LABCYCLE:1

EXPERIMENT NO:01 **DATE:**

AIM: Write a program to print HelloWorld

MainActivity.java file

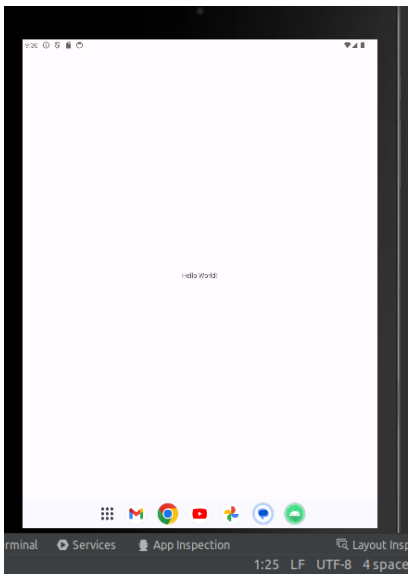
```
package com.example.app2;
import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
 @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
         setContentView(R.layout.activity_main);
    }
}
```

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_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.
   widget.ConstraintLayout>
```

OUTPUT:



RESULT: The program was implemented and result obtained successfully

EXPERIMENT NO:02 **DATE:**

AIM: Design a Login Form with username and password using LinearLayout and toast valid credentials

Main Activity.java

```
package com.example.app2; // Replace with your actual package name
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 editTextUsername;
    private EditText editTextPassword;
    private Button buttonLogin;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        editTextUsername = findViewById(R.id.editTextUsername);
        editTextPassword = findViewById(R.id.editTextPassword);
        buttonLogin = findViewById(R.id.buttonLogin);
        buttonLogin.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
```

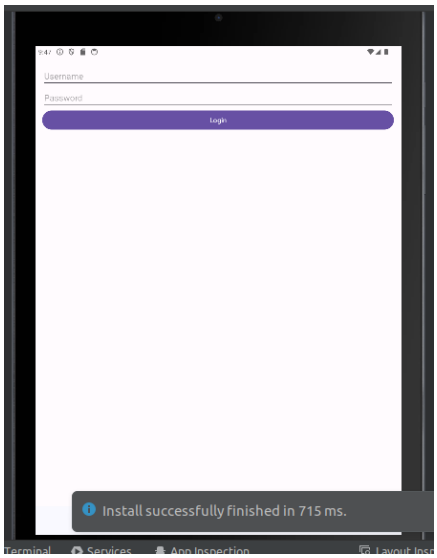
```
            String username = editTextUsername.getText().toString();
            String password = editTextPassword.getText().toString();
            if (isValidCredentials(username, password)) {
                showToast("Login successful");
            } else {
                showToast("Invalid credentials");
            }
        }
    });
}
private boolean isValidCredentials(String username, String password) {
    // Replace this with your actual authentication logic
    return username.equals("admin") && password.equals("admin");
}
private void showToast(String message) {
    Toast.makeText(getApplicationContext(),message,
Toast.LENGTH_SHORT).show();
}
}
```

activity_main.xml

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

```
    android:padding="16dp"
    tools:context=".MainActivity">
   <EditText
        android:id="@+id/editTextUsername"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Username"
        android:inputType="text" />
  <EditText
        android:id="@+id/editTextPassword"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Password"
        android:inputType="textPassword" />
    <Button
        android:id="@+id/buttonLogin"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Login" />
</LinearLayout>
```

OUTPUT:



RESULT: The program was implemented and result obtained successfully

EXPERIMENT NO:03 **DATE:**

AIM: Implement validations on various UI controls.

MainActivity.java

```
package com.example.app2;
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   editTextTextPersonName,editTextTextEmailAddress,
editTextTextPassword2, editTextPhone;
   Button button;
  @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      editTextTextPersonName = findViewById(R.id.editTextTextPersonName);
      editTextTextEmailAddress = findViewById(R.id.editTextTextEmailAddress);
      editTextTextPassword2 = findViewById(R.id.editTextTextPassword2);
      editTextPhone = findViewById(R.id.editTextPhone);
      button = findViewById(R.id.button);
      button.setOnClickListener(new View.OnClickListener() {
         @Override
```

```
            public void onClick(View v) {
                validateForm();
            }
        });
    }
    private void validateForm() {
        String userName = editTextTextPersonName.getText().toString().trim();
        String email = editTextTextEmailAddress.getText().toString().trim();
        String password = editTextTextPassword2.getText().toString().trim();
        String phone = editTextPhone.getText().toString().trim();
        if (userName.isEmpty() || email.isEmpty() || password.isEmpty() ||
        phone.isEmpty()) {
         Toast.makeText(this, "Please fill out all fields", Toast.LENGTH_SHORT).show();
          }
         else {
            // Perform further actions with the form data
            // For now, just display a success message
            Toast.makeText(this, "Form submitted successfully",
            Toast.LENGTH_SHORT).show();
        }
    }
}
```

activity_main.xml

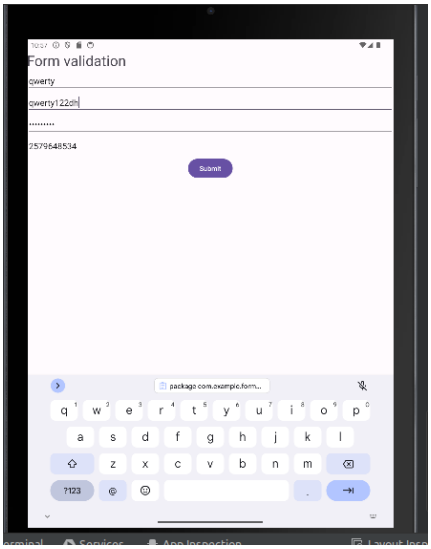
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
```

```
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:orientation="vertical"
tools:context=".MainActivity">
<TextView
    android:id="@+id/textView"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:text="Form validation"
    android:textSize="30sp"
    app:layout_constraintBottom_toTopOf="@+id/editTextTextPersonName"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent" />
<EditText
    android:id="@+id/editTextTextPersonName"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="textPersonName"
    android:hint="UserName"
    app:layout_constraintTop_toBottomOf="@+id/textView"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent" />
<EditText
```

```
    android:id="@+id/editTextTextEmailAddress"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="textEmailAddress"
    android:hint="EmailId"
    app:layout_constraintTop_toBottomOf="@+id/editTextTextPersonName"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent" />
<EditText
    android:id="@+id/editTextTextPassword2"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="textPassword"
    app:layout_constraintTop_toBottomOf="@+id/editTextTextEmailAddress"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintEnd_toEndOf="parent" />
<EditText
    android:id="@+id/editTextPhone"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="phone"
    android:hint="Ph.No"
    app:layout_constraintTop_toBottomOf="@+id/editTextTextPassword2"
    app:layout_constraintStart_toStartOf="parent"
```

```
        app:layout_constraintEnd_toEndOf="parent" />
    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Submit"
        app:layout_constraintTop_toBottomOf="@+id/editTextPhone"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

OUTPUT:



RESULT: The program was implemented and result obtained successfully.

EXPERIMENT NO:04 **DATE:**

AIM: Implementing basic arithmetic operations of a simple calculator.

MainActivity.java

```
package com.example.app2;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    EditText n1, n2;
    TextView res;
    Button add, sub, multi, div;
    double num1, num2, sum, subtract, product, quotient;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        n1 = findViewById(R.id.no1);
        n2 = findViewById(R.id.no2);
        res = findViewById(R.id.result);
        add = findViewById(R.id.add);
        sub = findViewById(R.id.sub);
        multi = findViewById(R.id.mult);
```

```
    div = findViewById(R.id.div);
    add.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            performOperation('+');
        }
    });
    sub.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            performOperation('-');
        }
    });
    multi.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            performOperation('*');
        }
    });

    div.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            performOperation('/');
        }
    });
}
```

```
private void performOperation(char operation) {
    num1 = Double.parseDouble(n1.getText().toString());
    num2 = Double.parseDouble(n2.getText().toString());

    switch (operation) {
        case '+':
            sum = num1 + num2;
            res.setText(Double.toString(sum));
            break;
        case '-':
            subtract = num1 - num2;
            res.setText(Double.toString(subtract));
            break;
        case '*':
            product = num1 * num2;
            res.setText(Double.toString(product));
            break;
        case '/':
            if (num2 != 0) {
                quotient = num1 / num2;
                res.setText(Double.toString(quotient));
            } else {
                res.setText("Cannot divide by zero");
            }
            break;
    }
}
```

```
}
```

activity_main.xml

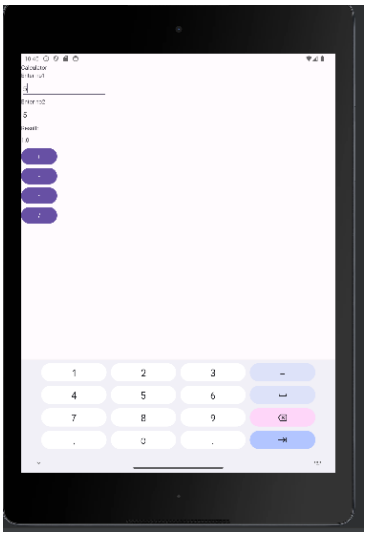
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity"
    android:orientation="vertical">
<TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Calculator"
        tools:layout_editor_absoluteX="151dp"
        tools:layout_editor_absoluteY="43dp" />
    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Enter no1"
        tools:layout_editor_absoluteX="56dp"
        tools:layout_editor_absoluteY="100dp" />
    <EditText
```

```
    android:id="@+id/no1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="number"
    tools:layout_editor_absoluteX="154dp"
    tools:layout_editor_absoluteY="91dp" />
<TextView
    android:id="@+id/textView3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Enter no2"
    tools:layout_editor_absoluteX="59dp"
    tools:layout_editor_absoluteY="165dp" />
<EditText
    android:id="@+id/no2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:inputType="number"
    tools:layout_editor_absoluteX="154dp"
    tools:layout_editor_absoluteY="149dp" />
<TextView
    android:id="@+id/textView4"
    android:layout_width="99dp"
    android:layout_height="29dp"
    android:text="Result:"
```

```
    tools:layout_editor_absoluteX="28dp"
    tools:layout_editor_absoluteY="414dp" />
<TextView
    android:id="@+id/result"
    android:layout_width="161dp"
    android:layout_height="26dp"
    android:text=""
    tools:layout_editor_absoluteX="163dp"
    tools:layout_editor_absoluteY="414dp" />
<Button
    android:id="@+id/add"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="+"
    tools:layout_editor_absoluteX="116dp"
    tools:layout_editor_absoluteY="244dp" />
<Button
    android:id="@+id/sub"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="-"
    tools:layout_editor_absoluteX="261dp"
    tools:layout_editor_absoluteY="244dp" />

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

```
        android:layout_height="wrap_content"
        android:text="*"
        tools:layout_editor_absoluteX="119dp"
        tools:layout_editor_absoluteY="323dp" />

    <Button
        android:id="@+id/div"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="/"
        tools:layout_editor_absoluteX="261dp"
        tools:layout_editor_absoluteY="323dp" />
</LinearLayout>
```

OUTPUT:



RESULT: The program was implemented and result obtained successfully.

EXPERIMENT NO:05 **DATE:**

AIM: Write a program that demonstrates Activity Lifecycle.

```
package com.example.app2;
import android.os.Bundle;
import android.util.Log;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    private static final String TAG = "ActivityLifecycleDemo";
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Log.d(TAG, "onCreate: Activity created");
    }
    @Override
    protected void onStart() {
        super.onStart();
        Log.d(TAG, "onStart: Activity started");
    }
    @Override
    protected void onResume() {
        super.onResume();
        Log.d(TAG, "onResume: Activity resumed");
    }
```

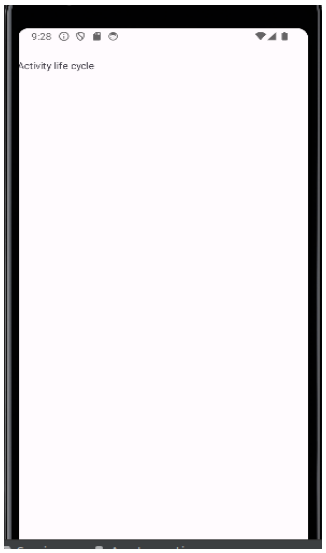
```
    @Override
    protected void onPause() {
        super.onPause();
        Log.d(TAG, "onPause: Activity paused");    }

    @Override
    protected void onStop() {
        super.onStop();
        Log.d(TAG, "onStop: Activity stopped");
    }
   @Override
    protected void onDestroy() {
        super.onDestroy();
        Log.d(TAG, "onDestroy: Activity destroyed");
    }}
```

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="395dp"
       android:layout_height="715dp"
```

```
        android:orientation="vertical"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintBottom_toBottomOf="parent"
        tools:layout_editor_absoluteX="8dp"
        tools:layout_editor_absoluteY="8dp">
    <TextView
            android:id="@+id/textView"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Activity life cycle" />
     </LinearLayout>
</androidx.constraintlayout.widget.ConstraintLayout>
```

OUTPUT:



RESULT: The program was implemented and result obtained successfully