TOLANI COLLEGE OF COMMERCE

(Affiliated to University of Mumbai)
Sher E Punjab Colony, Andheri East
MUMBAI-MAHARASHTRA-400093
DEPARTMENT OF BSc (INFORMATION TECHNOLOGY)



CERTIFICATE

This is to certify that the Journal entitled, "Advanced Web Programming", is bonafied work of
Yuvraj Vijay Achrekar bearing roll no: 03 submitted in partial fulfilment of the requirements for the award
of degree of BACHELOR OF SCIENCE in INFORMATION TECHNOLOGY from University of Mumbai,
during the academic year 2022 - 2023.

Internal Examiner Coordinator

External Examiner

Date: College Seal

INDEX

Sr. No	Practical	Title	Date	Sign
1	1	Introduction to Android, Introduction to Android Studio IDE, Application Fundamentals		
2	2	Programming Resources		
3	3	Programming Activities and fragments		
4	4	Programs related to different Layouts		
5	5	Programming UI elements		
6	6	Programming menus, dialog, dialog fragments		
7	7	Programs on Intents, Events, Listeners and Adapters		

PRACTICAL 1

Aim:-

Introduction to Android, Introduction to Android Studio IDE, Application Fundamentals: Creating a Project, Android Components, Activities, Services, Content Providers, Broadcast Receivers, Interface overview, Creating Android Virtual device, USB debugging mode, Android Application Overview. Simple "Hello World" program.

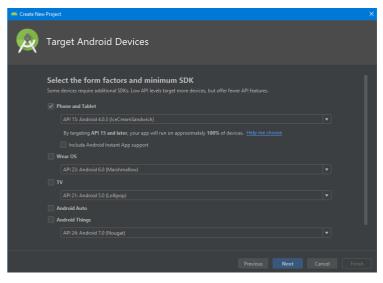
Description:-

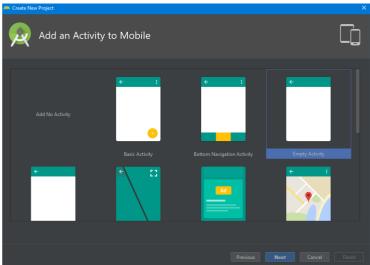
Android Studio is the official integrated development environment for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development. It is available for download on Windows, macOS and Linux based operating systems

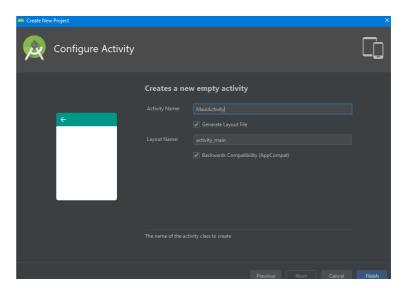
Solution:-

Creating a project:

Create New	Project	Х
R	Create Android Project	
	<u>Application name</u>	
	<u>C</u> ompany domain	
	Project location	
	Package name	
	☐ Include C++ support	
	✓ Include Kotlin support	



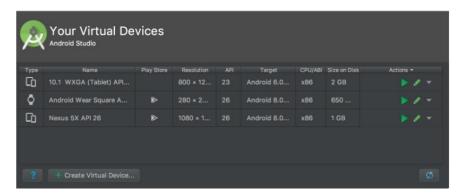


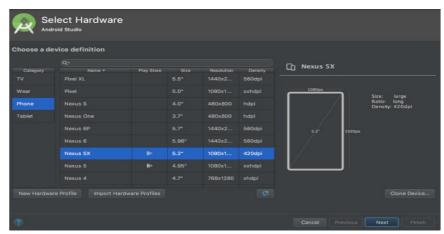


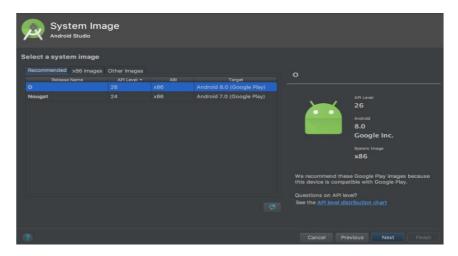
Create and manage virtual devices:

To open the AVD Manager, do one of the following:

- Select Tools > AVD Manager.
- Click AVD Manager AVD Manager icon in the toolbar.









Activity_Main.Kt

```
package com.bscit.hello
```

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

class MainActivity : AppCompatActivity() {

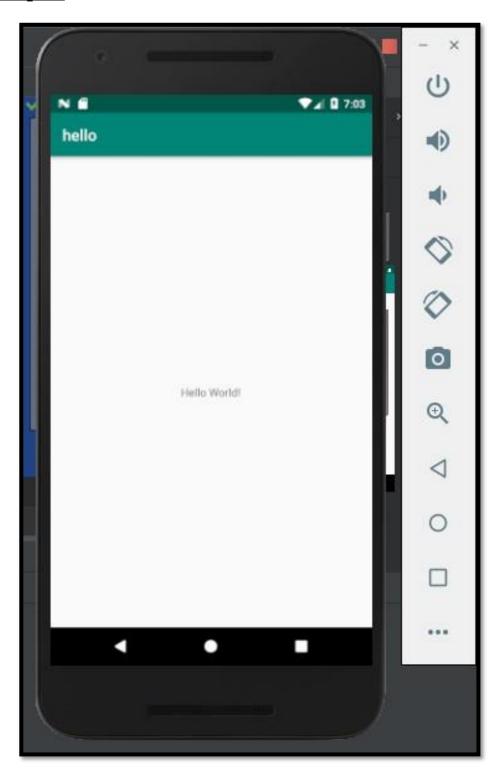
```
override fun onCreate(savedInstanceState: Bundle?) {
super.onCreate(savedInstanceState)
setContentView(R.layout.activity_main)
    }
}
```

Activity_Main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.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"
android:text="Hello World!"
app:layout constraintBottom toBottomOf="parent"
app:layout_constraintLeft_toLeftOf="parent"
app:layout_constraintRight_toRightOf="parent"
app:layout_constraintTop_toTopOf="parent"/>
```

 $<\!\!/ and roid. support. constraint. Constraint Layout >$

Output:-



Practical 2

<u>Aim:</u> Programming Android Resources: Colour, Theme, String, Dimension, Image

<u>Description:</u> Android Studio helps you add new resources and alternative resources in several ways, depending on the type of resource you want to add.

Solution:

```
activity_main.xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout height="match parent"
android:orientation="vertical"
android:background="@drawable/abc"
tools:context=".MainActivity">
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginLeft="120dp"
android:hint="@string/mystring"
android:textSize="30dp"
android:textColorHint="@color/tx"
app:lavout constraintBottom toBottomOf="parent"
app:layout constraintLeft toLeftOf="parent"
app:layout constraintRight toRightOf="parent"
app:layout_constraintTop_toTopOf="parent"/>
< Image View
android:layout_width="match_parent"
android:layout_height="wrap_content"
app:srcCompat="@mipmap/ic_launcher"
tools:layout editor absoluteY="0dp" tools:layout editor absoluteX="3dp"
android:id="@+id/imageView"
tools:ignore="MissingConstraints" android:layout_alignParentStart="true"
android:layout alignParentTop="true" android:layout marginTop="143dp"
```

android:layout alignParentLeft="true"/>

```
</LinearLayout>
strings.xml
<resources>
<string name="app_name">My Application</string>
<string name="mystring">"WELCOME"</string>
</resources>
color.xml
<?xml version="1.0" encoding="utf-8"?>
<color name="colorPrimary">#008577</color>
<color name=''colorPrimaryDark''>#00574B</color>
<color name="colorAccent">#D81B60</color>
<color name="tx">#FFFFFF</color>
</resources>
MainActivity.kt
package com.example.gkaud.myapplication
import android.support.v7.app.AppCompatActivity
import android.os.Bundle
class MainActivity : AppCompatActivity() {
override fun onCreate(savedInstanceState: Bundle?) {
super.onCreate(savedInstanceState)
setContentView(R.layout.activity_main)
  }
}
```

Output:-



Practical 3

Aim: Programming Activities and fragments: Activity Life Cycle, Life Cycle of fragments.

Description:

A fragment is an independent Android component which can be used by an activity. A fragment encapsulates functionality so that it is easier to reuse within activities and layouts.

Solution:

```
activity_main.xml
```

```
<?xml version="1.0" encoding="utf-8"?>
<\! and roid.support.constraint. Constraint Layoutxmlns: and roid="http://schemas.and roid."
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:textSize="90dp"
android:text="Welcome"
android:textColor="@color/colorPrimary"
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.myapplication;
import android.os.Bundle;
import android.app.Activity;
import android.util.Log;
public class MainActivityextends Activity {
  String msg= "Android: ";
```

```
@Override
public void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
Log.d(msg, "The onCreate() event");
@Override
protected void onStart() {
super.onStart();
Log.d(\mathbf{msg}, "The \ \mathbf{onStart}() \ \mathbf{event"});
@Override
protected void onResume() {
super.onResume();
Log.d(msg, "The onResume() event");
@Override
protected void onPause() {
super.onPause();
Log.d(msg, "The onPause() event");
@Override
protected void onStop() {
super.onStop();
Log.d(msg, "The onStop() event");
@Override
public void onDestroy() {
super.onDestroy();
Log.d(msg, "The onDestroy() event");
  }
}
```

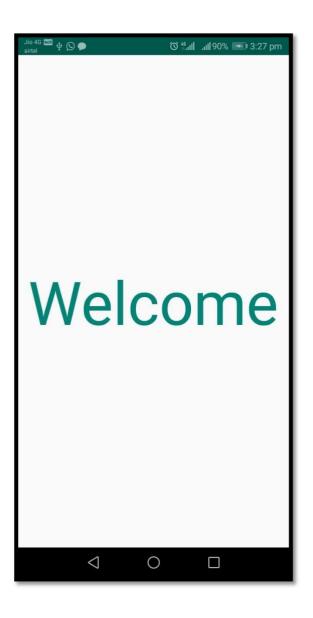
Output: -

TYBSCIT SEMVI ADVANCED MOBILE PROGRAMMING

PRACTICAL JOURNAL







Practical 4

Aim: Programs related to different Layouts: Linear, Relative, Table.

Description:

A layout defines the structure for a user interface in your app, such as in an activity. All elements in the layout are built using a hierarchy of View and ViewGroup objects. A View usually draws something the user can see and interact with. Whereas a ViewGroup is an invisible container that defines the layout structure for View and other ViewGroup objects.

Solution:

Relative Lavout and Linear Lavout: -

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayoutxmlns:android="http://schemas.android.com/apk/res/android"</p>
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">
< Relative Layout
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:layout_editor_absoluteX="16dp"
tools:layout_editor_absoluteY="19dp">
<TextView
android:id="@+id/Submit"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="TextView"/>
<EditText
android:id="@+id/Username"
android:layout_width="wrap_content"
android:layout_height="48dp"
android:layout_marginLeft="50dp"
android:layout_marginTop="100dp"
android:ems="10"
```

```
android:text="Name"
/>
<EditText
android:id="@+id/Password"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="20dp"
android:layout_below=''@id/Username''
android:ems="10"
android:inputType="textPassword"
android:text="Password"
android:layout_marginLeft="50dp"
/>
< Button
android:id="@+id/bt1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Button"
android:layout_marginLeft="90dp"
android:layout_below="@id/Password"
android:layout_marginTop="20dp"
tools:layout_editor_absoluteX="137dp"
tools:layout_editor_absoluteY="363dp" />
</RelativeLayout>
</LinearLayout>
```

Output: -

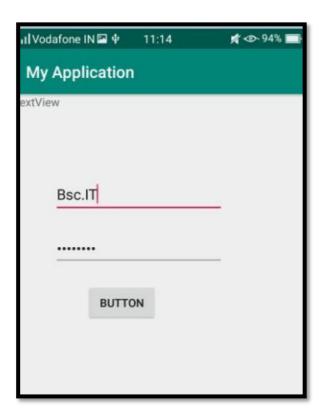


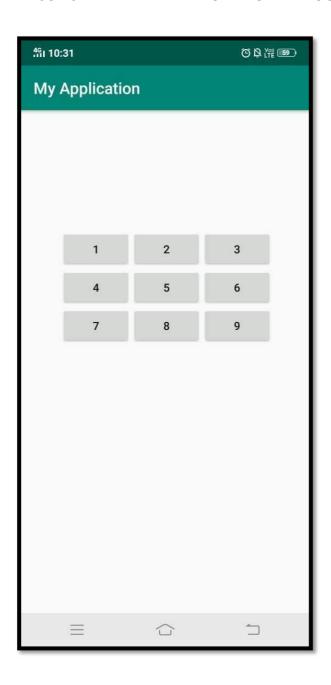
Table Layout

activity_main.xml: -

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:context=".MainActivity">
<TableLayoutandroid:layout width="wrap content"
android:layout_height="wrap_content"
android:layout_marginLeft="50dp"
android:layout_marginTop="150dp">
<TableRow>
<Button
android:id="@+id/btn1"
android:text="1"
android:layout_gravity="center"
/>
<Button
android:id="@+id/btn2"
android:text="2"
android:layout_gravity="center"
```

```
/>
< Button
android:id="@+id/btn3"
android:text="3"
android:layout_gravity="center"
/>
</TableRow>
<TableRow>
<Button
android:id="@+id/btn4"
android:text="4"
android:layout_gravity="center"
/>
< Button
android:id="@+id/btn5"
android:text="5"
android:layout_gravity="center"
/><Button
android:id="@+id/btn6"
android:text="6"
android:layout_gravity="center"
</TableRow>
<TableRow>
< Button
android:id="@+id/btn7"
android:text="7"
android:layout_gravity="center"
/>
< Button
android:id="@+id/btn8"
android:text="8"
android:layout_gravity="center"
/><Button
android:id="@+id/btn9"
android:text="9"
android:layout_gravity="center"
/>
</TableRow>
</TableLayout>
</LinearLayout>
```

Output:



PRACTICAL 5

Aim: Programming UI elements: AppBar, Fragments, UI Components

Description:

Your app's user interface is everything that the user can see and interact with. Android provides a variety of pre-built UI components such as structured layout objects and UI controls that allow you to build the graphical user interface for your app. Android also provides other UI modules for special interfaces such as dialogs, notifications, and menus.

Solution:

}

MainActivity.kt:

```
package bscit.technobeat
import android.content.Intent
import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import kotlinx.android.synthetic.main.activity_login.*
import kotlinx.android.synthetic.main.activity main.*
import kotlinx.android.synthetic.main.activity_register.*
import rohit.technobeat.R.id.login
import rohit.technobeat.R.id.newaccount
class MainActivity : AppCompatActivity() {
override fun onCreate(savedInstanceState: Bundle?) {
super.onCreate(savedInstanceState)
setContentView(R.layout.activity_main)
login.setOnClickListener{
valintent = Intent(this, LoginActivity::class.java)
// start your next activity
startActivity(intent)
}
newaccount.setOnClickListener{
valintent = Intent(this, RegisterActivity::class.java)
// start your next activity
startActivity(intent)
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayoutxmlns:android="http://schemas.android.com/apk/res/android"</p>
xmlns:tools="http://schemas.android.com/tools"
android:layout width="match parent"
android:layout_height="match_parent"
android:gravity="center horizontal"
android:orientation="vertical"
android:paddingBottom="@dimen/activity vertical margin"
android:paddingLeft="@dimen/activity_horizontal_margin"
android:paddingRight="@dimen/activity horizontal margin"
android:paddingTop="@dimen/activity_vertical_margin"
android:background="@drawable/home"
tools:context=".MainActivity">
<ScrollView
android:id="@+id/login form"
android:layout_width="match_parent"
android:layout_height="match_parent">
<LinearLayout
android:layout width="match parent"
android:layout_height="wrap_content"
android:orientation="vertical"
android:gravity="center">
<android.support.v7.widget.AppCompatTextView
android:layout_width="wrap_content"
android:layout height="wrap content"
android:layout_marginTop="210dp"
android:alpha="0.7"
android:text="TECHNOBEAT"
android:textColor="#000000"
android:textSize="33dp"
android:textStyle="bold"
tools:layout_marginLeft="85dp" />
<Button
android:id="@+id/login"
        style="?android:textAppearanceSmall"
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout marginTop="16dp"
android:text="Login"
android:background="@drawable/round_button"
android:alpha="0.8"
android:textStyle="bold"/>
< Button
```

Output:-



PRACTICAL 6

<u>Aim</u>: Programming menus, dialog, dialog fragments

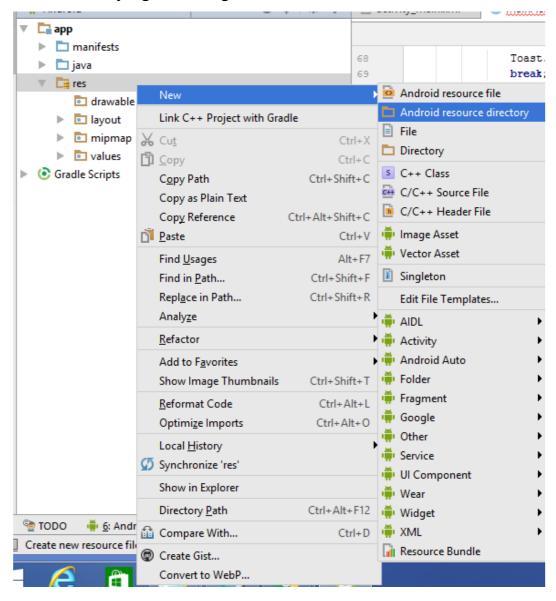
Description:

A dialog is a small window that prompts the user to make a decision or enter additional information. A dialog does not fill the screen and is normally used for modal events that require users to take an action before they can proceed.

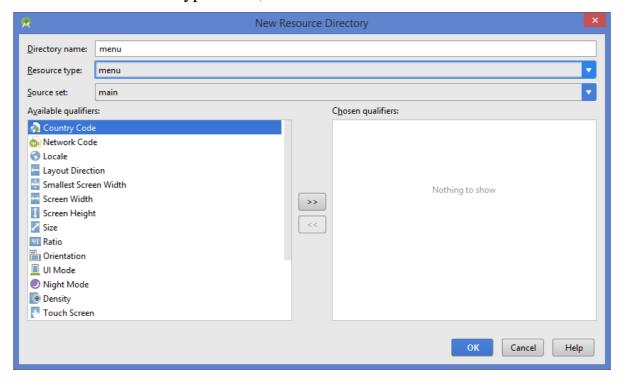
Solution:

Menu.xml

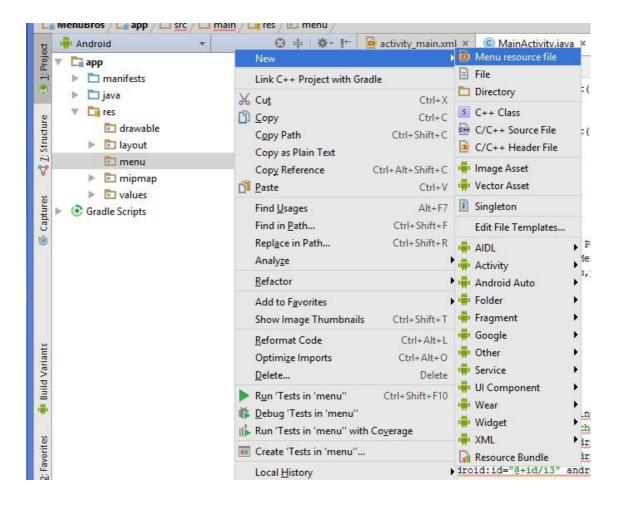
To define the menu_file.xml file, first create a menu directory under res folder. This is done by right clicking on **res --> new --> Android resource directory**.



Then a new window will appear. Type menu in the directory name and choose menu in the Resource type. Then, click on OK.



A new menu directory would be made under res directory. Add menu_file.xml file in menu directory by right clicking on **menu --> New --> Menu resource file**.



Give the name as **menu_file.xml** and click on Ok. The **menu_file.xml** file contains the following tags:

<menu>

It defines a Menu, which is a container for menu items. A <menu> element must be the root node for the file and can hold one or more <item> and <group> elements.

<item>

It creates a MenuItem, which represents a single item in a menu. This element may contain a nested <menu> element in order to create a submenu.

<group>

It is an optional, invisible container for <item> elements. It allows you to categorize menu items so they share properties such as active state and visibility.

MainActivity.java

```
public class MainActivity extends AppCompatActivity {
  @Override
  protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
  @Override
  public booleanonCreateOptionsMenu(Menu menu) {
MenuInflaterinflater = getMenuInflater();
inflater.inflate(R.menu.menu file, menu);
    return true:
  }
  @Override
  public booleanonOptionsItemSelected(MenuItem item) {
    //Handle item selection
    switch (item.getItemId()) {
       case R.id.i1:
         //perform any action;
                  Toast.makeText(this, "Menu item is selected",
Toast.LENGTH SHORT).show()
         return true:
       case R.id.a:
         //perform any action;
Toast.makeText(this, "Menu submenu a is selected", Toast.LENGTH_SHORT).show()
         return true:
       case R.id.b:
         //perform any action;
Toast.makeText(this, "Menu sub menu b is selected", Toast.LENGTH SHORT).show()
         return true;
       default:
         return super.onOptionsItemSelected(item);
}
menu file.xml
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
<item android:id="@+id/i1"
android:title="item"
android:icon="@drawable/flower1">
<!-- "item" submenu -->
```

ADVANCED MOBILE PROGRAMMING

PRACTICAL JOURNAL

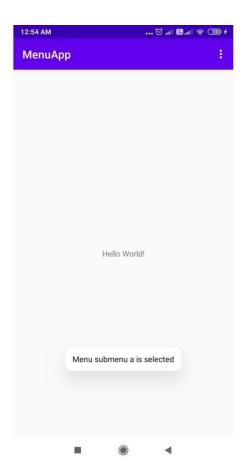
```
<menu>
<item android:id="@+id/a"
android:itle="subitem a"
android:icon="@drawable/flower1"/>
<item android:id="@+id/b"
android:title="subitem b"
android:icon="@drawable/flower2"/>
</menu>
</item>
```

Output:

TYBSCIT SEMVI







Alert Dialog

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
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"
android:id="@+id/mylayout"
tools:context=".MainActivity">
<Button
android:layout_marginTop="100dp"
android:text="Button"
android:layout width="wrap content"
android:layout_height="wrap_content" android:id="@+id/button"
android:layout_weight="1"/>
</LinearLayout>
MainActivity.kt
```

```
package com.example.alertapp
import android.graphics.Color
import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import android.support.v7.app.AlertDialog
import android.widget.*
import kotlinx.android.synthetic.main.activity main.*
class MainActivity : AppCompatActivity() {
override fun onCreate(savedInstanceState: Bundle?) {
super.onCreate(savedInstanceState)
setContentView(R.layout.activity_main)
// Set a click listener for button widget
button.setOnClickListener{
// Initialize a new instance of
valbuilder = AlertDialog.Builder(this@MainActivity)
// Set the alert dialog title
builder.setTitle("App background color")
// Display a message on alert dialog
builder.setMessage("Are you want to set the app background color to RED?")
// Set a positive button and its click listener on alert dialog
builder.setPositiveButton("YES"){dialog, which ->
// Do something when user press the positive button
Toast.makeText(applicationContext,"Ok, we change the app
background.",Toast.LENGTH SHORT).show()
// Change the app background color
mylayout.setBackgroundColor(Color.RED)
}
// Display a negative button on alert dialog
builder.setNegativeButton("No"){dialog,which->
Toast.makeText(applicationContext,"You are not agree.",Toast.LENGTH_SHORT).show()
mylayout.setBackgroundColor(Color.WHITE)
// Display a neutral button on alert dialog
builder.setNeutralButton("Cancel"){_,_ ->
Toast.makeText(applicationContext,"You cancelled the
dialog.",Toast.LENGTH_SHORT).show()
}
// Finally, make the alert dialog using builder
valdialog: AlertDialog = builder.create()
```

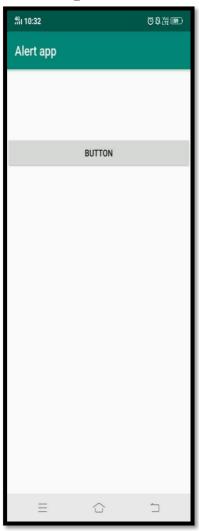
TYBSCIT SEMVI

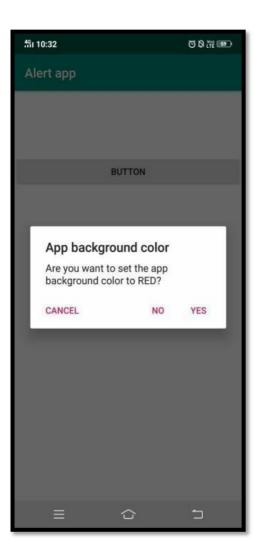
ADVANCED MOBILE PROGRAMMING

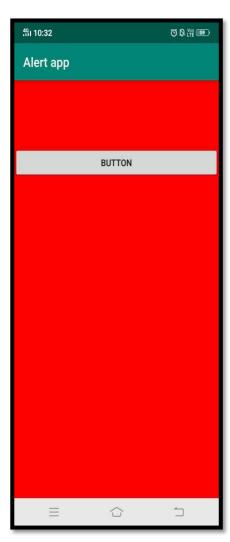
PRACTICAL JOURNAL

```
// Display the alert dialog on app interface dialog.show() }
```

Output:







Practical 7

<u>Aim:</u> Programs on Intents, Events, Listeners and Adapters: The Android Intent Class, Using Events and Event Listeners

Description:

Events are a useful way to collect data about a user's interaction with interactive components of Applications. Like button presses or screen touch etc. The Android framework maintains an event queue as first-in, first-out (FIFO) basis. You can capture these events in your program and take appropriate action as per requirements.

Solution:

INTENTS

MainActivity.java

```
package com.example.intentapp;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
public class MainActivityextends AppCompatActivity {
  @Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);
public void showntext(View view)
EditText ed=(EditText)findViewById(R.id.text1);
    String msg=ed.getText().toString();
    Intent in=new Intent(this,newpage.class);
in.putExtra("my key", msg);
startActivity(in);
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayoutxmlns:app="http://schemas.android.com/apk/res-auto"</pre>
xmlns:tools="http://schemas.android.com/tools"
xmlns:android="http://schemas.android.com/apk/res/android"
android:layout_width="match_parent"
android:layout height="match parent"
tools:context=".MainActivity">
<EditText
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:hint="Enter value"
android:id="@+id/text1"/>
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:id="@+id/btn"
android:text="click"
android:onClick="showntext"/>
</LinearLayout>
```

Add a new layout resource file

newpage layout.xml

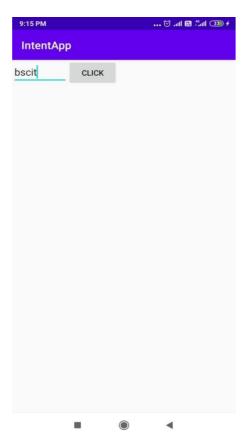
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout_height="match_parent">
<TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="New Text"
android:id="@+id/text2"
android:textSize="20dp"
tools:ignore="MissingConstraints" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

Add a new empty activity

newpage.java

package com.example.intentapp;

Output:



TYBSCIT SEMVI	ADVANCED MOBILE PROGRAMMING	PRACTICAL JOURNAL