

Practical 1

AIM: Introduction to Android and Create “Custom Message” application. That will display “Custom Message” in the middle of the screen in the Black color with the Yellow background.

Source Code:

Java File/s:

MainActivity.java

```
package com.example.myapplication5;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

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

Layout File/s:

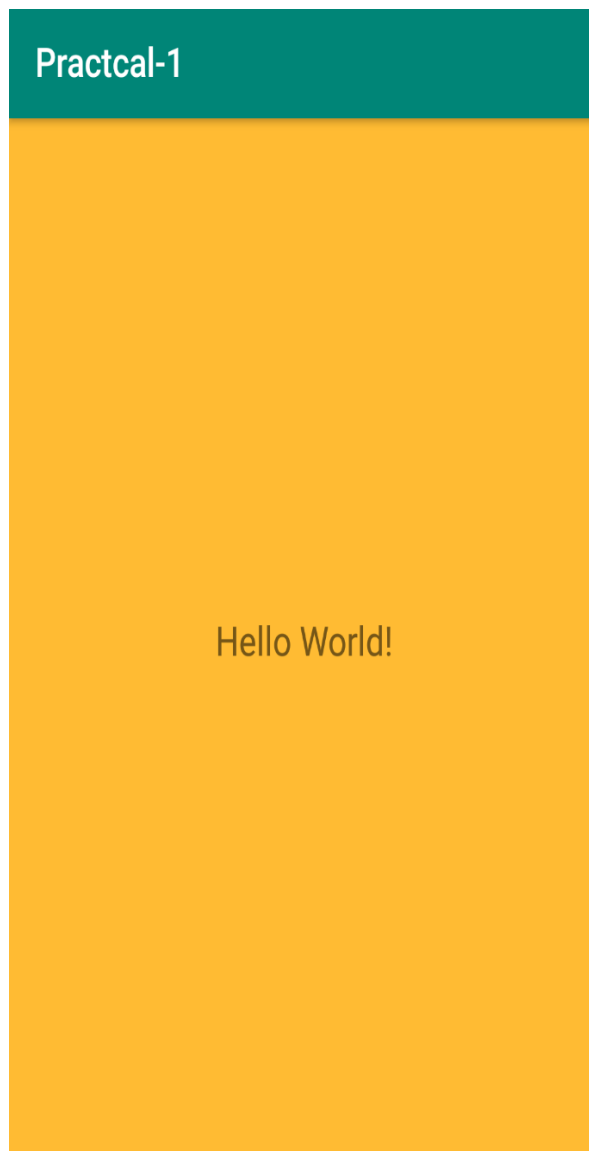
Activity_main.xml

```
<?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:background="@android:color/holo_orange_light"
tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        android:textSize="20sp"
        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:



Practical 2

AIM: Create an android application to calculate the sum of two numbers and gives result in Toast Message.

Source Code:

Java File/s:

MainActivity.java

```
package com.example.pract_2;

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 number1;
    EditText number2;
    Button add_button;
    int ans = 0;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        number1 = findViewById(R.id.editText_first_no);
        number2 = findViewById(R.id.editText_second_no);
        add_button = findViewById(R.id.add_button);
        // used to create on click listener
        if (!(number1.getText().toString().isEmpty() &&
number2.getText().toString().isEmpty())) {
            add_button.setOnClickListener(new View.OnClickListener() {
                @Override
                public void onClick(View v) {
                    // num1 or num2 double type
                    // get data which is in edittext, convert it to string
                    // using parse Double convert it to Double type
                    double num1 = Double.parseDouble(number1.getText().toString());
                    double num2 = Double.parseDouble(number2.getText().toString());
                    // add both number and store it to sum
                    double sum = num1 + num2;
                    //Displaying Toast with Hello Javatpoint message
                    Toast.makeText(getApplicationContext(), "sum: " + sum,
```

```

Toast.LENGTH_SHORT).show();
    }
});
}
}
}

```

Layout File/s:

Main_activity.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:id="@+id/textView_1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Number 1:"
        android:textSize="20sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.227"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.203" />

    <EditText
        android:id="@+id/editText_first_no"
        android:layout_width="154dp"
        android:layout_height="71dp"
        android:hint="Enter Number 1:"
        android:inputType="number"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.787"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.171" />

    <TextView
        android:id="@+id/textView_2"
        android:layout_width="wrap_content"

```

```
        android:layout_height="wrap_content"
        android:text="Number 2:"
        android:textSize="20sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.226"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.411" />

<EditText
    android:id="@+id/editText_second_no"
    android:layout_width="157dp"
    android:layout_height="65dp"
    android:hint="Enter Number 2:"
    android:inputType="number"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.787"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.393" />

<Button
    android:id="@+id/add_button"
    android:layout_width="95dp"
    android:layout_height="59dp"
    android:text="Button"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.498"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.672" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Output:

Pract-2 Two_Sum

Number 1: Enter Number 1:

Number 2: Enter Number 2:

BUTTON

Practical 3

AIM: Create an application that will display Toast (Message) on specific interval of time.

Source Code:

Java File/s:

MainActivity.java

```
package com.example.pract_3;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.Chronometer;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    Chronometer c;
    int i = 0;
    int duration = 10;
    @Override
    protected void onCreate(Bundle savedInstanceState){
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        c = (Chronometer) findViewById(R.id.chronometer1);
        c.start();
        c.setOnChronometerTickListener(new Chronometer.OnChronometerTickListener()
        {
            @Override
            public void onChronometerTick(Chronometer arg0) {
                i++;
                if (i >= duration) {
                    Toast.makeText(getApplicationContext(), "Message" + (i / 10),
                    Toast.LENGTH_LONG).show();
                    duration = duration + 10;
                }
            }
        });
    }
}
```

Layout File/s:

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">

    <Chronometer
        android:id="@+id/chronometer1"
        android:layout_width="122dp"
        android:layout_height="wrap_content"
        android:text="Chronometer"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.602"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        tools:ignore="MissingConstraints"></Chronometer>

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

Output:

Pract-3 Toast specific interval

00:07

Practical 4

AIM: Create a temperature converter Application. (Fahrenheit-Celsius).

Source Code:

Java File/s:

Main_activity.java

```
package com.example.pract_4;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.Spinner;
import android.widget.TextView;
import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity implements
AdapterView.OnItemSelectedListener {
    EditText number1;
    Button add_button;
    TextView textview;
    String[] c = {"a"};
    double num1,f;
    String[] users = {"C","F"};
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Spinner spin = (Spinner) findViewById(R.id.spinner1);
        ArrayAdapter<String> adapter = new ArrayAdapter<String>(this,
android.R.layout.simple_spinner_item, users);

        adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
        spin.setAdapter(adapter);
        spin.setOnItemSelectedListener(this);
        number1 = findViewById(R.id.edit_text);
        add_button = findViewById(R.id.button_convert);
        textview = findViewById(R.id.textView2);
        // used to create on click listener
        //if (!(number1.getText().toString().isEmpty())) {
            add_button.setOnClickListener(new View.OnClickListener() {
                @Override
                public void onClick(View v) {
```

```
        if(c[0].equals("F")){
            num1 = Double.parseDouble(number1.getText().toString());
            double f = (num1 - 32) * 5 / 9;
            textView.setText(String.format("Celsius :%.2f", f));
            Toast.makeText(getApplicationContext(), "F: " + f,
Toast.LENGTH_SHORT).show();
        }
        else{
            num1 = Double.parseDouble(number1.getText().toString());
            double f = (num1 * 9/5) + 32;
            textView.setText(String.format("Fahrenheit :%.2f", f));
            Toast.makeText(getApplicationContext(), "C: " + num1,
Toast.LENGTH_SHORT).show();
        }
    }
    });
    // }
}
@Override
public void onItemSelected(AdapterView<?> arg0, View arg1, int position,long id) {
    c[0]=users[position];
}
@Override
public void onNothingSelected(AdapterView<?> arg0) {
    // TODO - Custom Code
}
}
```

Layout File/s:
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">

<EditText
    android:id="@+id/edit_text"
    android:layout_width="185dp"
    android:layout_height="46dp"
    android:layout_marginEnd="112dp"
    android:layout_marginRight="112dp"
    app:layout_constraintBottom_toBottomOf="parent"
```

```
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.264"
app:layout_constraintLeft_toLeftOf="parent"
app:layout_constraintRight_toRightOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.321" />

<TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintHorizontal_bias="0.414"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.131" />

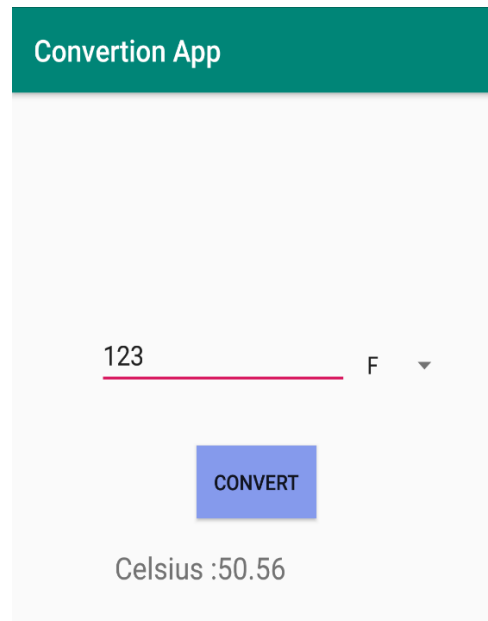
<Spinner
    android:id="@+id/spinner1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:autofillHints="Select"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.887"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.342" />

<Button
    android:id="@+id/button_convert"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Convert"
    android:background="@color/button"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

<TextView
    android:id="@+id/textView2"
    android:layout_width="203dp"
    android:layout_height="67dp"
    android:textSize="20sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.482"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
```

```
app:layout_constraintVertical_bias="0.671" />  
</androidx.constraintlayout.widget.ConstraintLayout>
```

Output:



Practical 5

AIM: Create a login application with following features:

- 1. Successful Login message in Text-View with Green background if Username & password is correct.**
- 2. Failure message in Text-View with Red background if Username or password is incorrect.**
- 3. Disable Login Button after three wrong login attempts.**
- 4. Close application if user selects Cancel Button.**

Source Code:

Java File/s:

Main_activity.java

```
package com.example.login;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.graphics.Color;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    EditText Username;
    EditText Password;
    int count=3;
    Button button_login;
    TextView Register;
    DatabaseHelper db;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        db = new DatabaseHelper(this);
        Username = (EditText)findViewById(R.id.Username);
        Password = (EditText)findViewById(R.id.Password);
        button_login = (Button)findViewById(R.id.button_login);
        Register = (TextView)findViewById(R.id.Register);

        Register.setOnClickListener(new View.OnClickListener() {
            @Override
```

```

        public void onClick(View view) {
            Intent register = new Intent(MainActivity.this, RegisterActivity.class);
            startActivity(register);
        }
    });

    button_login.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            String user = Username.getText().toString().trim();
            String pass = Password.getText().toString().trim();
            TextView incorrect;
            TextView attempts = (TextView)findViewById(R.id.textView2);
            TextView lim = (TextView)findViewById(R.id.textView3);
            Button logbtn;
            Button closeapp = (Button)findViewById(R.id.closeapp);
            Boolean res = db.checkUser(user, pass);
            if(res==true){
                Toast toast = Toast.makeText(MainActivity.this, "Successfully logged in
                :)", Toast.LENGTH_SHORT);
                view = toast.getView();
                view.setBackgroundColor(Color.rgb(0,170,0));
                TextView toastMessage = (TextView)
                toast.getView().findViewById(android.R.id.message);
                toastMessage.setTextColor(Color.BLACK);
                toast.show();
            } else {
                lim.setVisibility(View.VISIBLE);
                attempts.setVisibility(View.VISIBLE);
                lim.setBackgroundColor(Color.RED);
                count--;
                lim.setText(Integer.toString(count));
                incorrect = (TextView)findViewById(R.id.incorrect);
                incorrect.setVisibility(View.VISIBLE);
                if(count==0){
                    logbtn = (Button)findViewById(R.id.button_login);
                    logbtn.setText("Disabled");
                    logbtn.setEnabled(false);
                }
                closeapp.setOnClickListener(new View.OnClickListener() {
                    @Override
                    public void onClick(View view) {
                        finish();
                        System.exit(0);
                    }
                });
            }
        }
    });
}
});

```



```

    }
}

```

Database_Helper.java

```

package com.example.login;

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

import androidx.annotation.Nullable;

public class DatabaseHelper extends SQLiteOpenHelper {
    public static final String DATABASE_NAME = "register.db";
    public static final String TABLE_NAME = "register_user";
    public static final String COL1_NAME = "ID";
    public static final String COL2_NAME = "username";
    public static final String COL3_NAME = "password";

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

    @Override
    public void onCreate(SQLiteDatabase sqLiteDatabase) {
        sqLiteDatabase.execSQL("CREATE TABLE register_user (ID INTEGER PRIMARY KEY AUTOINCREMENT,username TEXT,password TEXT)");
    }

    @Override
    public void onUpgrade(SQLiteDatabase sqLiteDatabase, int i, int i1) {
        sqLiteDatabase.execSQL("drop table if exists " + TABLE_NAME);
        onCreate(sqLiteDatabase);
    }

    public long addUser(String user,String password){
        SQLiteDatabase db = this.getWritableDatabase();
        ContentValues contentValues = new ContentValues();
        contentValues.put("username",user);
        contentValues.put("password",password);
        long res = db.insert("register_user",null,contentValues);
        db.close();
        return res;
    }

    public boolean checkUser(String username,String password){
        String[] columns = { COL1_NAME };
        SQLiteDatabase db = getReadableDatabase();

```

```
String selection = COL2_NAME + "=? " + " and " + COL3_NAME + "=?";
String[] selectionArgs = { username, password };
Cursor cursor =
db.query(TABLE_NAME,columns,selection,selectionArgs,null,null,null);
int count = cursor.getCount();
cursor.close();
db.close();
if(count>0){
    return true;
} else {
    return false;
}
}
}
```

Register_Activity.java

```
package com.example.login;

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;
import android.widget.TextView;
import android.widget.Toast;

public class RegisterActivity extends AppCompatActivity {

    DatabaseHelper db;
    EditText Username;
    EditText Password;
    EditText Cnf_Password;
    Button Register;
    TextView ViewLogin;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_register);
        db = new DatabaseHelper(this);
        Username = (EditText)findViewById(R.id.Username);
        Password = (EditText)findViewById(R.id.Password);
        Cnf_Password = (EditText)findViewById(R.id.Cnf_Password);
        Register = (Button)findViewById(R.id.button_register);
        ViewLogin = (TextView)findViewById(R.id.Login);

        ViewLogin.setOnClickListener(new View.OnClickListener() {
            @Override
```

```
        public void onClick(View view) {
            Intent login = new Intent(RegisterActivity.this,MainActivity.class);
            startActivity(login);
        }
    });
    Register.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            String user = Username.getText().toString()
                .trim();
            String pass = Password.getText().toString().trim();
            String cnf_pass = Cnf_Password.getText().toString().trim();

            if(pass.equals(cnf_pass)){
                Long val = db.addUser(user,pass);
                if(val>0){
                    Toast.makeText(RegisterActivity.this,"Registration
successful",Toast.LENGTH_SHORT).show();
                    Intent movToLogin = new Intent(RegisterActivity.this,MainActivity.class);
                    startActivity(movToLogin);
                } else {
                    Toast.makeText(RegisterActivity.this,"Register
error!!",Toast.LENGTH_SHORT).show();
                }

            } else {
                Toast.makeText(RegisterActivity.this,"Password is not
matching",Toast.LENGTH_SHORT).show();
            }
        }
    });
}
```

Layout File/s:
Activity_register.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:background="#384AAA"
    android:orientation="vertical"
    android:gravity="center_horizontal"
    android:layout_height="match_parent"
    tools:context=".RegisterActivity">

    <ImageView
        android:layout_width="wrap_content"
```

```
        android:layout_height="127dp"
        android:src="@drawable/logo"
        android:layout_marginTop="50dp">
</ImageView>

<EditText
    android:id="@+id/Username"
    android:layout_width="190dp"
    android:layout_height="45dp"
    android:layout_marginTop="10dp"
    android:drawableLeft="@drawable/username"
    android:textColorHint="#161414"
    android:textColor="#171414"
    android:background="#ffff"
    android:hint="@string/username" />

<EditText
    android:id="@+id/Password"
    android:layout_width="190dp"
    android:layout_height="55dp"
    android:drawableLeft="@drawable/password"
    android:textColorHint="#161414"
    android:textColor="#171414"
    android:background="#ffff"
    android:layout_marginTop="25dp"
    android:hint="@string/password" />

<EditText
    android:id="@+id/Cnf_Password"
    android:layout_width="190dp"
    android:layout_height="55dp"
    android:textColor="#171414"
    android:drawableLeft="@drawable/password"
    android:textColorHint="#161414"
    android:background="#ffff"
    android:layout_marginTop="25dp"
    android:hint="@string/conf_password" />

<Button
    android:id="@+id/button_register"
    android:layout_width="wrap_content"
    android:layout_height="40dp"
    android:background="#2198F3"
    android:layout_marginTop="20dp"
    android:text="@string/getRegistered"/>

<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="15dp"
    android:orientation="horizontal">
```

```

<TextView
    android:layout_width="wrap_content"
    android:layout_height="35dp"
    android:textColor="#ffff"
    android:textSize="20sp"
    android:text="@string/already_registered">
</TextView>
<TextView
    android:id="@+id/Login"
    android:layout_width="wrap_content"
    android:textColor="#ffff"
    android:layout_height="35dp"
    android:paddingLeft="10dp"
    android:textSize="25sp"
    android:textStyle="bold"
    android:text="@string/thenlogin">
</TextView>
</LinearLayout>

</LinearLayout>

```

Activity_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center_horizontal"
    android:orientation="vertical"
    tools:context=".MainActivity"
    android:background="@drawable/img_background">

    <ImageView
        android:layout_width="wrap_content"
        android:layout_height="127dp"
        android:src="@drawable/logo"
        android:layout_marginTop="50dp">
    </ImageView>

    <EditText
        android:id="@+id/Username"
        android:layout_width="190dp"
        android:layout_height="45dp"
        android:layout_marginTop="10dp"
        android:drawableLeft="@drawable/username"

```

```
android:textColorHint="#ffff"  
android:hint="@string/username" />
```



```
<EditText
    android:id="@+id/Password"
    android:layout_width="190dp"
    android:layout_height="55dp"
    android:drawableLeft="@drawable/password"
    android:textColorHint="#ffff"
    android:layout_marginTop="25dp"
    android:hint="@string/password" />

<TextView
    android:id="@+id/incorrect"
    android:layout_width="200dp"
    android:layout_marginTop="20dp"
    android:layout_height="25dp"
    android:textColor="#ffff"
    android:layout_marginBottom="15dp"
    android:textAlignment="center"
    android:background="#FF1818"
    android:text="Incorrect credentials!"
    android:visibility="gone" />
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="horizontal">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Attempts Left:"
        android:id="@+id/textView2"
        android:visibility="gone"
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true"
        android:textSize="25dp" />

    <TextView
        android:layout_width="50dp"
        android:layout_height="wrap_content"
        android:text="New Text"
        android:textAlignment="center"
        android:id="@+id/textView3"
        android:visibility="gone"
        android:textSize="25dp"
    />
</LinearLayout>
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="horizontal">

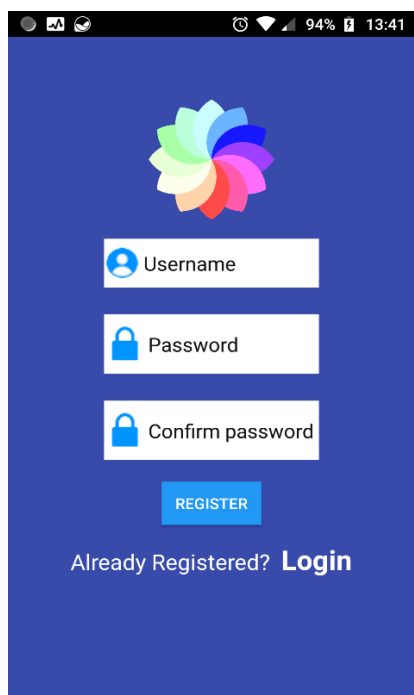
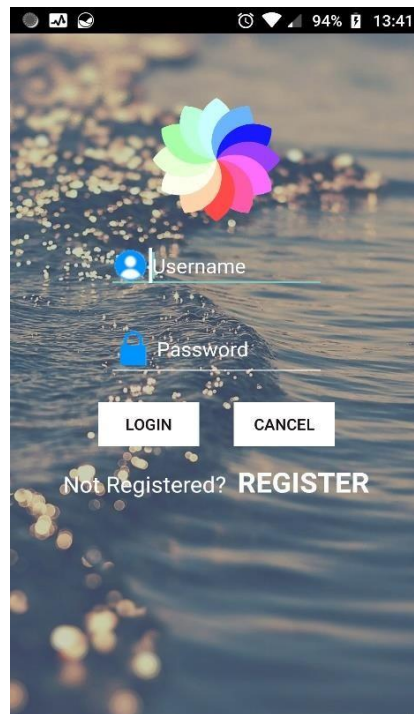
    <Button
```

```
        android:id="@+id/button_login"
        android:layout_width="wrap_content"
        android:layout_height="40dp"
        android:background="#ffff"
        android:textColor="#171212"
        android:layout_marginTop="20dp"
        android:text="@string/login"/>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="40dp"
        android:id="@+id/closeapp"
        android:background="#ffff"
        android:layout_marginLeft="30dp"
        android:textColor="#171212"
        android:layout_marginTop="20dp"
        android:text="Cancel">
    </Button>
</LinearLayout>

<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="15dp"
    android:orientation="horizontal">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="35dp"
        android:textColor="#ffff"
        android:textSize="20sp"
        android:text="@string/not_registered">
    </TextView>
    <TextView
        android:id="@+id/Register"
        android:layout_width="wrap_content"
        android:textColor="#ffff"
        android:layout_height="35dp"
        android:paddingLeft="10dp"
        android:textSize="25sp"
        android:textStyle="bold"
        android:text="@string/register">
    </TextView>
</LinearLayout>

</LinearLayout>
```

Output:



Practical 6

AIM: Create an application which turns ON or OFF Torch/Flashlight of Camera.

Source Code:

Java File/s:

Main_activity.java

```
package
com.example.practical6;
import
androidx.annotation.Require
sApi; import
androidx.appcompat.app.Ale
rtDialog;
import
androidx.appcompat.app.AppCompatActivity; import
android.content.Context;
import
android.content.DialogInterfa
ce; import
android.content.pm.Package
Manager;
import
android.hardware.camera2.CameraAccessE
xception; import
android.hardware.camera2.CameraManager
;
import
android.os
.Build;
import
android.os
.Bundle;
import
android.widget.Compoun
dButton; import
android.widget.ToggleBu
tton;

@RequiresApi(api =
Build.VERSION_CODES.LOLLIPOP)

public class MainActivity extends
AppCompatActivity {
    private CameraManager
mCameraManager; private String
mCameraId;
    private ToggleButton toggleButton;
    @RequiresApi(api =
```

```

Build.VERSION_CODES.LOLLIPOP)
@Override
protected void onCreate(Bundle
    savedInstanceState) {
    super.onCreate(savedInstanceState)
    ;
    setContentView(R.layout.activity_
        main);

    boolean isFlashAvailable = getApplicationContext().getPackageManager()
        .hasSystemFeature(PackageManager.FEATURE_CAM
        ERA_FLASH);
        if (!isFlashAvailable) {
            showNoFlashError();
        }

    mCameraManager = (CameraManager)
        getSystemService(Context.CAMERA_SERVICE); try {
        mCameraId = mCameraManager.getCameraIdList()[0];
    } catch
        (CameraAccessExcep
        tion e) {
        e.printStackTrace();
    }
    toggleButton = findViewById(R.id.toggleButton);
    toggleButton.setOnCheckedChangeListener(new
    CompoundButton.OnCheckedChangeListener() { @RequiresApi(api =
        Build.VERSION_CODES.M)
        @Override
        public void onCheckedChanged(CompoundButton buttonView, boolean
            isChecked) { switchFlashLight(isChecked);
        }
    }
    )
    ;

    }
    public void showNoFlashError() {
        AlertDialog alert = new AlertDialog.Builder(this)
            .create();
        alert.setTitle("Oops!
        ");
        alert.setMessage("Flash not available in this device...");
        alert.setButton(DialogInterface.BUTTON_POSITIVE, "OK", new
        DialogInterface.OnClickListener() {
            public void onClick(DialogInterface
                dialog, int which) { finish();
            }
        }
    )
    ;

```

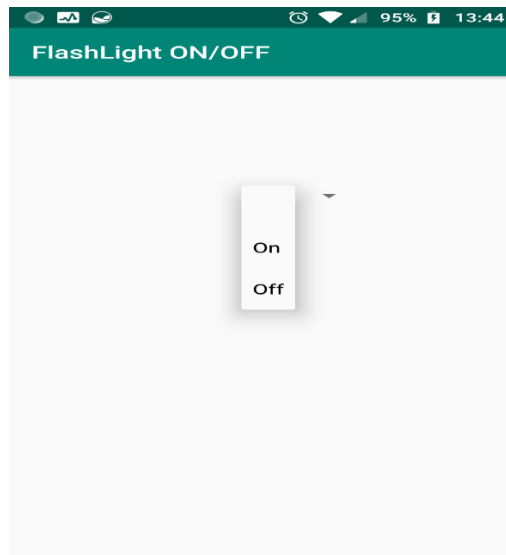
```
        alert.show();  
    }
```

Layout File/s:

Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>  
<androidx.constraintlayout.widget.ConstraintLayout  
    xmlns:android="http://schemas.android.com/apk/res/android"  
    xmlns:tools="http://schemas.android.com/tools"  
    xmlns:app="http://schemas.android.com/apk/res-auto"  
    android:layout_width="match_parent"  
    android:layout_height="match_parent"  
    tools:context=".MainActivity">  
  
    <TextView  
        android:layout_width="wrap_content"  
        android:layout_height="wrap_content"  
        app:layout_constraintBottom_toBottomOf="parent"  
        app:layout_constraintHorizontal_bias="0.414"  
        app:layout_constraintLeft_toLeftOf="parent"  
        app:layout_constraintRight_toRightOf="parent"  
        app:layout_constraintTop_toTopOf="parent"  
        app:layout_constraintVertical_bias="0.131" />  
  
    <Spinner  
        android:id="@+id/spinner1"  
        android:layout_width="wrap_content"  
        android:layout_height="wrap_content"  
        android:autofillHints="Select"  
        app:layout_constraintBottom_toBottomOf="parent"  
        app:layout_constraintEnd_toEndOf="parent"  
        app:layout_constraintHorizontal_bias="0.603"  
        app:layout_constraintStart_toStartOf="parent"  
        app:layout_constraintTop_toTopOf="parent"  
        app:layout_constraintVertical_bias="0.236" />  
  
</androidx.constraintlayout.widget.ConstraintLayout>
```

Output:



Practical 7

AIM: Create an application that will change the color of the screen, based on selected options from the menu.

Source Code:

Java File/s:

Main_activity.java

```
package com.example.pract_7;

import androidx.appcompat.app.AppCompatActivity;
import androidx.core.content.ContextCompat;

import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

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

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.options_menu, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        Toast.makeText(this, "Selected Item: " + item.getTitle(),
        Toast.LENGTH_SHORT).show();
        switch (item.getItemId()) {
            case R.id.search_item:
                View someView = findViewById(R.id.main_layout);
                View root = someView.getRootView();
                root.setBackgroundColor(ContextCompat.getColor(this, R.color.orange));
                return true;
            case R.id.upload_item:
                View someView1 = findViewById(R.id.main_layout);
                View root1 = someView1.getRootView();
                root1.setBackgroundColor(ContextCompat.getColor(this, R.color.color1));
                return true;
        }
    }
}
```



```
        case R.id.copy_item:
            View someView2 = findViewById(R.id.main_layout);
            View root2 = someView2.getRootView();
            root2.setBackgroundColor(ContextCompat.getColor(this, R.color.color2));
            return true;
        case R.id.print_item:
            View someView3 = findViewById(R.id.main_layout);
            View root3 = someView3.getRootView();
            root3.setBackgroundColor(ContextCompat.getColor(this, R.color.color3));
            return true;
        default:
            return super.onOptionsItemSelected(item);
    }
}
```

Layout File/s:

option_menu.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android" >
    <item android:id="@+id/search_item"
        android:title="Red" />
    <item android:id="@+id/upload_item"
        android:title="Orange" />
    <item android:id="@+id/copy_item"
        android:title="Blue" />
    <item android:id="@+id/print_item"
        android:title="Green" />
</menu>
```

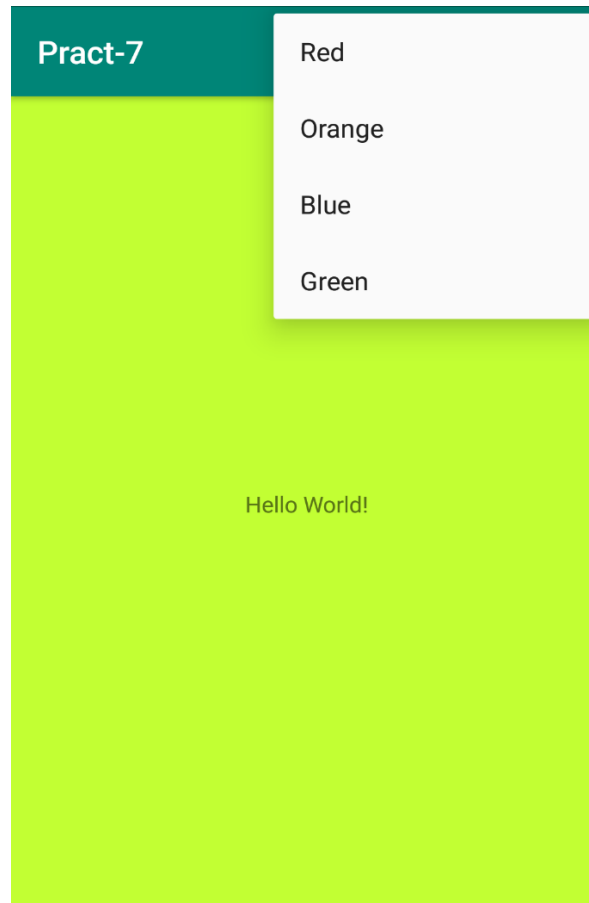
Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:id="@+id/main_layout"
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:



Practical 8

AIM: Create an application with the help of a fragment.

Source Code:

Java File/s:

main.xml

```
package com.example.pract_8;

import androidx.appcompat.app.AppCompatActivity;
import androidx.core.content.ContextCompat;

import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

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

        setContentView(R.layout.activity_main);
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.options_menu, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        Toast.makeText(this, "Selected Item: " + item.getTitle(),
        Toast.LENGTH_SHORT).show();
        switch (item.getItemId()) {
            case R.id.search_item:
                View someView = findViewById(R.id.main_layout);
                View root = someView.getRootView();
                root.setBackgroundColor(ContextCompat.getColor(this, R.color.orange));
                return true;
            case R.id.upload_item:
                View someView1 = findViewById(R.id.main_layout);
                View root1 = someView1.getRootView();
```

```

        root1.setBackgroundColor(ContextCompat.getColor(this, R.color.color1));
        return true;
    case R.id.copy_item:
        View someView2 = findViewById(R.id.main_layout);
        View root2 = someView2.getRootView();
        root2.setBackgroundColor(ContextCompat.getColor(this, R.color.color2));
        return true;
    case R.id.print_item:
        View someView3 = findViewById(R.id.main_layout);
        View root3 = someView3.getRootView();
        root3.setBackgroundColor(ContextCompat.getColor(this, R.color.color3));
        return true;
    default:
        return super.onOptionsItemSelected(item);
    }
}
}
}

```

Layout File/s:

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"
    android:id="@+id/container"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingTop="?attr/actionBarSize">

    <com.google.android.material.bottomnavigation.BottomNavigationView
        android:id="@+id/nav_view"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_marginStart="0dp"
        android:layout_marginEnd="0dp"
        android:background="?android:attr/windowBackground"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:menu="@menu/bottom_nav_menu" />

    <fragment
        android:id="@+id/nav_host_fragment"
        android:name="androidx.navigation.fragment.NavHostFragment"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        app:defaultNavHost="true"
        app:layout_constraintBottom_toTopOf="@id/nav_view"
        app:layout_constraintLeft_toLeftOf="parent"

```

```
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:navGraph="@navigation/mobile_navigation" />

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

Home_menu.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"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <TextView
        android:id="@+id/text_home"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginStart="8dp"
        android:layout_marginTop="8dp"
        android:layout_marginEnd="8dp"
        android:textAlignment="center"
        android:textSize="20sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Dashboard_menu.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"
android:layout_width="match_parent"
android:layout_height="match_parent">

<TextView
    android:id="@+id/text_dashboard"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginStart="8dp"
    android:layout_marginTop="8dp"
    android:layout_marginEnd="8dp"
    android:textAlignment="center"
    android:textSize="20sp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
```

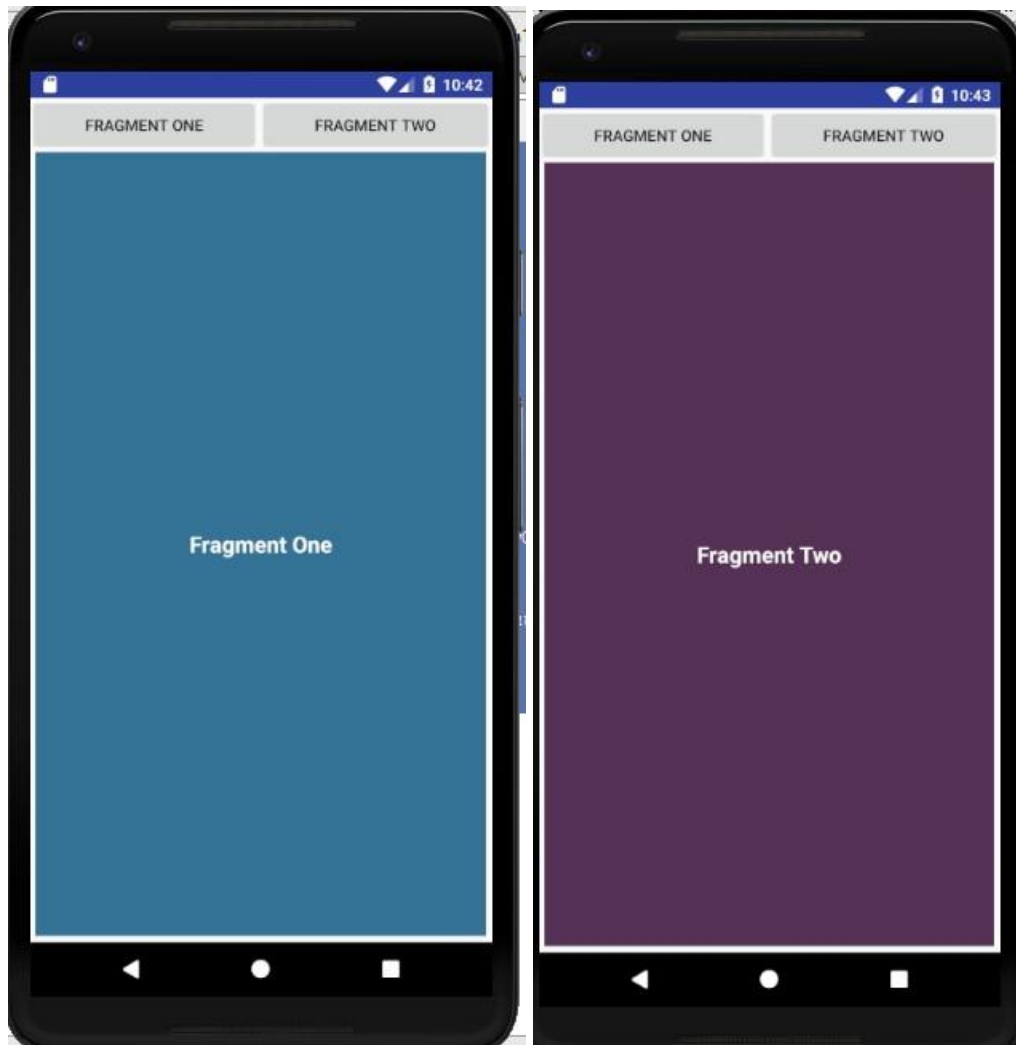
```
        app:layout_constraintTop_toTopOf="parent" />
    </androidx.constraintlayout.widget.ConstraintLayout>
```

notify_menu.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"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <TextView
        android:id="@+id/text_notifications"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginStart="8dp"
        android:layout_marginTop="8dp"
        android:layout_marginEnd="8dp"
        android:textAlignment="center"
        android:textSize="20sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Output:



PRACTICAL 9

AIM - Create an application with the help of web view.

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="com.example.administrator.prac9_webview.MainActivity">

    <TextView android:text="WebView" android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/textview"
        android:textSize="35dp"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true" />

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="35dp"
        android:text="charusat website"
        android:textColor="#ff7aff24"
        android:textSize="35dp" />

    <EditText
        android:id="@+id/editText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_below="@+id/textView"
        android:layout_marginTop="11dp"
        android:focusable="true"
        android:hint="Enter Text"
        android:textColorHighlight="#ff7eff15"
        android:textColorHint="#ffff25e6" />

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"

        android:layout_alignEnd="@+id/textView"
        android:layout_below="@+id/button"
```

```

        android:src="@drawable/abc" />

<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/editText"
    android:layout_centerHorizontal="true"
    android:text="Enter" />

<WebView
    android:id="@+id/webView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_alignStart="@+id/textview"
    android:layout_marginBottom="0dp"
    android:layout_marginLeft="0dp"
    android:layout_marginRight="100dp"
    android:layout_marginTop="404dp"
    android:visibility="visible" />

</RelativeLayout>

```

Mainactivity.java

```

package com.example.administrator.prac9_webview;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;

import android.view.View;
import android.webkit.WebView;
import android.webkit.WebViewClient;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity
{
    Button b1;
    EditText ed1;
    private WebView wv1;

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

        b1=(Button)findViewById(R.id.button);
        ed1=(EditText)findViewById(R.id.editText);
    }
}

```

```

wv1=(WebView)findViewById(R.id.webView);
wv1.setWebViewClient(new MyBrowser());

b1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        String url = ed1.getText().toString();

        wv1.getSettings().setLoadsImagesAutomatically(true);
        wv1.getSettings().setJavaScriptEnabled(true);
        wv1.setScrollBarStyle(View.SCROLLBARS_INSIDE_OVERLAY);
        wv1.loadUrl(url);
    }
});
}

private class MyBrowser extends WebViewClient {
    @Override
    public boolean shouldOverrideUrlLoading(WebView view, String url) {
        view.loadUrl(url);
        return true;
    }
}
}

```

Output



PRACTICAL 10

AIM:

Create an application with the help of the database.

CODE:**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="com.example.admin1.saveandretrive.MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="kem cho gujarat"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

MainActivity.java:

```
package com.example.admin1.saveandretrive;

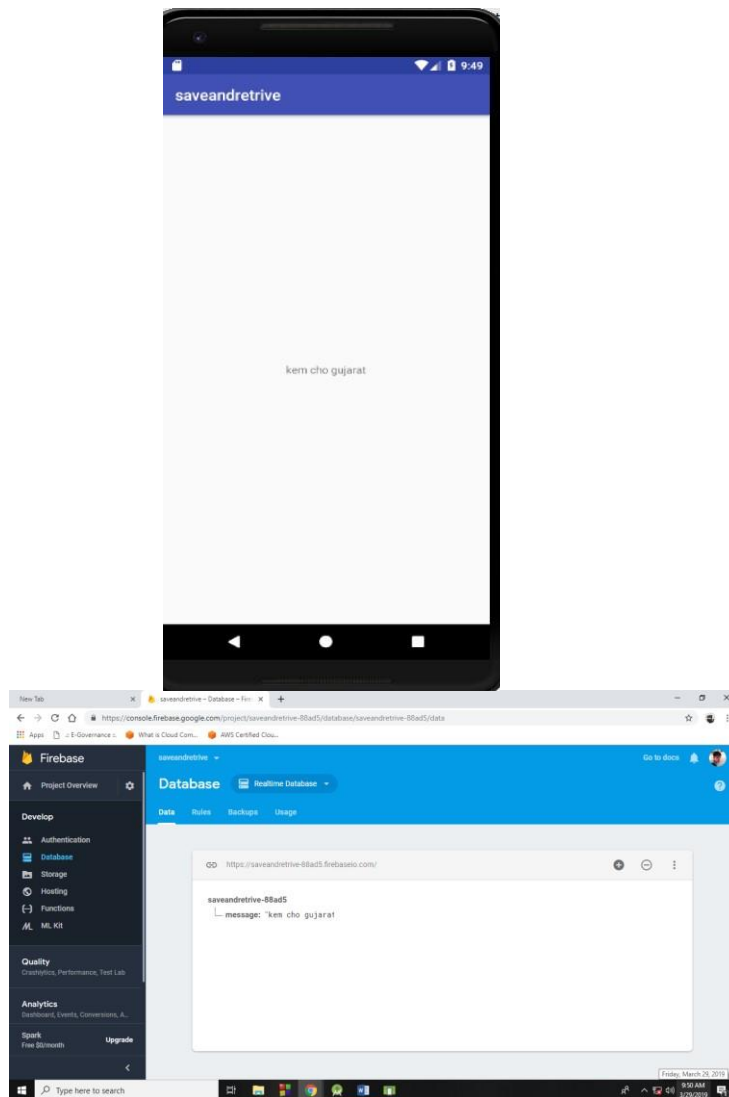
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import com.google.firebase.database.DatabaseReference;
import com.google.firebase.database.FirebaseDatabase;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        FirebaseDatabase database = FirebaseDatabase.getInstance();
        DatabaseReference myRef = database.getReference("message");

        myRef.setValue("kem cho gujarat");
    }
}
```

OUTPUT:



PRACTICAL 11

AIM: Creating an application that provides Single Sign-on (SSO) with Chrome CustomTabs via the App-Auth library, and optionally push managed configuration to provide a user login hint.

<https://codelabs.developers.google.com/codelabs/signin/index.html?index=..%2F..index#0>

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="com.example.app_1.signin_1.MainActivity">

    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        android:padding="2dip">
        <com.google.android.gms.common.SignInButton
            android:id="@+id/sign_in_button"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:enabled="false" />

        <Button
            android:id="@+id/sign_out_button"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Sign Out"
            android:enabled="true" />

        <Button
            android:id="@+id/revoke_access_button"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Revoke Access"
            android:enabled="true" />

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:id="@+id/statuslabel"
            android:text="Status"/>
    </LinearLayout>

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



```
mainactivity.java
```

```
package com.google.codelabs.appauth;

import android.app.PendingIntent;
import android.app.admin.DevicePolicyManager;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.content.IntentFilter;
import android.content.RestrictionsManager;
import android.net.Uri;
import android.os.AsyncTask;
import android.os.Bundle;
import android.os.PersistableBundle;
import android.os.UserManager;
import android.support.annotation.NonNull;
import android.support.annotation.Nullable;
import android.support.design.widget.Snackbar;
import android.support.v7.app.AppCompatActivity;
import android.support.v7.widget.AppCompatButton;
import android.support.v7.widget.AppCompatTextView;
import android.text.TextUtils;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.ImageView;
import android.widget.Toast;
```

```
import com.squareup.picasso.Picasso;

import net.openid.appauth.AuthState;
import net.openid.appauth.AuthorizationException;
import net.openid.appauth.AuthorizationRequest;
import net.openid.appauth.AuthorizationResponse;
import net.openid.appauth.AuthorizationService;
import net.openid.appauth.AuthorizationServiceConfiguration;
import net.openid.appauth.TokenResponse;

import org.json.JSONException;
import org.json.JSONObject;

import java.util.HashMap;
import java.util.Map;

import okhttp3.OkHttpClient;
import okhttp3.Request;
import okhttp3.Response;

import static com.google.codelabs.appauth.MainApplication.LOG_TAG;

public class MainActivity extends AppCompatActivity {

    private static final String SHARED_PREFERENCES_NAME = "AuthStatePreference";
    private static final String AUTH_STATE = "AUTH_STATE";
```

```
private static final String USED_INTENT = "USED_INTENT";

private static final String LOGIN_HINT = "login_hint";


MainApplication mMainApplication;


// state
AuthState mAuthState;


// views
AppCompatButton mAuthorize;
AppCompatButton mMakeApiCall;
AppCompatButton mSignOut;
AppCompatTextView mGivenName;
AppCompatTextView mFamilyName;
AppCompatTextView mFullName;
ImageView mProfileView;


// login hint
protected String mLoginHint;


// broadcast receiver for app restrictions changed broadcast
BroadcastReceiver mRestrictionsReceiver;


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

```
mMainApplication = (MainApplication) getApplication();

mAuthorize = (AppCompatButton) findViewById(R.id.authorize);

mMakeApiCall = (AppCompatButton) findViewById(R.id.makeApiCall);

mSignOut = (AppCompatButton) findViewById(R.id.signOut);

mGivenName = (AppCompatTextView) findViewById(R.id.givenName);

mFamilyName = (AppCompatTextView) findViewById(R.id.familyName);

mFullName = (AppCompatTextView) findViewById(R.id.fullName);

mProfileView = (ImageView) findViewById(R.id.profileImage);


enablePostAuthorizationFlows();


// wire click listeners

mAuthorize.setOnClickListener(new AuthorizeListener(this));


// Retrieve app restrictions and take appropriate action

getAppRestrictions();

}


@Override

protected void onResume(){

    super.onResume();


    // Retrieve app restrictions and take appropriate action

    getAppRestrictions();


    // Register a receiver for app restrictions changed broadcast

    registerRestrictionsReceiver();
```

```
}

@Override
protected void onStop(){
    super.onStop();

    // Unregister receiver for app restrictions changed broadcast
    unregisterReceiver(mRestrictionsReceiver);
}

@Override
protected void onNewIntent(Intent intent) {
    checkIntent(intent);
}

private void checkIntent(@Nullable Intent intent) {
    if (intent != null) {
        String action = intent.getAction();
        switch (action) {
            case "com.google.codelabs.appauth.HANDLE_AUTHORIZATION_RESPONSE":
                if (!intent.hasExtra(USED_INTENT)) {
                    handleAuthorizationResponse(intent);
                    intent.putExtra(USED_INTENT, true);
                }
                break;
            default:
                // do nothing
        }
    }
}
```

```
    }  
    }  
}  
  
@Override  
protected void onStart() {  
    super.onStart();  
    checkIntent(getIntent());  
  
    // Register a receiver for app restrictions changed broadcast  
    registerRestrictionsReceiver();  
}  
  
private void enablePostAuthorizationFlows() {  
    mAuthState = restoreAuthState();  
    if (mAuthState != null && mAuthState.isAuthenticated()) {  
        if (mMakeApiCall.getVisibility() == View.GONE) {  
            mMakeApiCall.setVisibility(View.VISIBLE);  
            mMakeApiCall.setOnClickListener(new MakeApiCallListener(this, mAuthState, new  
AuthorizationService(this)));  
        }  
        if (mSignOut.getVisibility() == View.GONE) {  
            mSignOut.setVisibility(View.VISIBLE);  
            mSignOut.setOnClickListener(new SignOutListener(this));  
        }  
    } else {  
        mMakeApiCall.setVisibility(View.GONE);  
        mSignOut.setVisibility(View.GONE);  
    }  
}
```

```

    }

}

/**
 * Exchanges the code, for the { @link TokenResponse }.
 *
 * @param intent represents the { @link Intent } from the Custom Tabs or the System Browser.
 */

private void handleAuthorizationResponse(@NonNull Intent intent) {

    AuthorizationResponse response = AuthorizationResponse.fromIntent(intent);

    AuthorizationException error = AuthorizationException.fromIntent(intent);

    final AuthState authState = new AuthState(response, error);

    if (response != null) {

        Log.i(LOG_TAG, String.format("Handled Authorization Response %s ",
authState.toJsonString()));

        AuthorizationService service = new AuthorizationService(this);

        service.performTokenRequest(response.createTokenExchangeRequest(), new
AuthorizationService.TokenResponseCallback() {

            @Override

            public void onTokenRequestCompleted(@Nullable TokenResponse tokenResponse,
@Nullable AuthorizationException exception) {

                if (exception != null) {

                    Log.w(LOG_TAG, "Token Exchange failed", exception);

                } else {

                    if (tokenResponse != null) {

                        authState.update(tokenResponse, exception);

                        persistAuthState(authState);

                        Log.i(LOG_TAG, String.format("Token Response [ Access Token: %s, ID Token:
%s ]", tokenResponse.accessToken, tokenResponse.idToken));

```

```
    }  
    }  
    }  
});  
}  
}
```

```
private void persistAuthState(@NonNull AuthState authState) {  
    getSharedPreferences(SHARED_PREFERENCES_NAME,  
Context.MODE_PRIVATE).edit()  
        .putString(AUTH_STATE, authState.toJsonString())  
        .commit();  
    enablePostAuthorizationFlows();  
}
```

```
private void clearAuthState() {  
    getSharedPreferences(SHARED_PREFERENCES_NAME, Context.MODE_PRIVATE)  
        .edit()  
        .remove(AUTH_STATE)  
        .apply();  
}
```

@Nullable

```
private AuthState restoreAuthState() {  
    String jsonString = getSharedPreferences(SHARED_PREFERENCES_NAME,  
Context.MODE_PRIVATE)  
        .getString(AUTH_STATE, null);  
    if (!TextUtils.isEmpty(jsonString)) {
```



```

    try {
        return AuthState.fromJson(jsonString);
    } catch (JSONException jsonException) {
        // should never happen
    }
}

return null;
}

/**
 * Kicks off the authorization flow.
 */

public static class AuthorizeListener implements Button.OnClickListener {

    private final MainActivity mMainActivity;

    public AuthorizeListener(@NonNull MainActivity mainActivity) {
        mMainActivity = mainActivity;
    }

    @Override
    public void onClick(View view) {
        AuthorizationServiceConfiguration serviceConfiguration = new
        AuthorizationServiceConfiguration(
            Uri.parse("https://accounts.google.com/o/oauth2/v2/auth") /* auth endpoint */,
            Uri.parse("https://www.googleapis.com/oauth2/v4/token") /* token endpoint */,
        );

```

```

    AuthorizationService authorizationService = new
    AuthorizationService(view.getContext());

    String clientId = "511828570984-
    fuprh0cm7665emlne3rnf9pk34kkn86s.apps.googleusercontent.com";

    Uri redirectUri = Uri.parse("com.google.codelabs.appauth:/oauth2callback");

    AuthorizationRequest.Builder builder = new AuthorizationRequest.Builder(
        serviceConfiguration,
        clientId,
        AuthorizationRequest.RESPONSE_TYPE_CODE,
        redirectUri
    );

    builder.setScopes("profile");

    if(mMainActivity.getLoginHint() != null){
        Map loginHintMap = new HashMap<String, String>();
        loginHintMap.put(LOGIN_HINT,mMainActivity.getLoginHint());
        builder.setAdditionalParameters(loginHintMap);

        Log.i(LOG_TAG, String.format("login_hint: %s", mMainActivity.getLoginHint()));
    }

    AuthorizationRequest request = builder.build();

    String action =
    "com.google.codelabs.appauth.HANDLE_AUTHORIZATION_RESPONSE";

    Intent postAuthorizationIntent = new Intent(action);

    PendingIntent pendingIntent = PendingIntent.getActivity(view.getContext(),
    request.hashCode(), postAuthorizationIntent, 0);

    authorizationService.performAuthorizationRequest(request, pendingIntent);
}

```

```
}

public static class SignOutListener implements Button.OnClickListener {

    private final MainActivity mMainActivity;

    public SignOutListener(@NonNull MainActivity mainActivity) {
        mMainActivity = mainActivity;
    }

    @Override
    public void onClick(View view) {
        mMainActivity mAuthState = null;
        mMainActivity.clearAuthState();
        mMainActivity.enablePostAuthorizationFlows();
    }
}

public static class MakeApiCallListener implements Button.OnClickListener {

    private final MainActivity mMainActivity;
    private AuthState mAuthState;
    private AuthorizationService mAuthorizationService;

    public MakeApiCallListener(@NonNull MainActivity mainActivity, @NonNull AuthState
authState, @NonNull AuthorizationService authorizationService) {

        mMainActivity = mainActivity;
        mAuthState = authState;
```

```
mAuthorizationService = authorizationService;

}

@Override

public void onClick(View view) {

    mAuthState.performActionWithFreshTokens(mAuthorizationService,           new
    AuthState.AuthStateAction() {

        @Override

        public void execute(@Nullable String accessToken, @Nullable String idToken,
        @Nullable AuthorizationException exception) {

            new AsyncTask<String, Void, JSONObject>() {

                @Override

                protected JSONObject doInBackground(String... tokens) {

                    OkHttpClient client = new OkHttpClient();

                    Request request = new Request.Builder()

                        .url("https://www.googleapis.com/oauth2/v3/userinfo")

                        .addHeader("Authorization", String.format("Bearer %s", tokens[0]))

                        .build();

                    try {

                        Response response = client.newCall(request).execute();

                        String jsonBody = response.body().string();

                        Log.i(LOG_TAG, String.format("User Info Response %s", jsonBody));

                        return new JSONObject(jsonBody);

                    } catch (Exception exception) {

                        Log.w(LOG_TAG, exception);

                    }

                    return null;

                }

            }

        }

    }

}
```

```
}

@Override

protected void onPostExecute(JSONObject userInfo) {

    if (userInfo != null) {

        String fullName = userInfo.optString("name", null);

        String givenName = userInfo.optString("given_name", null);

        String familyName = userInfo.optString("family_name", null);

        String imageUrl = userInfo.optString("picture", null);

        if (!TextUtils.isEmpty(imageUrl)) {

            Picasso.with(mMainActivity)

                .load(imageUrl)

                .placeholder(R.drawable.ic_account_circle_black_48dp)

                .into(mMainActivity.mProfileView);

        }

        if (!TextUtils.isEmpty(fullName)) {

            mMainActivity.mFullName.setText(fullName);

        }

        if (!TextUtils.isEmpty(givenName)) {

            mMainActivity.mGivenName.setText(givenName);

        }

        if (!TextUtils.isEmpty(familyName)) {

            mMainActivity.mFamilyName.setText(familyName);

        }

        String message;

        if (userInfo.has("error")) {
```

```

        message = String.format("%s [%s]",
mMainActivity.getString(R.string.request_failed),
        userInfo.optString("error_description",
"No description"));

        } else {

            message = mMainActivity.getString(R.string.request_complete);

        }

        Snackbar.make(mMainActivity.mProfileView,
        Snackbar.LENGTH_SHORT)

            .show();

        }

    }

    }.execute(accessToken);

}

});

}

}

private void getAppRestrictions(){

    RestrictionsManager restrictionsManager =

        (RestrictionsManager) this

            .getSystemService(Context.RESTRICTIONS_SERVICE);

    Bundle appRestrictions = restrictionsManager.getApplicationRestrictions();

    // Block user if KEY_RESTRICTIONS_PENDING is true, and save login hint if available
    if(!appRestrictions.isEmpty()){

        if(appRestrictions.getBoolean(UserManager.

            KEY_RESTRICTIONS_PENDING)!=true){

            mLoginHint = appRestrictions.getString(LOGIN_HINT);

```

```
    }

    else {

        Toast.makeText(this,R.string.restrictions_pending_block_user,
            Toast.LENGTH_LONG).show();

        finish();

    }

}

}

}

private void registerRestrictionsReceiver(){

    IntentFilter restrictionsFilter =

        new IntentFilter(Intent.ACTION_APPLICATION_RESTRICTIONS_CHANGED);

    mRestrictionsReceiver = new BroadcastReceiver() {

        @Override

        public void onReceive(Context context, Intent intent) {

            getAppRestrictions();

        }

    };

    registerReceiver(mRestrictionsReceiver, restrictionsFilter);

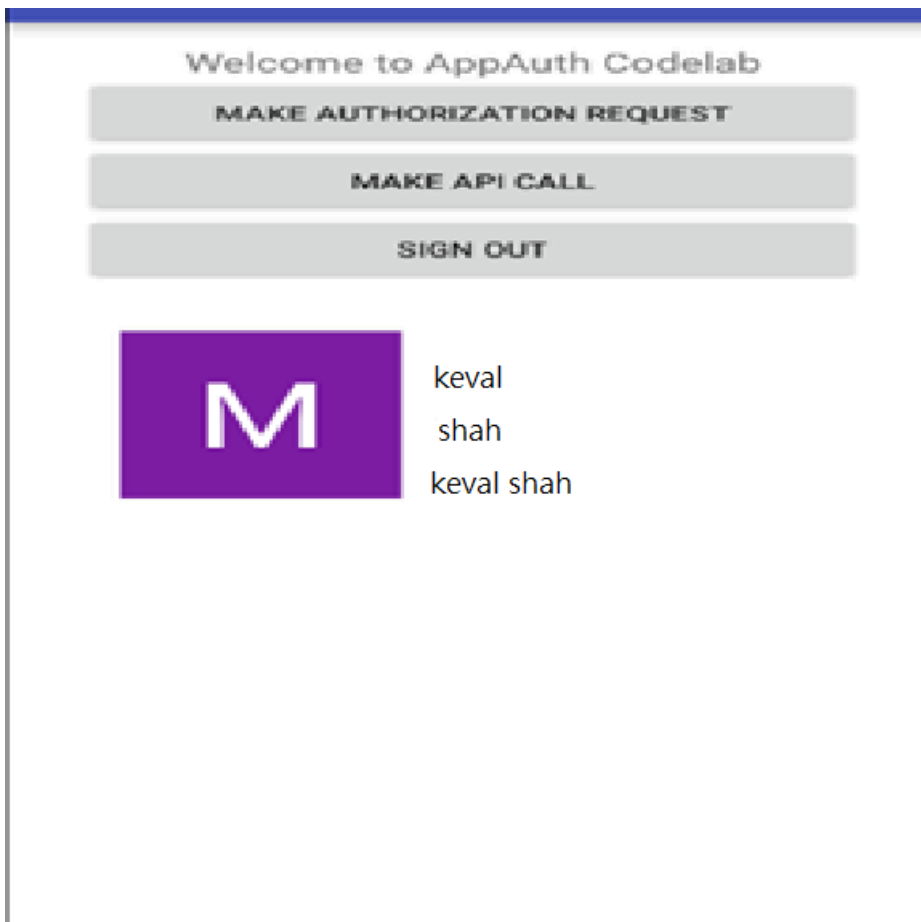
}

public String getLoginHint(){

    return mLoginHint;

}

}
```

OUTPUT:

PRACTICAL 12

AIM: Create an application to handle support voice interaction.

Source Code:

Program: 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="com.example.prac12.MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="168dp"
        android:text="Wait till Question PopUP!!"
        android:textSize="24sp"
        app:layout_constraintHorizontal_bias="0.501"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginBottom="8dp"
        android:layout_marginEnd="8dp"
        android:layout_marginStart="8dp"
        android:layout_marginTop="8dp"
        android:text="Speak your answer"
        android:textSize="24sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.501"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/textView"
        app:layout_constraintVertical_bias="0.171" />
</android.support.constraint.ConstraintLayout>
```

Program: MainActivity.java

```
package com.example.prac12;
import android.content.Intent;
import android.speech.RecognizerIntent;
```

```

import android.speech.tts.TextToSpeech;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.TextView;
import java.util.List;
import java.util.Locale;

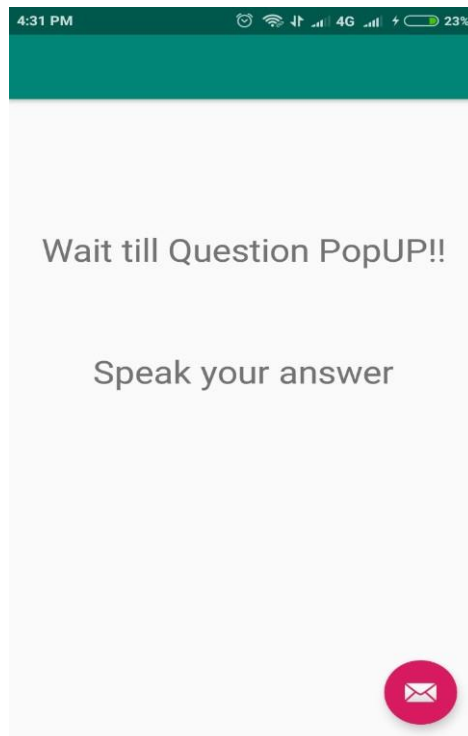
public class MainActivity extends AppCompatActivity {

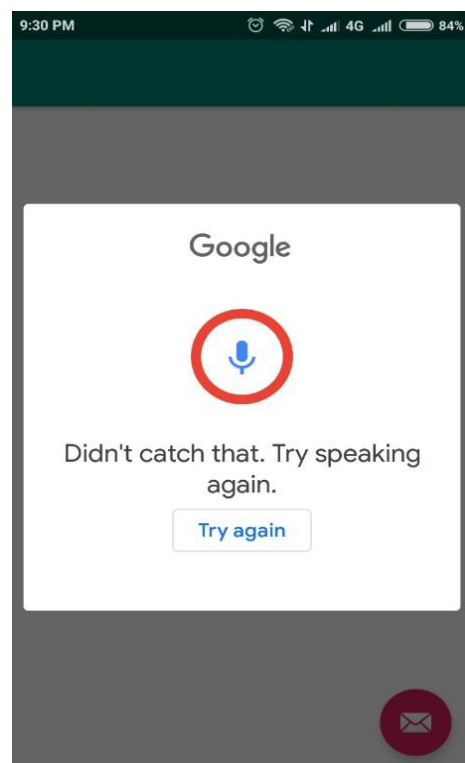
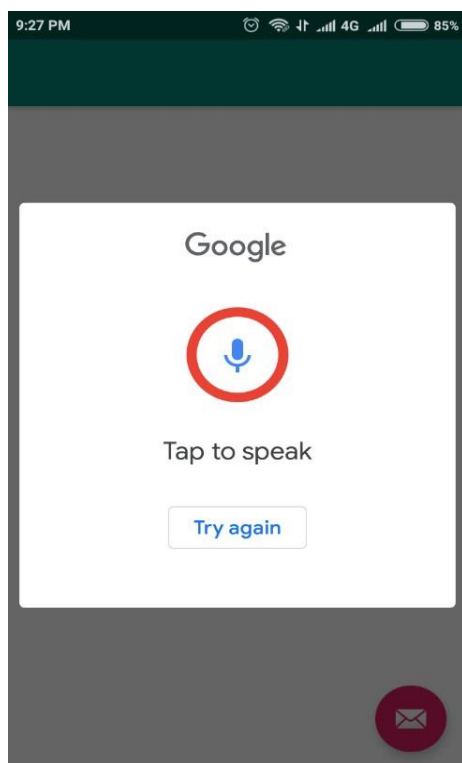
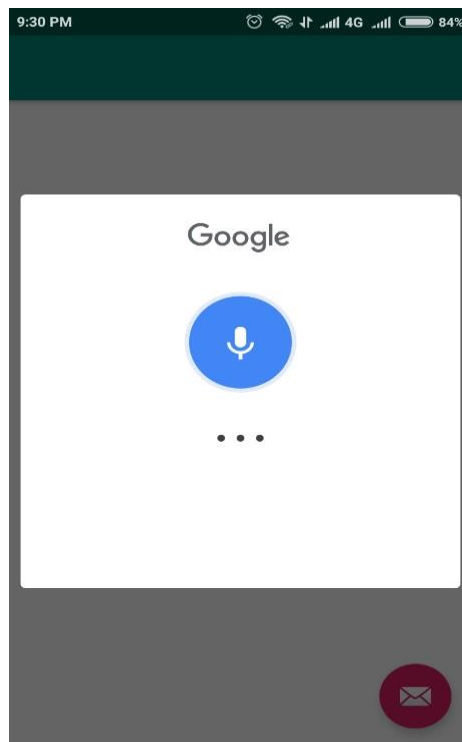
    private TextToSpeech t1;
    private final int REQUEST_SPEECH_RECOGNIZER = 3000;
    private TextView question, answer;
    private final String mQuestion = "Who is the owner of this phone?";
    private String mAnswer = "";
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        question = (TextView) findViewById(R.id.textview);
        answer = (TextView) findViewById(R.id.textview1);
        t1=new TextToSpeech(getApplicationContext(), new TextToSpeech.OnInitListener() {
            @Override
            public void onInit(int status) {
                if(status != TextToSpeech.ERROR) {
                    t1.setLanguage(Locale.UK);
                }
            }
        });
        startSpeechRecognizer();
    }
    private void startSpeechRecognizer() {
        Intent intent = new Intent
            (RecognizerIntent.ACTION_RECOGNIZE_SPEECH);
        intent.putExtra(RecognizerIntent.EXTRA_LANGUAGE_MODEL,
            RecognizerIntent.LANGUAGE_MODEL_FREE_FORM);
        intent.putExtra(RecognizerIntent.EXTRA_PROMPT, mQuestion);
        startActivityResult(intent, REQUEST_SPEECH_RECOGNIZER);
    }
    @Override
    protected void onActivityResult(int requestCode, int resultCode,
        Intent data) {
        super.onActivityResult(requestCode, resultCode, data);

        if (requestCode == REQUEST_SPEECH_RECOGNIZER) {
            if (resultCode == RESULT_OK) {
                List<String> results = data.getStringArrayListExtra
                    (RecognizerIntent.EXTRA_RESULTS);
                mAnswer = results.get(0);
                question.setText(mQuestion);
                answer.setText(mAnswer);
                if (mAnswer.toUpperCase().indexOf("SMIT") > -1) {

```

```
        t1.speak("Great You are correct", TextToSpeech.QUEUE_FLUSH, null,
"adfvsfgbrsgh");
    }
    else {
        t1.speak("Wrong answer submit this phone to my owner Smit",
TextToSpeech.QUEUE_FLUSH, null, "adfvsfgbrsgh");
    }
}
}
}
@Override
public void onPause(){
if(t1 !=null){
    t1.stop();
    t1.shutdown();
}
super.onPause();
}
}
```

Output:



PRACTICAL 13

AIM: Create an application to play video using the YouTube API in PIP mode.

Source Code:

Program: 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">
    <VideoView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:id="@+id/video"
        android:layout_above="@id/pipbtn"/>
    <Button
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Enter"
        android:layout_alignParentBottom="true"
        android:id="@+id/pipbtn"/>
</RelativeLayout>
```

PIP

mode"

Program: MainActivity.java

```
package com.example.practical13;

import androidx.appcompat.app.AppCompatActivity;

import android.app.ActionBar;
import android.app.Notification;
import android.app.PictureInPictureParams;
import android.drm.DrmStore;
import android.graphics.Point;
import android.net.Uri;
import android.os.Bundle;
import android.util.Rational;
import android.view.Display;
import android.view.View;
import android.widget.Button;
import android.widget.MediaController;
import android.widget.VideoView;
```

```

public class MainActivity extends AppCompatActivity {

    Button pipbtn;
    String path = "/storage/DCIM/Camera/movie.mp4";
    ActionBar actionBar;
    VideoView video;

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

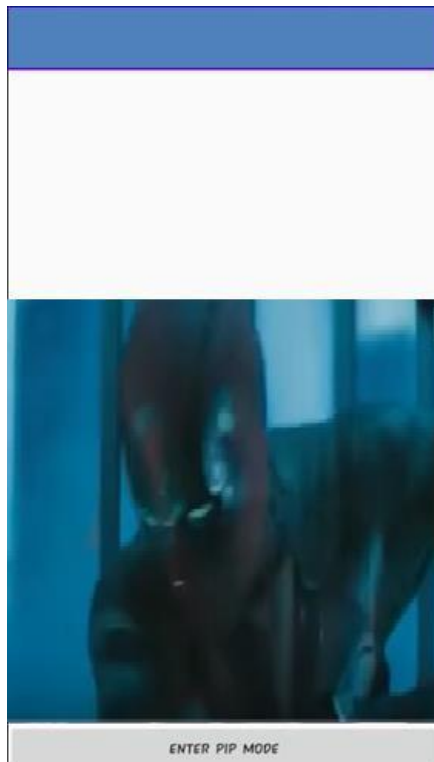
        video = (VideoView)findViewById(R.id.video);
        actionBar = getSupportActionBar();
        MediaController mediaController= new MediaController(this);
        mediaController.setAnchorView(video);
        video.setMediaController(mediaController);
        video.setVideoURI(Uri.parse(path));
        video.requestFocus();
        video.start();

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

        pipbtn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Display display = getWindowManager().getDefaultDisplay();
                Point point = new Point();
                display.getSize(point);
                int width = point.x;
                int height = point.y;
                Rational ratio = new Rational(width,height);
                PictureInPictureParams.Builder pip_builder = new
PictureInPictureParams.Builder();
                pip_builder.setAspectRatio(ratio).build();
                pipbtn.setVisibility(View.INVISIBLE);
                enterPictureInPictureMode(pip_builder.build());
            }
        });
    }
}

```

Output:



PRACTICAL 14

AIM: Create an application that uses the end-to-end process of training a machine learning model that can recognize handwritten characters images with TensorFlow and deploy it to an Android app.

Ref:

<https://codelabs.developers.google.com/codelabs/digit-classifiertflite/index.html?index=..%2F..index#0>

Source Code:

Program: 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">

        <com.divyanshu.draw.widget.DrawView
            android:id="@+id/draw_view"
            android:layout_width="match_parent"
            android:layout_height="0dp"
            app:layout_constraintDimensionRatio="1:1"
            app:layout_constraintTop_toTopOf="parent"/>

        <TextView
            android:id="@+id/predicted_text"
            android:textStyle="bold"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/prediction_text_placeholder"
            android:textSize="20sp"
            app:layout_constraintBottom_toTopOf="@id/clear_button"
            app:layout_constraintLeft_toLeftOf="parent"
            app:layout_constraintRight_toRightOf="parent"
            app:layout_constraintTop_toBottomOf="@id/draw_view"/>

        <Button
            android:id="@+id/clear_button"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/clear_button_text"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintLeft_toLeftOf="parent"
            app:layout_constraintRight_toRightOf="parent"/>

    </androidx.constraintlayout.widget.ConstraintLayout>

```

Program: MainActivity.java

```

package org.tensorflow.lite.codelabs.digitclassifier

import android.annotation.SuppressLint
import android.graphics.Color
import android.os.Bundle
import androidx.appcompat.app.AppCompatActivity
import android.util.Log
import android.view.MotionEvent
import android.widget.Button
import android.widget.TextView
import com.divyanshu.draw.widget.DrawView

class MainActivity : AppCompatActivity() {

    private var drawView: DrawView? = null

```

```
private var clearButton: Button? = null
private var predictedTextView: TextView? = null
private var digitClassifier = DigitClassifier(this)

@SuppressLint("ClickableViewAccessibility")
override fun onCreate(savedInstanceState: Bundle?) {
    super.onCreate(savedInstanceState)
    setContentView(R.layout.activity_main)

    // Setup view instances.
    drawView = findViewById(R.id.draw_view)
    drawView?.setStrokeWidth(70.0f)
    drawView?.setColor(Color.WHITE)
    drawView?.setBackgroundColor(Color.BLACK)
    clearButton = findViewById(R.id.clear_button)
    predictedTextView = findViewById(R.id.predicted_text)

    // Setup clear drawing button.
    clearButton?.setOnClickListener {
        drawView?.clearCanvas()
        predictedTextView?.text = getString(R.string.prediction_text_placeholder)
    }

    // Setup classification trigger so that it classify after every stroke drew.
    drawView?.setOnTouchListener { _, event ->
        // As we have interrupted DrawView's touch event,
        // we first need to pass touch events through to the instance for the drawing to show up.
        drawView?.onTouchEvent(event)

        // Then if user finished a touch event, run classification
        if (event.action == MotionEvent.ACTION_UP) {
            classifyDrawing()
        }

        true
    }

    // Setup digit classifier.
    digitClassifier
        .initialize()
        .addOnFailureListener { e -> Log.e(TAG, "Error to setting up digit classifier.", e) }
}

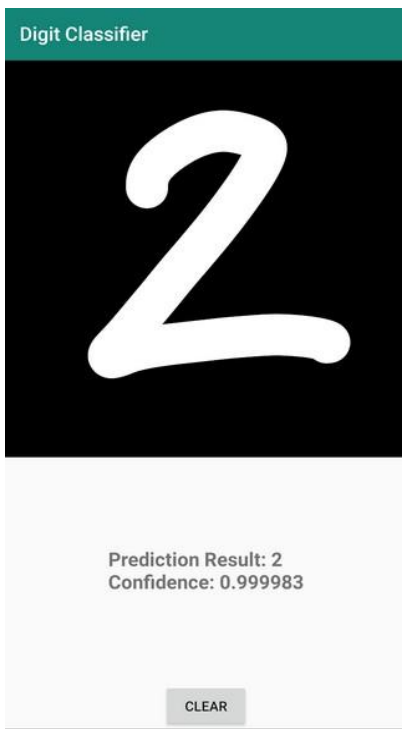
override fun onDestroy() {
    // Sync DigitClassifier instance lifecycle with MainActivity lifecycle,
    // and free up resources (e.g. TF Lite instance) once the activity is destroyed.
    digitClassifier.close()
    super.onDestroy()
}

private fun classifyDrawing() {
```

```
val bitmap = drawView?.getBitmap()

if ((bitmap != null) && (digitClassifier.isInitialized)) {
    digitClassifier
        .classifyAsync(bitmap)
        .addOnSuccessListener { resultText -> predictedTextView?.text = resultText }
        .addOnFailureListener { e ->
            predictedTextView?.text = getString(
                R.string.classification_error_message,
                e.localizedMessage
            )
            Log.e(TAG, "Error classifying drawing.", e)
        }
    }
}

companion object {
    private const val TAG = "MainActivity"
}
}
```

Output:

GET ALL PRACTICALS AT MY GIT-LINK:

https://github.com/mayurteli9144/WCMC_PRACTICALS

