

## Experiment No. - 7

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**Semester:** 6<sup>th</sup>  
**Subject Name:** Mobile Application Development Lab

**UID:** 21BCS8129  
**Section/Group:** 20BCS-ST-801/B  
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**Subject Code:** 20CSP-356

**1. Aim:**

**Create an Android application using Fragments.**

**2. Objective:**

**Understanding and analyse the specific requirement, possibilities and challenges when developing for a mobile application context.**

**3. System Requirements:**

- Microsoft Windows 7/8/10 (32-bit or 64-bit)
- 4 GB RAM minimum, 8 GB RAM recommended (plus 1 GB for the Android Emulator)
- 2 GB of available disk space minimum, 4 GB recommended (500 MB for IDE plus 1.5 GB for Android SDK and emulator system image)
- 1280 x 800 minimum screen resolution
- Java JDK5 or later version
- Java Runtime Environment (JRE) 6 or higher.

**4. Steps/Program:**

- You will use Android Studio IDE to create an Android application and name it as tutorials point under a package in.innovateria.ws7application
- Modify src/MainActivity.java file and add required code to take care of fragment navigation and implementation.
- Modify layout XML file res/layout/activity\_main.xml add any GUI component if required. I'm adding a simple GUI to click the Bottom navigation menu to render the fragments.
- No need to define default string constants at res/values/strings.xml. Android studio takes care of default constants.
- No need to Modify AndroidManifest.xml and Add the Permissions.
- Run the application to launch Android emulator and verify the result of the changes done in the application.

**5. 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/container"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
```

```
<FrameLayout
    android:id="@+id/nav_host_fragment_activity_main"
    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"
    android:layout_marginBottom="?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="@color/white"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintLeft_toLeftOf="parent"
    app:layout_constraintRight_toRightOf="parent"
    app:menu="@menu/navigation_menu" />

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

### **MainActivity.java**

```
package in.innovateria.ws7application;
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.Fragment;
import androidx.fragment.app.FragmentManager;
import androidx.fragment.app.FragmentTransaction;
import androidx.navigation.NavController;
import androidx.navigation.Navigation;
import androidx.navigation.ui.NavigationUI;
import android.os.Bundle;
import android.view.MenuItem;
import android.widget.FrameLayout;
import com.google.android.material.bottomnavigation.BottomNavigationView;
import com.google.android.material.navigation.NavigationView;

public class MainActivity extends AppCompatActivity {
    BottomNavigationView nav_view;

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

```
nav_view = findViewById(R.id.nav_view);
nav_view.setOnItemClickListener(item -> {
    int id = item.getItemId();
    switch (id) {
        case R.id.home:
            loadFragment(new HomeFragment(),true);
            break;
        case R.id.account:
            loadFragment(new AccountFragment(),false);
            break;
        case R.id.log_out:
            loadFragment(new LogOutFragment(),false);
            break;
    }
    return true;
});

nav_view.setSelectedItemId(R.id.home);
}

private void loadFragment(Fragment fragment, boolean flag) {
    FragmentManager fm = getSupportFragmentManager();
    FragmentTransaction ft = fm.beginTransaction();
    if(flag)
        ft.add(R.id.container,fragment);
    else
        ft.replace(R.id.container,fragment);
    ft.commit();
}
}
```

**fragment\_home.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"
    android:gravity="center"
    tools:context=".HomeFragment">

    <!-- TODO: Update blank fragment layout -->
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textStyle="bold"
        android:text="Home Fragment" />

</LinearLayout>
```

**HomeFragment.java**

```
package in.innovateria.ws7application;
import android.os.Bundle;
import androidx.fragment.app.Fragment;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;

public class HomeFragment extends Fragment {

    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container,
                             Bundle savedInstanceState) {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_home, container, false);
    }
}
```

Same for the Another Fragments as well with respect to Name of the Fragments.

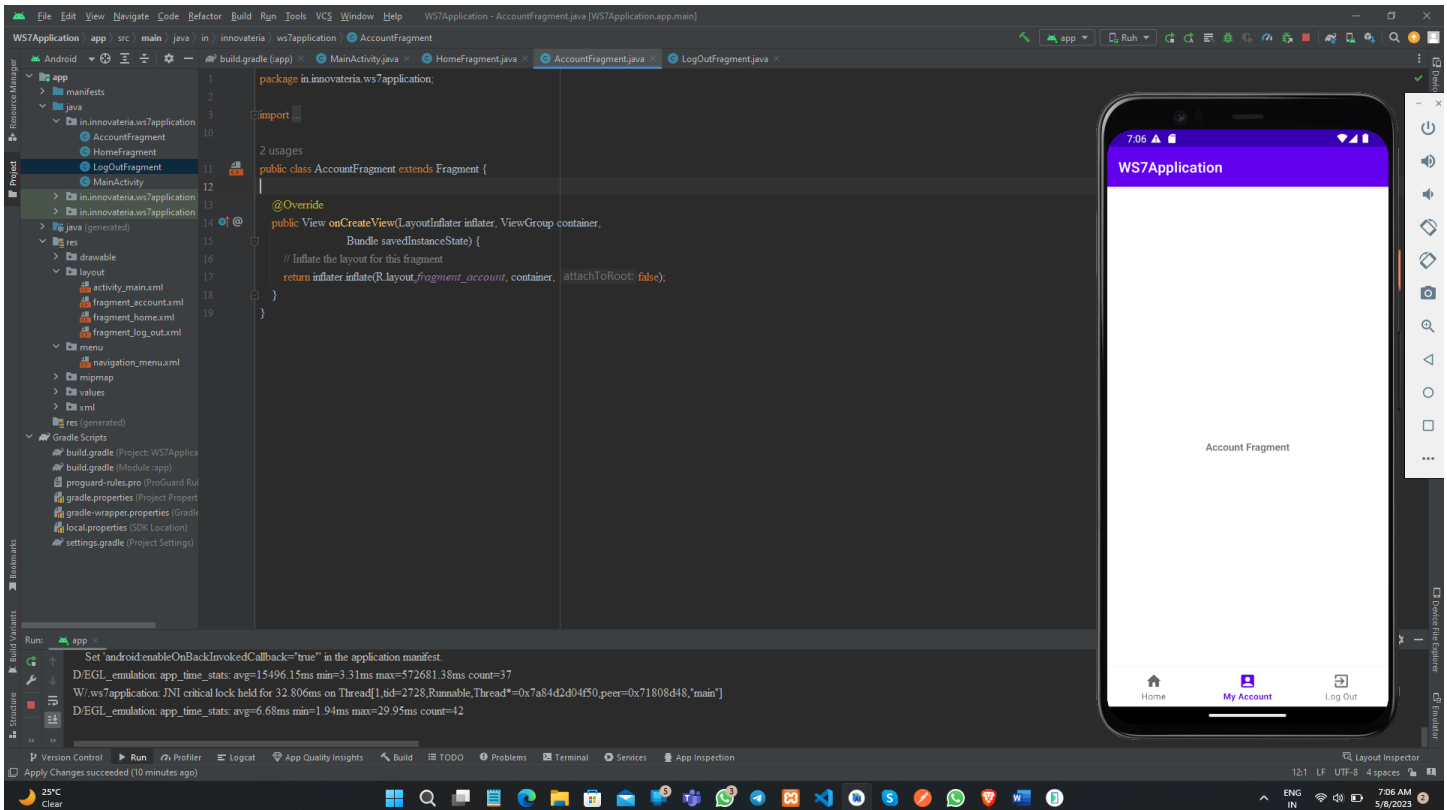
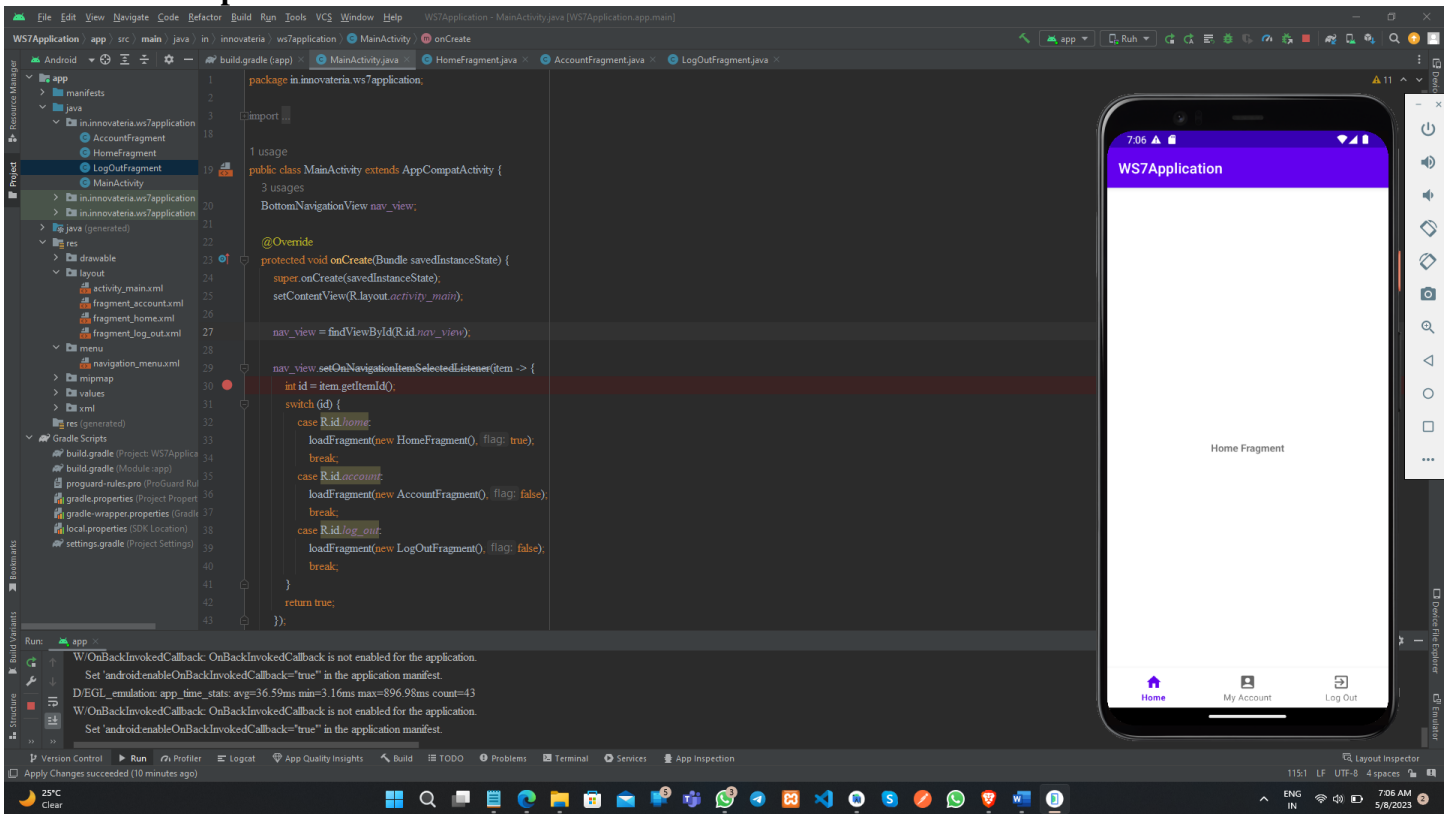
**navigation\_menu.xml**

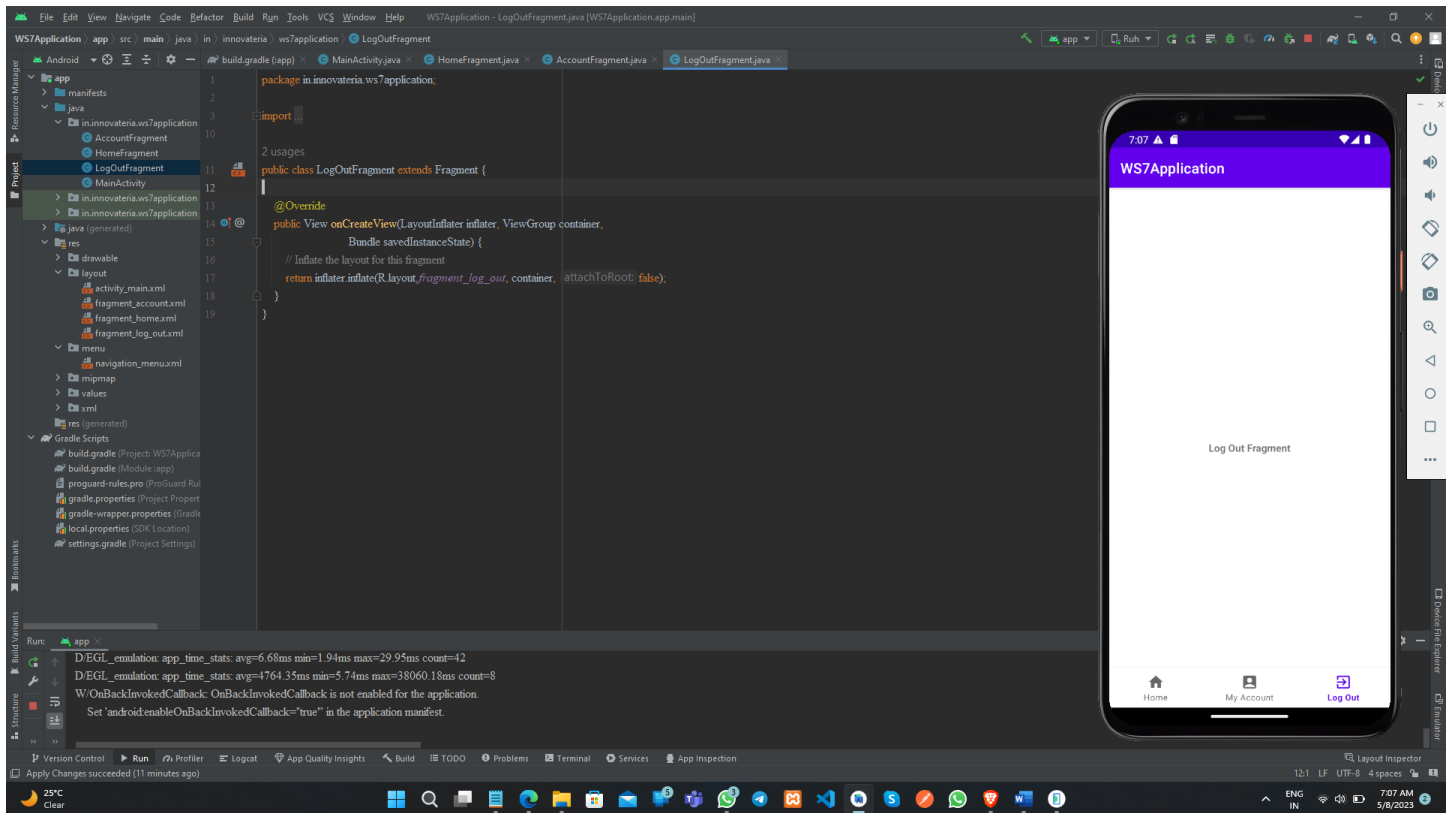
```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android"
      xmlns:app="http://schemas.android.com/apk/res-auto">

    <item
        android:id="@+id/home"
        android:icon="@drawable/baseline_home_24"
        android:title="Home" />
    <item
        android:id="@+id/account"
        android:icon="@drawable/baseline_account_box_24"
        android:title="My Account" />
    <item
        android:id="@+id/log_out"
        android:icon="@drawable/baseline_exit_to_app_24"
        android:title="Log Out" />

</menu>
```

## 6. Result/Output:





### Learning outcomes (What I have learnt):

- To design an android application which uses fragments in android studio.
- Learnt about running application on android studio.
- Creating Application by Implementing Fragment App.