Experiment – 3.1

Student Name: Abhinav Verma   **UID:** 20BCS9258
Branch: CSE   **Section/Group:** 20BCS_KRG_DM-1A
Semester: 06   **Date of Performance:** 24/04/2023
Subject Name: Mobile Application Development Lab   **Subject Code:** 20CSP-356

1. Aim/Overview of the practical:

Create an Android-based application using Fragments.

2. Task to be done:

To create an Android application using Fragments and understand the specific requirements, possibilities and challenges when developing a mobile context.

3. System Requirements:

The required tools to develop Android applications are open source and can be downloaded from the Web. Following is the list of software's you will need before you start your Android application programming.

➢ Android Studio .exe file
➢ Java JDK5 or later version
➢ Java Runtime Environment (JRE) 6 Android Studio

4. Steps of Experiment:

In this experiment, instead of making multiple activities, we are creating multiple frames to decrease size of application and increase productivity.

Step 01: Now, start Android Studio app and start new project as "Experiment07Fragments" and select activity as "Empty Activity" as shown below and enter activity details such as activity name, package name, save location, language as Java, minimum SDK and then select Finish.

Step 02: New window will open with MyActivity.java file, our new project is started as shown below:

Code:

MainActivity.java:

```java
package com.example.experiment07fragments;

import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.FragmentTransaction;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.LinearLayout;

public class MainActivity extends AppCompatActivity {

    Button button1,button2;
    LinearLayout linearLayout;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        button1 = findViewById(R.id.button1);
        button2 = findViewById(R.id.button2);
        linearLayout = findViewById(R.id.linearlayout);
        button1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Fragment1 firstFragment = new Fragment1();
                FragmentTransaction transaction =
getSupportFragmentManager().beginTransaction();
                transaction.replace(R.id.linearlayout,firstFragment);
                transaction.commit();
            }
        });
        button2.setOnClickListener(view->{
            Fragment2 secondFragment = new Fragment2();
            FragmentTransaction fragmentTransaction =
getSupportFragmentManager().beginTransaction();

fragmentTransaction.replace(R.id.linearlayout,secondFragment);
            fragmentTransaction.commit();
        });
    }
}
```

activity_main.xml:

```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.appcompat.widget.LinearLayoutCompat
    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"
```

```xml
    tools:context=".MainActivity">

    <LinearLayout
        android:layout_margin="15sp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content">
        <androidx.appcompat.widget.AppCompatButton
            android:id="@+id/button1"
            android:layout_width="wrap_content"
            android:layout_height="match_parent"
            android:text="Move to Fragment 1"
            android:layout_margin="5dp"
            android:padding="2dp"
            android:background="@color/fade_blue"
            android:layout_weight="1">
        </androidx.appcompat.widget.AppCompatButton>
        <androidx.appcompat.widget.AppCompatButton
            android:id="@+id/button2"
            android:layout_width="wrap_content"
            android:layout_height="match_parent"
            android:layout_margin="5dp"
            android:layout_weight="1"
            android:background="@color/fade_blue"
            android:padding="2dp"
            android:text="Move to Fragment 2">
        </androidx.appcompat.widget.AppCompatButton>
    </LinearLayout>

    <LinearLayout
        android:id="@+id/linearlayout"
        android:layout_width="match_parent"
        android:layout_height="550dp"
        android:orientation="vertical">
    </LinearLayout>

    <LinearLayout
        android:id="@+id/linearLayout2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        app:layout_constraintBottom_toBottomOf="parent"
        tools:ignore="MissingConstraints"
        android:background="@color/fade_green">

        <TextView
            android:id="@+id/textView"
            android:layout_width="wrap_content"
            android:layout_height="50dp"
            android:layout_gravity="center"
            android:paddingTop="10dp"
            android:textColor="@color/black"
            android:text="Abhinav Verma 20BCS9258"
            android:textSize="20sp"
```

```xml
            android:textStyle="bold" />
    </LinearLayout>

</androidx.appcompat.widget.LinearLayoutCompat>
```

Fragment1.java

```java
package com.example.experiment07fragments;

import android.os.Bundle;
import androidx.fragment.app.Fragment;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;

public class Fragment1 extends Fragment {

    public Fragment1() {
        // Required empty public constructor
    }
    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup
container, Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        View view = inflater.inflate(R.layout.fragment_1, container,
false);
        return view;
    }
}
```

Fragment_1.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout
    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:background="@color/white"
    tools:context=".Fragment1">

    <!-- TODO: Update blank fragment layout -->
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"

        android:text="Abhinav Verma"
        android:background="@color/fade_green"
        android:textSize="40sp"
        android:layout_marginTop="20dp"
        android:gravity="center_horizontal"/>
</FrameLayout>
```

Fragment2.java

```java
package com.example.experiment07fragments;

import android.os.Bundle;
import androidx.fragment.app.Fragment;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;

public class Fragment2 extends Fragment {
    public Fragment2() {
        // Required empty public constructor
    }
    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup
container, Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        View view = inflater.inflate(R.layout.fragment_2, container,
false);
        return view;
    }


}
```
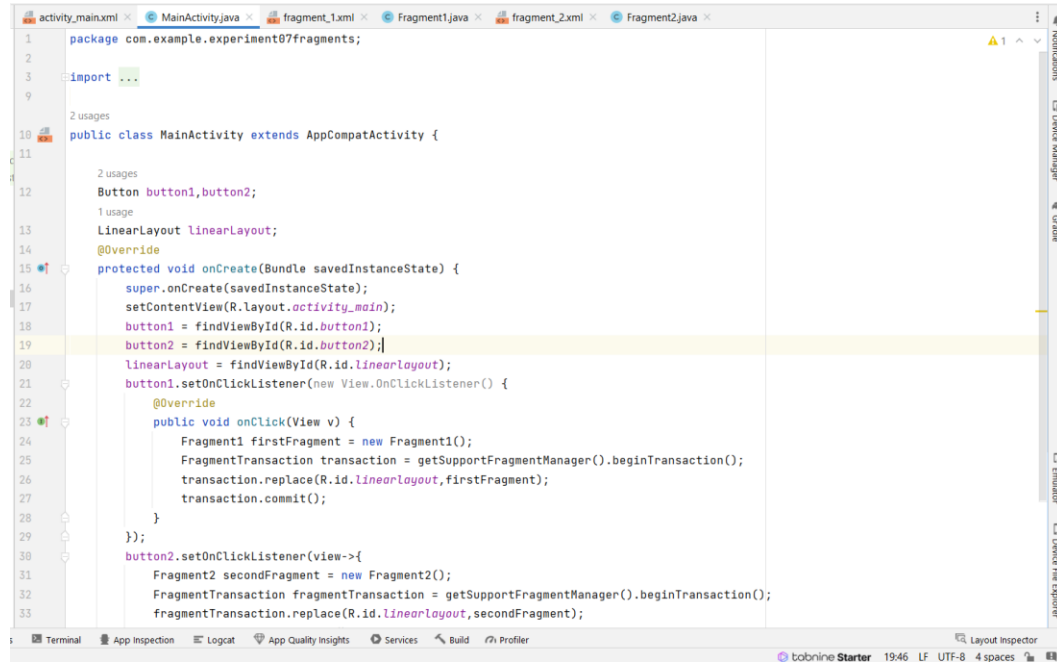
Fragment_2.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout
    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:background="@color/fade_red"
    tools:context=".Fragment2">

<!-- TODO: Update blank fragment layout -->
    <TextView
        android:id="@+id/uid"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center_horizontal"
        android:text="20BCS9258"
        android:layout_marginBottom="20sp"
        android:layout_marginTop="20dp"
        android:textSize="40sp" />

    <TextView
        android:id="@+id/section"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center_horizontal"
```

```xml
            android:layout_marginTop="90sp"
            android:text="20BCS_KRG_DM-1A"
            android:textSize="40sp" />
```

```xml
</FrameLayout>
```


MainActivity.java file screenshot

activity_main.xml file screenshot

Fragment_1.xml file screenshot

```xml
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout
    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:background="@color/white"
    tools:context=".Fragment1">

    <!-- TODO: Update blank fragment layout -->
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"

        android:text="Abhinav Verma"
        android:background="@color/fade_green"
        android:textSize="40sp"
        android:layout_marginTop="20dp"
        android:gravity="center_horizontal"/>

</FrameLayout>
```


Fragment_1.xml file screenshot

```xml
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout
    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:background="@color/fade_red"
    tools:context=".Fragment2">

    <!-- TODO: Update blank fragment layout -->
    <TextView
        android:id="@+id/uid"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center_horizontal"
        android:text="20BCS9258"
        android:layout_marginBottom="20sp"
        android:layout_marginTop="20dp"
        android:textSize="40sp" />

    <TextView
        android:id="@+id/section"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center_horizontal"
        android:layout_marginTop="90sp"
        android:text="20BCS_KRG_DM-1A"
        android:textSize="40sp" />
```
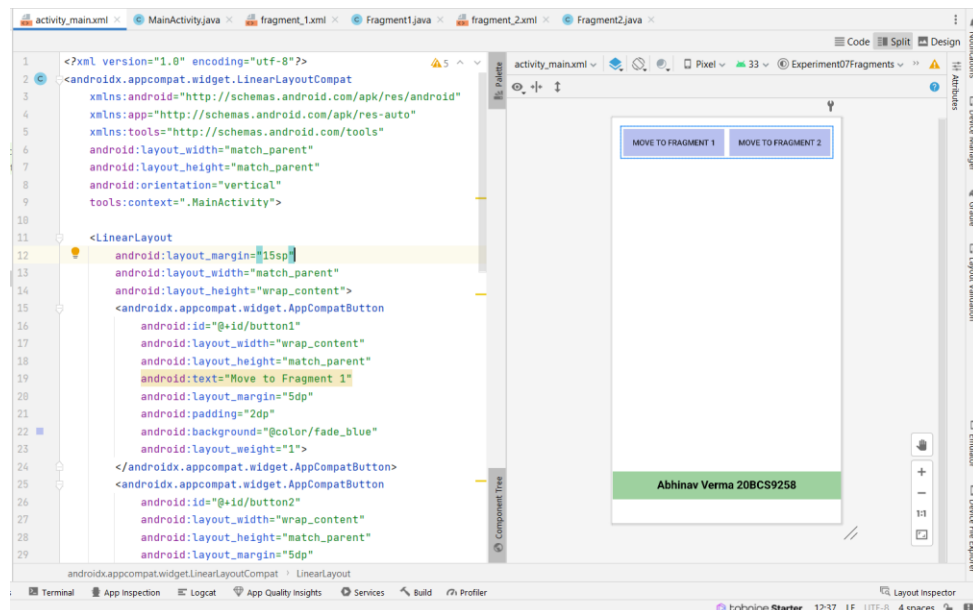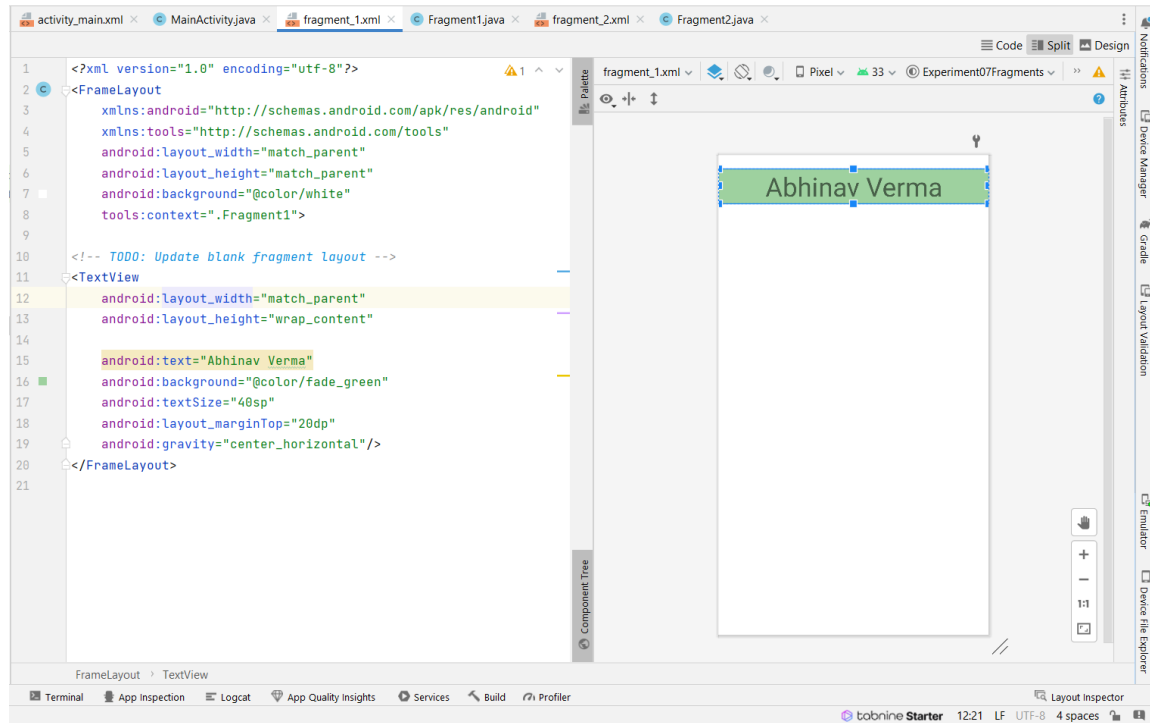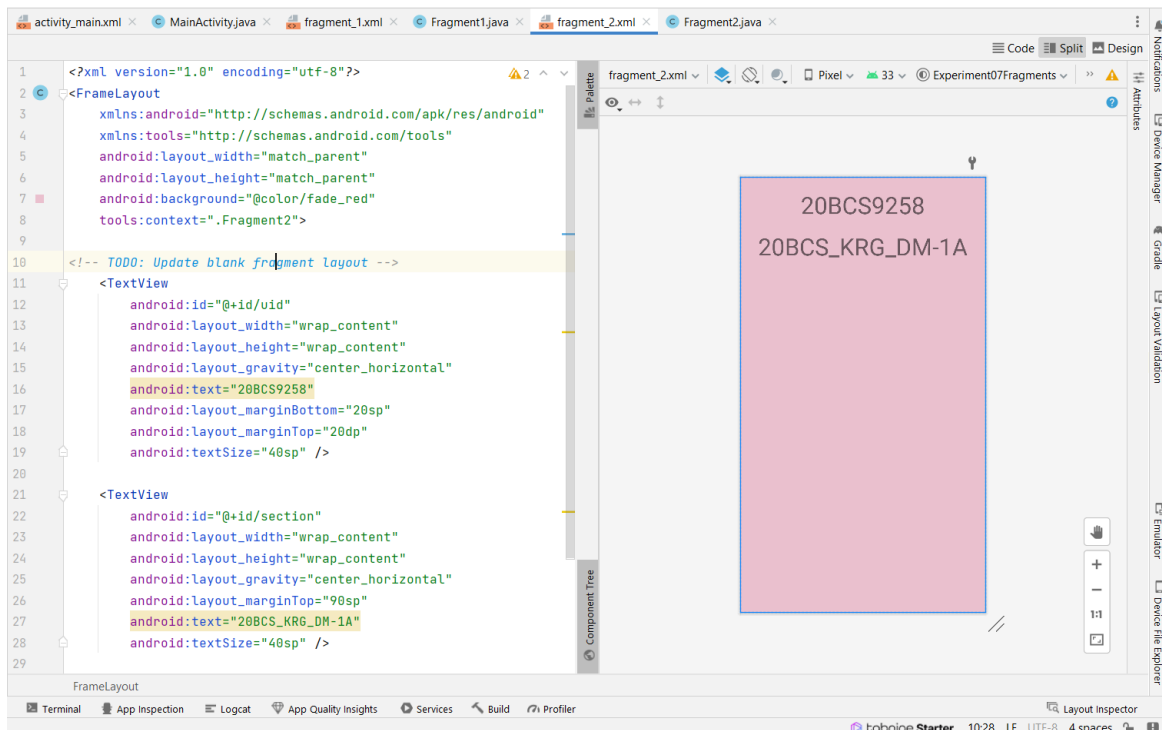
Step 3: Output

Learning Outcomes:

1. Learned how to add toast, passing values via intent, textView, editText, layouts etc. in our application.
2. Learned to add buttons and textview, edittext.
3. Learned how to implement fragments.
4. Learned more about Android Studio and its components.