Practical 1: Create “Hello World” application that will display “Hello World” in

the middle of the screen in the emulator. Also display “Hello World” in the

middle of the screen in the android phone.

Code:

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!"

android:textSize="50sp"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintLeft\_toLeftOf="parent"

app:layout\_constraintRight\_toRightOf="parent"

app:layout\_constraintTop\_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

MainActivity.java

package com.example.project1;

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);

}

}

Practical 2: Create an application to display various android activity lifecycle

phases.

Code:

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>

MainActivity.java

package com.example.program2;

import android.app.Activity;

import android.os.Bundle;

import android.util.Log;

public class MainActivity extends Activity {

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

Log.d("lifecycle","onCreate invoked");

}

@Override

protected void onStart() {

super.onStart();

Log.d("lifecycle","onStart invoked");

}

@Override

protected void onResume() {

super.onResume();

Log.d("lifecycle","onResume invoked");

}

@Override

protected void onPause() {

super.onPause();

Log.d("lifecycle","onPause invoked");

}

@Override

protected void onStop() {

super.onStop();

Log.d("lifecycle","onStop invoked");

}

@Override

protected void onRestart() {

super.onRestart();

Log.d("lifecycle","onRestart invoked");

}

@Override

protected void onDestroy() {

super.onDestroy();

Log.d("lifecycle","onDestroy invoked");

}

}

Practical 3: Create an application with first activity with an editText and send

button. On click of send button, make use of explicit intent to send text to

second activity and display there in text view.

Code:

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">

<EditText

android:id="@+id/send\_text\_id"

android:layout\_width="300dp"

android:layout\_height="wrap\_content"

android:layout\_marginLeft="40dp"

android:layout\_marginTop="20dp"

android:hint="Input"

android:textSize="25dp"

android:textStyle="bold" />

<Button

android:id="@+id/send\_button\_id"

android:layout\_width="wrap\_content"

android:layout\_height="40dp"

android:text="send"

android:textStyle="bold"

android:layout\_marginTop="150dp"

android:layout\_marginLeft="150dp"/>

</RelativeLayout>

MainActivity.java

package com.example.program3;

import android.content.Intent;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

Button send\_button;

EditText send\_text;

@Override

protected void onCreate(Bundle savedInstanceState)

{

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

send\_button = (Button)findViewById(R.id.send\_button\_id);

send\_text = (EditText)findViewById(R.id.send\_text\_id);

send\_button.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v)

{

String str = send\_text.getText().toString();

Intent intent = new Intent(getApplicationContext(), MainActivity2.class);

intent.putExtra("message\_key", str);

startActivity(intent);

}

});

}

}

activity\_second.xml

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

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"

xmlns:app="http://schemas.android.com/apk/res-auto"

xmlns:tools="http://schemas.android.com/tools"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

tools:context=".MainActivity2">

<TextView

android:id="@+id/received\_value\_id"

android:layout\_width="300dp"

android:layout\_height="50dp"

android:textStyle="bold"

android:textSize="40dp"

android:layout\_marginTop="20dp"

android:layout\_marginLeft="40dp"/>

</RelativeLayout>

SecondActivity.java

package com.example.program3;

import android.content.Intent;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.widget.TextView;

public class MainActivity2 extends AppCompatActivity {

TextView receiver\_msg;

@Override

protected void onCreate(Bundle savedInstanceState)

{

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main2);

receiver\_msg = (TextView)findViewById(R.id.received\_value\_id);

Intent intent = getIntent();

String str = intent.getStringExtra("message\_key");

receiver\_msg.setText(str);

}

}

Practical 4: Create an application with first activity with an editText and send

button. On click of send button, make use of implicit intent that uses a SEND

ACTION and let user select app from app chooser and navigate to that

application.

Code:

activity\_main.xml

<RelativeLayout

xmlns:android="http://schemas.android.com/apk/res/android"

xmlns:tools="http://schemas.android.com/tools"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:paddingLeft="@dimen/activity\_horizontal\_margin"

android:paddingRight="@dimen/activity\_horizontal\_margin"

android:paddingTop="@dimen/activity\_vertical\_margin"

android:paddingBottom="@dimen/activity\_vertical\_margin"

tools:context=".MainActivity">

<EditText

android:id="@+id/editText1"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_alignParentRight="true"

android:layout\_alignParentTop="true"

android:layout\_marginRight="22dp"

android:layout\_marginTop="16dp"

/>

<EditText

android:id="@+id/editText2"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_alignLeft="@+id/editText1"

android:layout\_below="@+id/editText1"

android:layout\_marginTop="20dp"

>

<requestFocus />

</EditText>

<EditText

android:id="@+id/editText3"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_alignLeft="@+id/editText2"

android:layout\_below="@+id/editText2"

android:layout\_marginTop="30dp"

android:inputType="textMultiLine" />

<TextView

android:id="@+id/textView1"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_alignBaseline="@+id/editText1"

android:layout\_alignBottom="@+id/editText1"

android:layout\_alignParentLeft="true"

android:text="To:" />

<TextView

android:id="@+id/textView2"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_alignBaseline="@+id/editText2"

android:layout\_alignBottom="@+id/editText2"

android:layout\_alignParentLeft="true"

android:text="Subject:" />

<TextView

android:id="@+id/textView3"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_alignBaseline="@+id/editText3"

android:layout\_alignBottom="@+id/editText3"

android:layout\_alignParentLeft="true"

android:text="Message:" />

<Button

android:id="@+id/button1"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_alignLeft="@+id/editText3"

android:layout\_below="@+id/editText3"

android:layout\_marginLeft="70dp"

android:layout\_marginTop="25dp"

android:text="Send" />

</RelativeLayout>

MainActivity.java

package com.example.program4;

import android.app.Activity;

import android.content.Intent;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.View;

import android.widget.EditText;

import android.view.Menu;

import android.view.MenuItem;

import android.widget.Button;

public class MainActivity extends Activity {

EditText editTextTo,editTextSubject,editTextMessage;

Button send;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

editTextTo=(EditText)findViewById(R.id.editText1);

editTextSubject=(EditText)findViewById(R.id.editText2);

editTextMessage=(EditText)findViewById(R.id.editText3);

send=(Button)findViewById(R.id.button1);

send.setOnClickListener(new View.OnClickListener(){

@Override

public void onClick(View arg0) {

String to=editTextTo.getText().toString();

String subject=editTextSubject.getText().toString();

String message=editTextMessage.getText().toString();

Intent email = new Intent(Intent.ACTION\_SEND);

email.putExtra(Intent.EXTRA\_EMAIL, new String[]{ to});

email.putExtra(Intent.EXTRA\_SUBJECT, subject);

email.putExtra(Intent.EXTRA\_TEXT, message);

email.setType("message/rfc822");

startActivity(Intent.createChooser(email, "Choose an Email client :"));

}

});

}

@Override

public boolean onCreateOptionsMenu(Menu menu) {

getMenuInflater().inflate(R.menu.example\_menu, menu);

return true;

}

@Override

public boolean onOptionsItemSelected(MenuItem item) {

int id = item.getItemId();

if (id == R.id.actions) {

return true;

}

return super.onOptionsItemSelected(item);

}

}

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"> <Spinner

android:id="@+id/spinner"

android:layout\_width="0dp"

android:layout\_height="wrap\_content"

android:layout\_marginStart="8dp"

android:layout\_marginLeft="8dp"

android:layout\_marginTop="16dp"

android:layout\_marginEnd="8dp"

android:layout\_marginRight="8dp"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="parent" /><ImageView

android:id="@+id/image"

android:layout\_width="332dp"

android:layout\_height="323dp"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="@+id/spinner"

app:layout\_constraintVertical\_bias="0.479" />

</androidx.constraintlayout.widget.ConstraintLayout>

MainActivity.java

package com.example.p5;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle; import android.view.View;

import android.widget.AdapterView;

import android.widget.ArrayAdapter;

import android.widget.ImageView;

import android.widget.Spinner;

public class MainActivity extends AppCompatActivity { private Spinner spinner;

private ImageView image;

@Override

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

setContentView(R.layout.activity\_main);

spinner=findViewById(R.id.spinner);

image=findViewById(R.id.image);

String [] birds={"Select One","s1","s2","s3","s4"};

ArrayAdapter<String>adapter=new

ArrayAdapter<String>(this,android.R.layout.simple\_spinner\_dropdown\_item,birds);

spinner.setAdapter(adapter);

spinner.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {

@Override

public void onItemSelected(AdapterView<?> parent, View view, int position, long id) { switch

(position){ case 1:

image.setImageResource(R.drawable.a); break; case 2:

image.setImageResource(R.drawable.b); break; case 3:

image.setImageResource(R.drawable.c); break; case 4:

image.setImageResource(R.drawable.d); break; } }

@Override public void onNothingSelected(AdapterView<?> parent)

{ } });

} }

Practical 6: Create a menu with 5 options and selected option should appear

intext box in upper case.

Code:

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">

<RelativeLayout android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:layout\_margin="80dp"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintLeft\_toLeftOf="parent"

app:layout\_constraintRight\_toRightOf="parent"

app:layout\_constraintTop\_toTopOf="parent">

<EditText

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:id="@+id/etMenuItem"

android:layout\_centerInParent="true"

android:hint="Select an Option from the Menu"

android:textAlignment="center"

android:gravity="center\_horizontal" />

</RelativeLayout>

</androidx.constraintlayout.widget.ConstraintLayout>

MainActivity.java

package com.example.p6;

importandroidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.view.Menu;

import android.view.MenuInflater;import android.view.MenuItem; import

android.widget.EditText;

public class MainActivity extends AppCompatActivity {

private EditText etMenuIte

@Override

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

setContentView(R.layout.activity\_main); etMenuItem=(EditText)findViewById(R.id.etMenuItem);

}

@Override

public boolean onCreateOptionsMenu(Menu menu){MenuInflater inflater=getMenuInflater();

inflater.inflate(R.menu.main\_menu,menu); return true;

}

@Override

public boolean onOptionsItemSelected(MenuItem item){

etMenuItem.setText(item.getTitle().toString().toUpperCase());

return super.onOptionsItemSelected(item);

}

}

main\_menu.xml

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

<menu xmlns:android="http://schemas.android.com/apk/res/android">

<item

android:id="@+id/miSettings" android:title="@string/settings" />

<item

android:id="@+id/miBackup" android:title="@string/backup" />

<item

android:id="@+id/miReset" android:title="@string/reset" />

<item

android:id="@+id/miAbout" android:title="@string/about" />

<item

android:id="@+id/miHelp" android:title="@string/help"/>

</menu>

Practical 7: Create a radio button group with radio button of all courses in your

college and on selecting a particular course, teacher-in- charge ofthat course

should appear at the bottom of the screen.

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">

<RelativeLayout

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:layout\_margin="75dp"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintLeft\_toLeftOf="parent"

app:layout\_constraintRight\_toRightOf="parent"

app:layout\_constraintTop\_toTopOf="parent" >

<RadioGroup android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:id="@+id/rgCourses"

android:layout\_centerInParent="true">

</RadioGroup>

</RelativeLayout>

</androidx.constraintlayout.widget.ConstraintLayout>

MainActivity.java

package com.example.p7;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.provider.MediaStore;

import android.widget.RadioGroup;

import android.widget.RadioButton;

import com.google.android.material.snackbar.Snackbar;

import java.util.HashMap;

public class MainActivity extends AppCompatActivity {

private RadioGroup rgCourses;

private HashMap<String, String> coursesMap; @Override

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

setContentView(R.layout.activity\_main); initCourses();

}

private void initCourses(){ rgCourses=(RadioGroup)findViewById(R.id.rgCourses);

if (coursesMap==null){

coursesMap=new HashMap<>();

coursesMap.put("BSc(H) Computer Science"," Harsh Meena");

coursesMap.put("BCom(H)"," Tejas Gupta");

coursesMap.put("BA(H) Sociology"," Pandey Sir");

for (String course : coursesMap.keySet()){

RadioButton rButton=new RadioButton(MainActivity.this);

rButton.setText(course);

rgCourses.addView(rButton);

}

rgCourses.setOnCheckedChangeListener(new RadioGroup.OnCheckedChangeListener() {

@Override

public void onCheckedChanged(RadioGroup group, int checkedId) {

int checkedRadioButtonId=rgCourses.getCheckedRadioButtonId();

RadioButton rButton=(RadioButton) findViewById(checkedRadioButtonId);

Snackbar.make(rgCourses,coursesMap.get(rButton.getText()),Snackbar.LENGTH\_SHORT)

.show();

}

});

}

}

}

Practical 8: Create a list of all courses in your college and on selectinga

particular course parent department and the teacher-in-charge ofthat

department should appear at the bottom of the screen.

Code:

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">

<RelativeLayout

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:layout\_margin="90dp"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintLeft\_toLeftOf="parent"

app:layout\_constraintRight\_toRightOf="parent"

app:layout\_constraintTop\_toTopOf="parent" >

<RadioGroup android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:id="@+id/rgCourses"

android:layout\_centerInParent="true">

</RadioGroup>

</RelativeLayout>

</androidx.constraintlayout.widget.ConstraintLayout>

MainActivity.java

package com.example.p8;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.provider.MediaStore;

import android.widget.RadioGroup;

import android.widget.RadioButton;

import com.google.android.material.snackbar.Snackbar;

import java.util.HashMap;

public class MainActivity extends AppCompatActivity {

private RadioGroup rgCourses;

private HashMap<String, String> coursesMap; @Override

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

setContentView(R.layout.activity\_main); initCourses();

}

private void initCourses(){ rgCourses=(RadioGroup)findViewById(R.id.rgCourses);

if (coursesMap==null){

coursesMap=new HashMap<>();

coursesMap.put("BSc(H) Computer Science","Dept of Computer Sc - Mr. Harsh");

coursesMap.put("BCom(H)","Dept of Commerce - Mr. Tejas");

coursesMap.put("BA(H) Sociology"," Dept of Economics - Mr. Pandey");

for (String course : coursesMap.keySet()){

RadioButton rButton=new RadioButton(MainActivity.this);

rButton.setText(course);

rgCourses.addView(rButton);

}

rgCourses.setOnCheckedChangeListener(new RadioGroup.OnCheckedChangeListener() {

@Override

public void onCheckedChanged(RadioGroup group, int checkedId) {

int checkedRadioButtonId=rgCourses.getCheckedRadioButtonId();

RadioButton rButton=(RadioButton) findViewById(checkedRadioButtonId);

Snackbar.make(rgCourses,coursesMap.get(rButton.getText()),Snackbar.LENGTH\_SHORT)

.show();

}

});

}

}

}

Practical 9

(a): Create an application with three buttons (with different colornames)

verticallyaligned, on selecting a button color of the screen will change.

Code:

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/layoutSuperParent"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

tools:context=".MainActivity">

<LinearLayout android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:orientation="vertical"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintLeft\_toLeftOf="parent"

app:layout\_constraintRight\_toRightOf="parent"

app:layout\_constraintTop\_toTopOf="parent">

<Button android:layout\_width="150dp"

android:layout\_height="wrap\_content"

android:id="@+id/btnRed"

android:layout\_gravity="center"

android:backgroundTint="@android:color/holo\_red\_dark"

android:text="RED"/>

<Button android:layout\_width="150dp"

android:layout\_height="wrap\_content"

android:id="@+id/btnBlue"

android:layout\_gravity="center"

android:backgroundTint="@android:color/holo\_blue\_light"

android:text="BLUE"/>

<Button android:layout\_width="150dp"

android:layout\_height="wrap\_content"

android:id="@+id/btnGreen"

android:gravity="center"

android:backgroundTint="@android:color/holo\_green\_dark"

android:text="GREEN"/>

<Button android:layout\_width="150dp"

android:layout\_height="wrap\_content"

android:id="@+id/btnReset"

android:gravity="center"

android:text="Reset"/>

</LinearLayout>

</androidx.constraintlayout.widget.ConstraintLayout>

MainActivity.java

package com.example.p9;

import androidx.appcompat.app.AppCompatActivity;

import android.graphics.Color;

import android.view.View;

import android.widget.Button;

import androidx.constraintlayout.widget.ConstraintLayout;

import android.os.Bundle;

public class MainActivity extends AppCompatActivity implements View.OnClickListener {

private Button btnRed;

private Button btnBlue;

private Button btnGreen;

private Button btnReset;

private ConstraintLayout layoutSuperParent; @Override

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

setContentView(R.layout.activity\_main);

layoutSuperParent=(ConstraintLayout)findViewById(R.id.layoutSuperParent);

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

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

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

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

btnRed.setOnClickListener(this);

btnBlue.setOnClickListener(this);

btnGreen.setOnClickListener(this);

btnReset.setOnClickListener(this);

}

@Override

public void onClick(View v){

switch (v.getId()){

case R.id.btnRed: layoutSuperParent.setBackgroundColor(Color.RED); break;

case R.id.btnBlue: layoutSuperParent.setBackgroundColor(Color.BLUE); break;

case R.id.btnGreen: layoutSuperParent.setBackgroundColor(Color.GREEN); break;

case R.id.btnReset: layoutSuperParent.setBackgroundColor(Color.TRANSPARENT); break;

default:

break;

}

}

}

Practical 9

(b): Create an application with three buttons (with different

colornames) horizontally aligned, on selecting a button color of the

screen will change.

Code:

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/layoutSuperParent"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

tools:context=".MainActivity">

<LinearLayout android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:orientation="horizontal"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintLeft\_toLeftOf="parent"

app:layout\_constraintRight\_toRightOf="parent"

app:layout\_constraintTop\_toTopOf="parent">

<Button android:layout\_width="75dp"

android:layout\_height="wrap\_content"

android:id="@+id/btnRed"

android:layout\_gravity="center"

android:backgroundTint="@android:color/holo\_red\_dark"

android:text="RED"/>

<Button android:layout\_width="75dp"

android:layout\_height="wrap\_content"

android:id="@+id/btnBlue"

android:layout\_gravity="center"

android:backgroundTint="@android:color/holo\_blue\_light"

android:text="BLUE"/>

<Button android:layout\_width="75dp"

android:layout\_height="wrap\_content"

android:id="@+id/btnGreen"

android:gravity="center"

android:backgroundTint="@android:color/holo\_green\_dark"

android:text="GREEN"/>

<Button android:layout\_width="75dp"

android:layout\_height="wrap\_content"

android:id="@+id/btnReset"

android:gravity="center"

android:text="Reset"/>

</LinearLayout>

</androidx.constraintlayout.widget.ConstraintLayout>

MainActivity.java

package com.example.p9;

import androidx.appcompat.app.AppCompatActivity;

import android.graphics.Color;

import android.view.View;

import android.widget.Button;

import androidx.constraintlayout.widget.ConstraintLayout;

import android.os.Bundle;

public class MainActivity extends AppCompatActivity implements View.OnClickListener {

private Button btnRed;

private Button btnBlue;

private Button btnGreen;

private Button btnReset;

private ConstraintLayout layoutSuperParent; @Override

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

setContentView(R.layout.activity\_main);

layoutSuperParent=(ConstraintLayout)findViewById(R.id.layoutSuperParent);

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

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

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

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

btnRed.setOnClickListener(this);

btnBlue.setOnClickListener(this);

btnGreen.setOnClickListener(this);

btnReset.setOnClickListener(this);

}

@Override

public void onClick(View v){

switch (v.getId()){

case R.id.btnRed: layoutSuperParent.setBackgroundColor(Color.RED); break;

case R.id.btnBlue: layoutSuperParent.setBackgroundColor(Color.BLUE); break;

case R.id.btnGreen: layoutSuperParent.setBackgroundColor(Color.GREEN); break;

case R.id.btnReset: layoutSuperParent.setBackgroundColor(Color.TRANSPARENT); break;

default:

break;

}

}

}

Practical 10: Create a Login application (check username and password).

Onsuccessful login, pop up the message. ("Welcome username")

Code:

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/etEmail"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_marginTop="240dp"

android:autofillHints="false"

android:ems="10"

android:hint="@string/e\_mail\_id"

android:inputType="textEmailAddress"

app:layout\_constraintBottom\_toTopOf="@id/etPassword"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="parent" />

<EditText

android:id="@+id/etPassword"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_marginTop="10dp"

android:autofillHints="false"

android:ems="10"

android:hint="@string/password"

android:inputType="textPassword"

app:layout\_constraintBottom\_toTopOf="@id/btnLogin"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toBottomOf="@id/etEmail" />

<Button

android:id="@+id/btnLogin"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_marginTop="30dp"

android:text="@string/login"

app:layout\_constraintBottom\_toTopOf="@id/btnRegister"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toBottomOf="@id/etPassword" />

<Button

android:id="@+id/btnRegister"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_marginBottom="250dp"

android:text="@string/register"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toBottomOf="@id/btnLogin" />

</androidx.constraintlayout.widget.ConstraintLayout>

MainActivity.java

package com.example.prac10;

import android.database.sqlite.SQLiteConstraintException;

import android.os.Bundle;

import android.util.Log;

import android.widget.Button;

import android.widget.EditText;

import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;

import com.example.prac10.models.User;

import com.example.prac10.services.UserService;

public class MainActivity extends AppCompatActivity {

private EditText etEmail;

private EditText etPassword;

private Button btnLogin;

private Button btnRegister;

private UserService userService;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

userService = UserService.getInstance();

UserService.initDatabase(this);

etEmail = (EditText) findViewById(R.id.etEmail);

etPassword = (EditText) findViewById(R.id.etPassword);

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

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

btnLogin.setOnClickListener(v -> {

User user = validateCredentials();

if (user != null) {

try {

userService.login(user);

Toast.makeText(this, "Welcome " + userService.getUser().email,

Toast.LENGTH\_SHORT).show();

} catch (IllegalStateException illegalStateException) {

Toast.makeText(this, "Invalid E-mail/Password", Toast.LENGTH\_SHORT).show();

} catch (Exception e) {

Log.d("TAG", e.getMessage());

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

}

}

});

btnRegister.setOnClickListener(v -> {

User user = validateCredentials();

if (user != null) {

try {

userService.register(user);

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

} catch (SQLiteConstraintException sqLiteConstraintException) {

Toast.makeText(this, "E-mail Already Used", Toast.LENGTH\_SHORT).show();

} catch (Exception e) {

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

}

}

});

}

private User validateCredentials() {

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

String password = etPassword.getText().toString().trim();

if (email.length() == 0) {

etEmail.setError("Enter your e-mail address");

return null;

}

if (password.length() == 0) {

etPassword.setError("Enter your password");

return null;

}

return new User(email, password);

}

}

Practical 11: Create a login application as above, on successful login redirect to

another activity with logout button. On click of logout button a dialog appears

with OK and CANCEL button. On OK button clickgo to login activity and onCANCEL

stay at same activity.

Code:

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/etEmail"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_marginTop="240dp"

android:autofillHints="false"

android:ems="10"

android:hint="@string/e\_mail\_id"

android:inputType="textEmailAddress"

app:layout\_constraintBottom\_toTopOf="@id/etPassword"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="parent" />

<EditText

android:id="@+id/etPassword"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_marginTop="10dp"

android:autofillHints="false"

android:ems="10"

android:hint="@string/password"

android:inputType="textPassword"

app:layout\_constraintBottom\_toTopOf="@id/btnLogin"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toBottomOf="@id/etEmail" />

<Button

android:id="@+id/btnLogin"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_marginTop="30dp"

android:text="@string/login"

app:layout\_constraintBottom\_toTopOf="@id/btnRegister"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toBottomOf="@id/etPassword" />

<Button

android:id="@+id/btnRegister"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_marginBottom="250dp"

android:text="@string/register"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toBottomOf="@id/btnLogin" />

</androidx.constraintlayout.widget.ConstraintLayout>

Activity\_member\_module.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=".MemberModule">

<TextView

android:id="@+id/tvWelcome"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="@string/welcome"

android:textAppearance="@style/TextAppearance.AppCompat.Display1"

app:layout\_constraintBottom\_toTopOf="@id/tvEmail"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="parent" />

<TextView

android:id="@+id/tvEmail"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text=""

app:layout\_constraintBottom\_toTopOf="@id/btnLogout"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toBottomOf="@id/tvWelcome" />

<Button

android:id="@+id/btnLogout"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="@string/log\_out"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toBottomOf="@+id/tvEmail" />

</androidx.constraintlayout.widget.ConstraintLayout>

MainActivity.java

package com.example.prac11;

import android.content.Intent;

import android.database.sqlite.SQLiteConstraintException;

import android.os.Bundle;

import android.util.Log;

import android.widget.Button;

import android.widget.EditText;

import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;

import com.example.prac11.models.User;

import com.example.prac11.services.UserService;

public class MainActivity extends AppCompatActivity {

private EditText etEmail;

private EditText etPassword;

private Button btnLogin;

private Button btnRegister;

private UserService userService;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

userService = UserService.getInstance();

UserService.initDatabase(this);

etEmail = (EditText) findViewById(R.id.etEmail);

etPassword = (EditText) findViewById(R.id.etPassword);

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

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

btnLogin.setOnClickListener(v -> {

User user = validateCredentials();

if (user != null) {

try {

userService.login(user);

Toast.makeText(this, "Logged In", Toast.LENGTH\_SHORT).show();

startActivity(new Intent(this, MemberModule.class));

} catch (IllegalStateException illegalStateException) {

Toast.makeText(this, "Invalid E-mail/Password", Toast.LENGTH\_SHORT).show();

} catch (Exception e) {

}

}

});

Log.d("TAG", e.getMessage());

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

btnRegister.setOnClickListener(v -> {

User user = validateCredentials();

if (user != null) {

try {

userService.register(user);

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

startActivity(new Intent(this, MemberModule.class));

} catch (SQLiteConstraintException sqLiteConstraintException) {

Toast.makeText(this, "E-mail Already Used", Toast.LENGTH\_SHORT).show();

} catch (Exception e) {

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

}

}

});

}

private User validateCredentials() {

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

String password = etPassword.getText().toString().trim();

if (email.length() == 0) {

etEmail.setError("Enter your e-mail address");

return null;

}

if (password.length() == 0) {

etPassword.setError("Enter your password");

return null;

}

return new User(email, password);

}

}

MemberModule.java

package com.example.prac11;

import android.app.AlertDialog;

import android.os.Bundle;

import android.widget.TextView;

import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;

import com.example.prac11.models.User;

import com.example.prac11.services.UserService;

public class MemberModule extends AppCompatActivity {

private User user;

private UserService userService;

private TextView tvEmail;

private TextView btnLogout;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_member\_module);

userService = UserService.getInstance();

user = userService.getUser();

tvEmail = (TextView) findViewById(R.id.tvEmail);

btnLogout = (TextView) findViewById(R.id.btnLogout);

if (user == null) {

super.finish();

} else {

tvEmail.setText(user.email);

}

btnLogout.setOnClickListener(v -> {

new AlertDialog.Builder(this)

.setTitle("Logout")

.setMessage("Are you sure you want to log out?")

});

}

.setPositiveButton(android.R.string.ok, (dialog, which) -> logoutUser())

.setNegativeButton(android.R.string.cancel, null)

.setIcon(android.R.drawable.ic\_dialog\_alert)

.show();

private void logoutUser() {

userService.logout();

Toast.makeText(this, "Logged Out", Toast.LENGTH\_SHORT).show();

super.finish();

}

}

Practical 12: Create an application to Create, Insert, update andDelete

operation on the database.

Code:

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/clRoot"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

tools:context=".MainActivity">

<androidx.swiperefreshlayout.widget.SwipeRefreshLayout

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:id="@+id/swipeLayout"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintLeft\_toLeftOf="parent"

app:layout\_constraintRight\_toRightOf="parent"

app:layout\_constraintTop\_toTopOf="parent">

<androidx.recyclerview.widget.RecyclerView

android:id="@+id/rvTodos"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content" />

</androidx.swiperefreshlayout.widget.SwipeRefreshLayout>

<com.google.android.material.floatingactionbutton.FloatingActionButton

android:id="@+id/fabAdd"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_gravity="end|bottom"

android:layout\_margin="16dp"

android:src="@drawable/ic\_add"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintEnd\_toEndOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

Todo\_item.xml

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

<com.google.android.material.card.MaterialCardView

xmlns:android="http://schemas.android.com/apk/res/android"

xmlns:app="http://schemas.android.com/apk/res-auto"

android:id="@+id/cvParent"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_marginHorizontal="@dimen/card\_margin"

android:layout\_marginTop="@dimen/card\_margin"

app:cardCornerRadius="@dimen/cardview\_default\_radius"

app:cardElevation="@dimen/cardview\_default\_elevation">

<RelativeLayout

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_margin="@dimen/default\_card\_content\_margin">

<TextView

android:id="@+id/tvTodoId"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:visibility="invisible" />

<TextView

android:id="@+id/tvTodoContent"

style="@style/TextAppearance.MaterialComponents.Headline6"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="@string/default\_todo\_content" />

<TextView

android:id="@+id/tvTodoAddedAt"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:layout\_below="@id/tvTodoContent"

android:layout\_marginVertical="5dp"

android:text="@string/default\_todo\_added\_at" />

<LinearLayout

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_below="@id/tvTodoAddedAt"

android:orientation="horizontal">

<Button

android:id="@+id/btnTodoAction"

style="@style/Widget.MaterialComponents.Button.OutlinedButton"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="@string/default\_todo\_action" />

<Button

android:id="@+id/btnTodoDelete"

style="@style/Widget.MaterialComponents.Button.OutlinedButton"

android:textColor="@android:color/holo\_red\_dark"

android:layout\_marginStart="10dp"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="@string/default\_todo\_delete" />

</LinearLayout>

</RelativeLayout>

</com.google.android.material.card.MaterialCardView>

Dialog\_layout.xml

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

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

android:orientation="vertical"

android:paddingHorizontal="20dp"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent">

<EditText

android:id="@+id/etNewContent"

android:inputType="text"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:hint="Content" />

</LinearLayout>

MainActivity.java

package com.example.prac12;

import android.app.AlertDialog;

import android.os.Bundle;

import android.view.LayoutInflater;

import android.view.View;

import android.widget.EditText;

import android.widget.Toast;

import androidx.appcompat.app.AppCompatActivity;

import androidx.recyclerview.widget.LinearLayoutManager;

import androidx.recyclerview.widget.RecyclerView;

import androidx.swiperefreshlayout.widget.SwipeRefreshLayout;

import com.google.android.material.floatingactionbutton.FloatingActionButton;

import com.example.prac12.adapters.RVAdapter;

import com.example.prac12.repos.TodoRepository;

public class MainActivity extends AppCompatActivity implements

SwipeRefreshLayout.OnRefreshListener {

private TodoRepository todoRepository;

private RecyclerView rvTodos;

private RVAdapter todosAdapter;

private SwipeRefreshLayout swipeLayout;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

todoRepository = new TodoRepository(this);

todosAdapter = new RVAdapter(this, todoRepository);

swipeLayout = (SwipeRefreshLayout) findViewById(R.id.swipeLayout);

swipeLayout.setOnRefreshListener(this);

rvTodos = (RecyclerView) findViewById(R.id.rvTodos);

rvTodos.setAdapter(todosAdapter);

rvTodos.setLayoutManager(new LinearLayoutManager(this));

FloatingActionButton fabAdd = (FloatingActionButton) findViewById(R.id.fabAdd);

fabAdd.setOnClickListener(v -> {

View layout = getLayoutInflater().inflate(R.layout.dialog\_layout, null);

EditText etNewContent = (EditText) layout.findViewById(R.id.etNewContent);

AlertDialog dialog = new AlertDialog.Builder(this)

.setView(layout)

.setTitle("Add New Todo")

.setPositiveButton("Save", (\_dialog, which) -> {

String content = etNewContent.getText().toString().trim();

if (content.length() == 0) {

Toast.makeText(this, "No Text Entered", Toast.LENGTH\_SHORT).show();

} else {

todoRepository.create(content);

loadTodos();

}

})

});

.setNegativeButton("Cancel", (\_dialog, which) -> \_dialog.dismiss())

.create();

dialog.show();

loadTodos();

}

@Override

public void onRefresh() {

loadTodos();

}

private void loadTodos() {

swipeLayout.setRefreshing(true);

todosAdapter.setTodos(todoRepository.getAll());

swipeLayout.setRefreshing(false);

}

}