABLE " + TABLE_NAME + "(" +
        COL_1 + " INTEGER PRIMARY KEY AUTOINCREMENT, " +
        COL_2 + " TEXT, " +
        COL_3 + " INTEGER, " +
        COL_4 + " INTEGER)");
}

@Override
public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {
    db.execSQL("DROP TABLE IF EXISTS " + TABLE_NAME);
    onCreate(db);
}

public boolean insertUser(String name, int age, int mark) {
    SQLiteDatabase db = this.getWritableDatabase();
    ContentValues contentValues = new ContentValues();
    contentValues.put(COL_2, name);
    contentValues.put(COL_3, age);
    contentValues.put(COL_4, mark);

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

public Cursor getAllUsers() {
    SQLiteDatabase db = this.getWritableDatabase();
    return db.rawQuery("SELECT * FROM " + TABLE_NAME, null);
}

```

Output:**RESULT:**

The program is executed and output is successfully obtained.