**Android**

**Course Outcome 1 (CO1):**

**1. Design a Login Form with username and password using LinearLayout and toast valid**

**credentials**

**CODE:**

**Xml code:**

<?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

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="vertical"

android:layout\_marginLeft="16dp"

android:layout\_marginRight="16dp"

android:layout\_centerInParent="true">

<EditText

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="UserName"

android:id="@+id/username"/>

<EditText

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="password"

android:id="@+id/password"

android:inputType="textPassword"

/>

<Button

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Login"

android:background="#3f76ff"

android:textColor="#fff"

android:id="@+id/login"/>

</LinearLayout>

</android.support.constraint.ConstraintLayout>

**Java code:**

package com.example.myapplication;

import android.support.v7.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.Toast;

import java.util.Objects;

public class MainActivity extends AppCompatActivity {

EditText username,password;

Button login;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

username=findViewById(R.id.username);

password=findViewById(R.id.password);

login=findViewById(R.id.login);

login.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) {

if(Objects.equals(username.getText().toString(), "admin")&&Objects.equals(password.getText().toString(),"admin"))

{

Toast.makeText(MainActivity.this,"Authentication Successfully",Toast.LENGTH\_LONG).show();

}else

{

Toast.makeText(MainActivity.this,"Authentication Failed",Toast.LENGTH\_LONG).show();

}

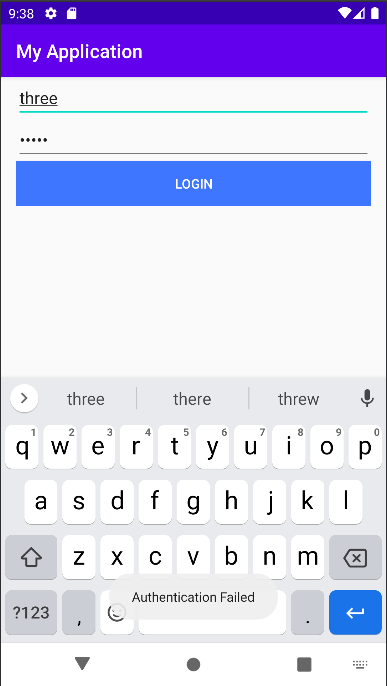
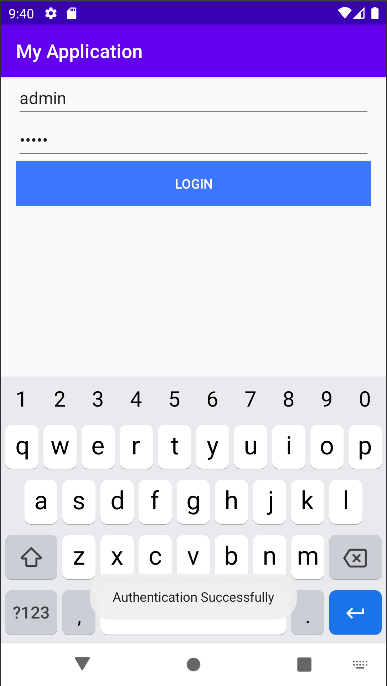
}

});

}

}

**OUTPUT:**



**2. Write a program that demonstrates Activity Lifecycle.**

**CODE:**

**Xml code:**

**NULL**

**Java code:**

package com.example.lifecycle;

import android.support.v7.app.AppCompatActivity;

import android.util.Log;

import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

@Override

protected void onStart() {

super.onStart();

Log.d("Activity\_Lifecycle","onStart invoked");

Toast.makeText(MainActivity.this,"Start",Toast.LENGTH\_SHORT).show();

}

@Override

protected void onPause() {

super.onPause();

Log.d("Activity\_Lifecycle","onPause invoked");

Toast.makeText(MainActivity.this,"Pause",Toast.LENGTH\_SHORT).show();

}

@Override

protected void onStop() {

super.onStop();

Log.d("Activity\_Lifecycle","onStop invoked");

Toast.makeText(MainActivity.this,"Stop",Toast.LENGTH\_SHORT).show();

}

@Override

protected void onRestart() {

super.onRestart();

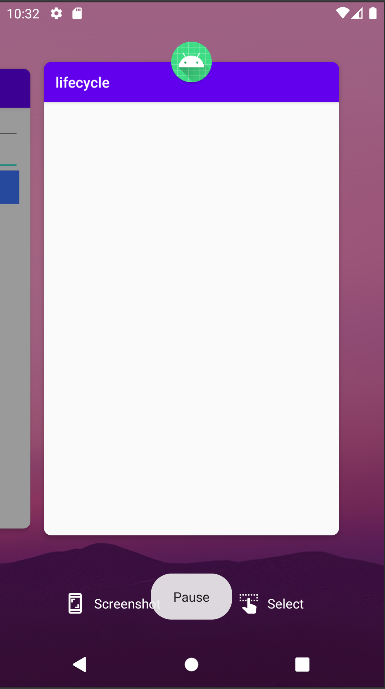
Log.d("Activity\_Lifecycle","onRestart invoked");

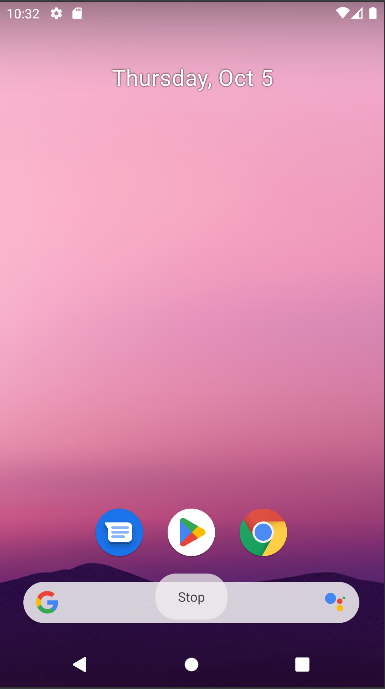
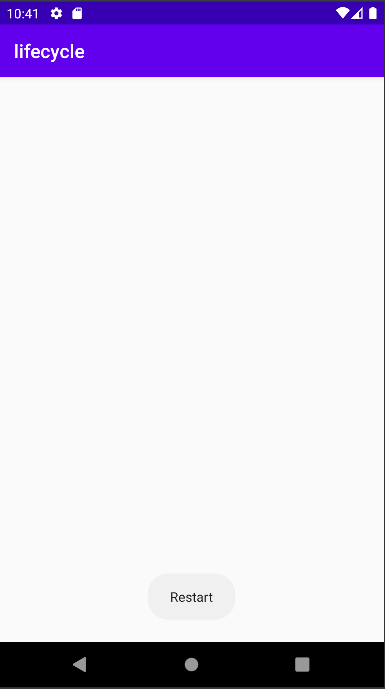
Toast.makeText(MainActivity.this,"Restart",Toast.LENGTH\_SHORT).show();

}

}

**OUTPUT:**

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**3. Implementing basic arithmetic operations of a simple calculator**

**CODE:**

**Xml code:**

<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"

tools:context=".MainActivity">

<EditText

android:id="@+id/firstNumber"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Enter first number"

android:inputType="numberDecimal" />

<EditText

android:id="@+id/secondNumber"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Enter second number"

android:inputType="numberDecimal" />

<TextView

android:id="@+id/result"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Result: "

android:textSize="20sp" />

<Button

android:id="@+id/addButton"

android:onClick="Add"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Add" />

<Button

android:id="@+id/subtractButton"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Subtract" />

<Button

android:id="@+id/multiplyButton"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Multiply" />

<Button

android:id="@+id/divideButton"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Divide" />

<Button

android:id="@+id/CLEARbutton"

android:onClick="CLEAR"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="CLEAR" />

</LinearLayout>

**Java code:**

package com.example.calculater;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.TextView;

import android.support.v7.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

private EditText firstNumberEditText, secondNumberEditText;

private TextView resultTextView;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

firstNumberEditText = findViewById(R.id.firstNumber);

secondNumberEditText = findViewById(R.id.secondNumber);

resultTextView = findViewById(R.id.result);

Button addButton = findViewById(R.id.addButton);

Button subtractButton = findViewById(R.id.subtractButton);

Button multiplyButton = findViewById(R.id.multiplyButton);

Button divideButton = findViewById(R.id.divideButton);

addButton.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

calculate('+');

}

});

subtractButton.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

calculate('-');

}

});

multiplyButton.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

calculate('\*');

}

});

divideButton.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

calculate('/');

}

});

}

private void calculate(char operator) {

double num1 = Double.parseDouble(firstNumberEditText.getText().toString());

double num2 = Double.parseDouble(secondNumberEditText.getText().toString());

double result = 0;

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 {

resultTextView.setText("Cannot divide by zero");

return;

}

break;

}

resultTextView.setText("Result: " + result);

}

public void CLEAR(View view) {

firstNumberEditText.setText("");

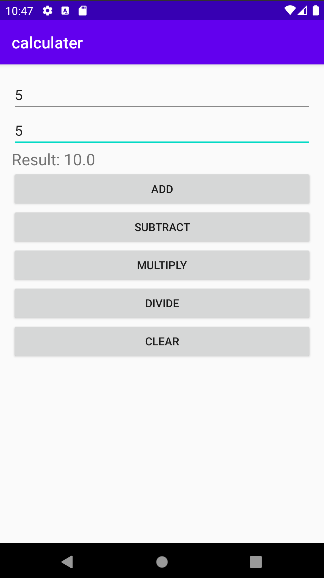
secondNumberEditText.setText("");

resultTextView.setText("result:");

}

}

**OUTPUT:**

****

**4. Implement validations on various UI controls**

**CODE:**

**Xml code:**

<?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"

tools:context=".MainActivity">

<EditText

android:id="@+id/etFullName"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Full Name"/>

<EditText

android:id="@+id/etEmail"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Email"/>

<RadioGroup

android:id="@+id/rgGender"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:orientation="horizontal">

<RadioButton

android:id="@+id/rbMale"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Male"/>

<RadioButton

android:id="@+id/rbFemale"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Female"/>

</RadioGroup>

<CheckBox

android:id="@+id/cbSubscribe"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Subscribe to Newsletter"/>

<Button

android:id="@+id/btnSubmit"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Submit"/>

</LinearLayout>

**Java code:**

package com.example.c1pgm4;

import android.os.Bundle;

import android.support.v7.app.AppCompatActivity;

import android.view.View;

import android.widget.Button;

import android.widget.CheckBox;

import android.widget.EditText;

import android.widget.RadioButton;

import android.widget.RadioGroup;

import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

private EditText etFullName, etEmail;

private RadioGroup rgGender;

private RadioButton rbMale, rbFemale;

private CheckBox cbSubscribe;

private Button btnSubmit;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

etFullName = findViewById(R.id.etFullName);

etEmail = findViewById(R.id.etEmail);

rgGender = findViewById(R.id.rgGender);

rbMale = findViewById(R.id.rbMale);

rbFemale = findViewById(R.id.rbFemale);

cbSubscribe = findViewById(R.id.cbSubscribe);

btnSubmit = findViewById(R.id.btnSubmit);

btnSubmit.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) {

// Perform form validation

if (validateForm()) {

// Form is valid, process the registration

String fullName = etFullName.getText().toString();

String email = etEmail.getText().toString();

String gender = rbMale.isChecked() ? "Male" : "Female";

boolean subscribeToNewsletter = cbSubscribe.isChecked();

// TODO: Implement registration logic here

// Show a success message

Toast.makeText(MainActivity.this, "Registration successful", Toast.LENGTH\_SHORT).show();

}

}

});

}

private boolean validateForm() {

// Validate full name

String fullName = etFullName.getText().toString();

if (fullName.isEmpty()) {

etFullName.setError("Please enter your full name");

return false;

}

// Validate email

String email = etEmail.getText().toString();

if (email.isEmpty()) {

etEmail.setError("Please enter your email address");

return false;

}else if (!android.util.Patterns.EMAIL\_ADDRESS.matcher(email).matches()) {

etEmail.setError("Please enter a valid email address");

return false;

}

// Validate gender (at least one must be selected)

if (!rbMale.isChecked() && !rbFemale.isChecked()) {

Toast.makeText(this, "Please select your gender", Toast.LENGTH\_SHORT).show();

return false;

}

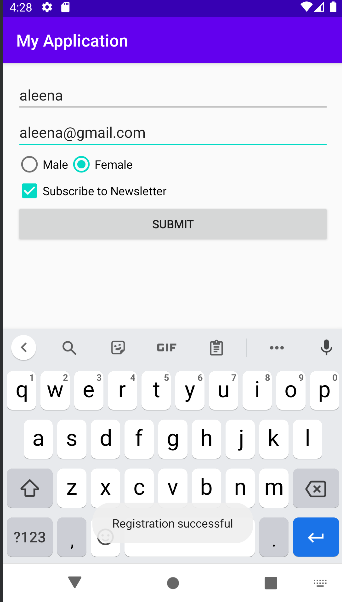
// Form is valid

return true;

}

}

**OUTPUT:**

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