COURSE OUTCOME-4

PROGRAM 1

AIM: Develop an application that use GridView with images and display Alert box on selection

PROGRAM CODE

| MainActivity.java | package com.example.co4_q1gridalert;

import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Context;
import android.content.DialogInterface;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.GridView;

public class MainActivity extends AppCompatActivity {
  GridView gd;
  int logos[] = {R.drawable.d1,R.drawable.d2, R.drawable.d3};
  String[] names ={"AMAZON","Meesho","Nykaa"};
  final Context context = this;
  AlertDialog.Builder builder;

  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    GridView gv = (GridView) findViewById(R.id.gridView);
    gv.setAdapter(new ImageAdapter(this));
    builder = new AlertDialog.Builder(this);

    gv.setOnItemClickListener(new AdapterView.OnItemClickListener() {
      public void onItemClick(AdapterView<?> parent, View v, int position, long id) {

        builder.setMessage("Website Name : "+String.valueOf(names[position]))
            .setCancelable(false)
            .setPositiveButton("Ok", new DialogInterface.OnClickListener() { |

| | ```
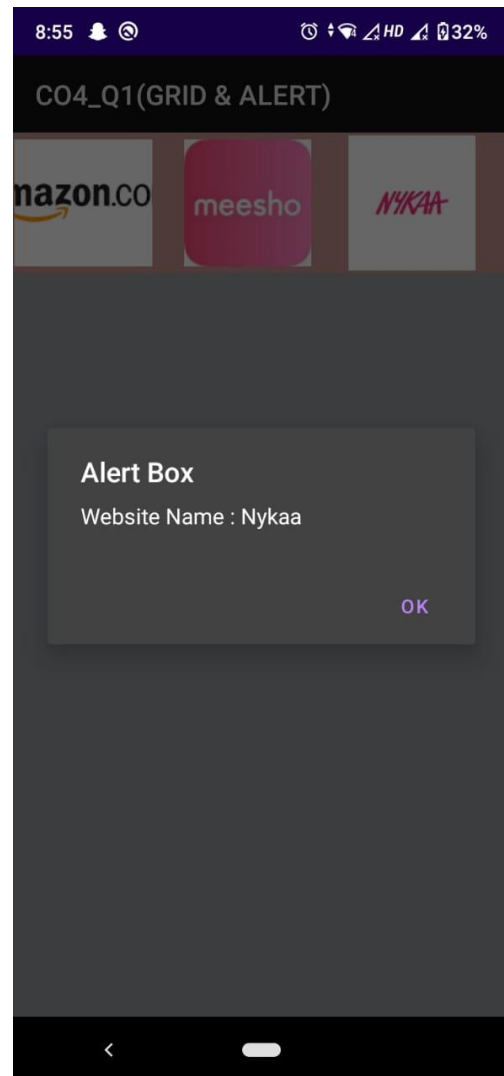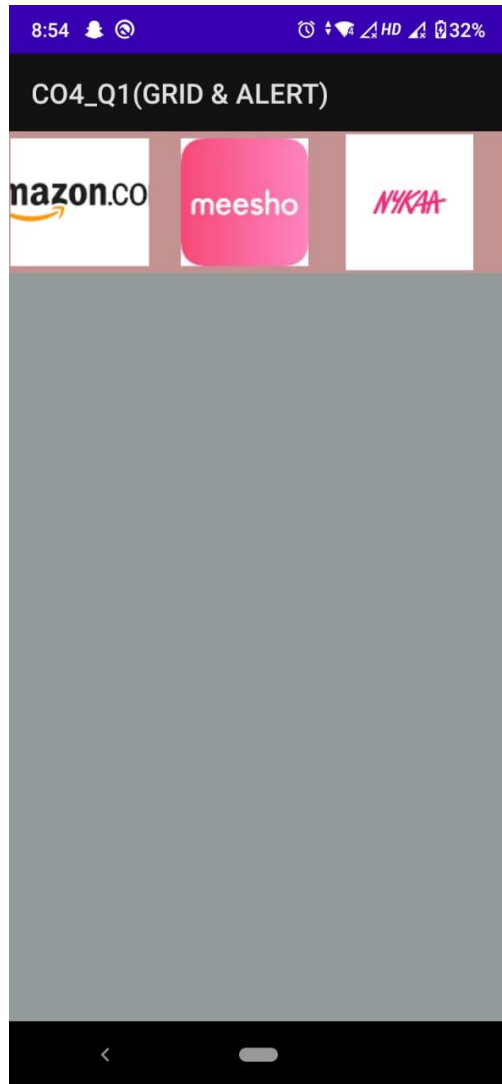                    public void onClick(DialogInterface dialog, int id) {
                    }
                });

            AlertDialog alert = builder.create();

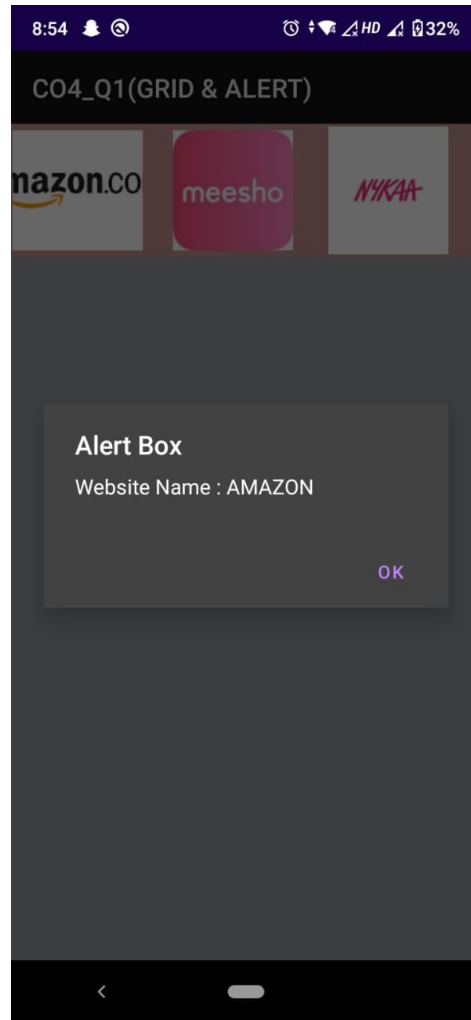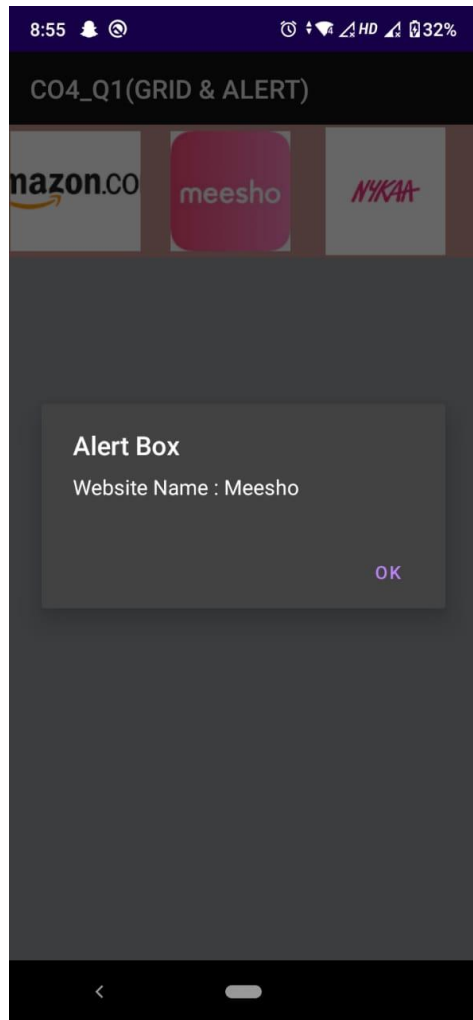            alert.setTitle("Alert Box");
            alert.show();
        }
    });
  }
}
``` |

| 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:background="#94999A"
  tools:context=".MainActivity">

  <GridView
    android:id="@+id/gridView"
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:background="#DFB7E6"
    android:backgroundTint="#C59292"
    android:footerDividersEnabled="false"
    android:numColumns="3"
    android:padding="1dp" />
</LinearLayout>
``` |
|---|---|

| ImageAdapter.java | ```
package com.example.co4_q1gridalert;

import android.content.Context;
import android.view.View;
import android.view.ViewGroup;
import android.widget.BaseAdapter;
import android.widget.GridView;
import android.widget.ImageView;
``` |
|---|---|

```java
public class ImageAdapter extends BaseAdapter {
  private Context mContext;
  public ImageAdapter(Context c) {
    mContext = c;
  }
  public int getCount() {
    return thumbImages.length;
  }
  public Object getItem(int position) {
    return null;
  }
  public long getItemId(int position) {
    return 0;
  }
  public View getView(int position, View convertView, ViewGroup
parent) {
    ImageView imageView = new ImageView(mContext);
    imageView.setLayoutParams(new GridView.LayoutParams(200,
200));

imageView.setScaleType(ImageView.ScaleType.CENTER_CROP);
    imageView.setPadding(8, 8, 8, 8);
    imageView.setImageResource(thumbImages[position]);
    return imageView;
  }

  public Integer[] thumbImages = {
      R.drawable.d1,
      R.drawable.d2,
      R.drawable.d3
  };
}
```

RESULT: The above program is successfully executed and obtained the output.

PROGRAM 2

AIM: Develop an application that implements Spinner component and perform event handling

PROGRAM CODE

MainActivity.java	package com.example.admin.spinner;
| | ```java
package com.example.admin.spinner;

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.Spinner;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity implements
AdapterView.OnItemSelectedListener
{
   String[] Options={"Recent","Offline","Bin","Feedback"};
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
//Getting the instance of Spinner and applying OnItemSelectedListener
on it
      Spinner spin = (Spinner) findViewById(R.id.spinner);
      spin.setOnItemSelectedListener(this);

//Creating the ArrayAdapter instance having the bank name list
      ArrayAdapter aa = new
ArrayAdapter(this,android.R.layout.simple_spinner_item,Options);

aa.setDropDownViewResource(android.R.layout.simple_spinner_dropd
own_item);
//Setting the ArrayAdapter data on the Spinner
      spin.setAdapter(aa);
   }

   //Performing action onItemSelected and onNothing selected
   @Override
``` |
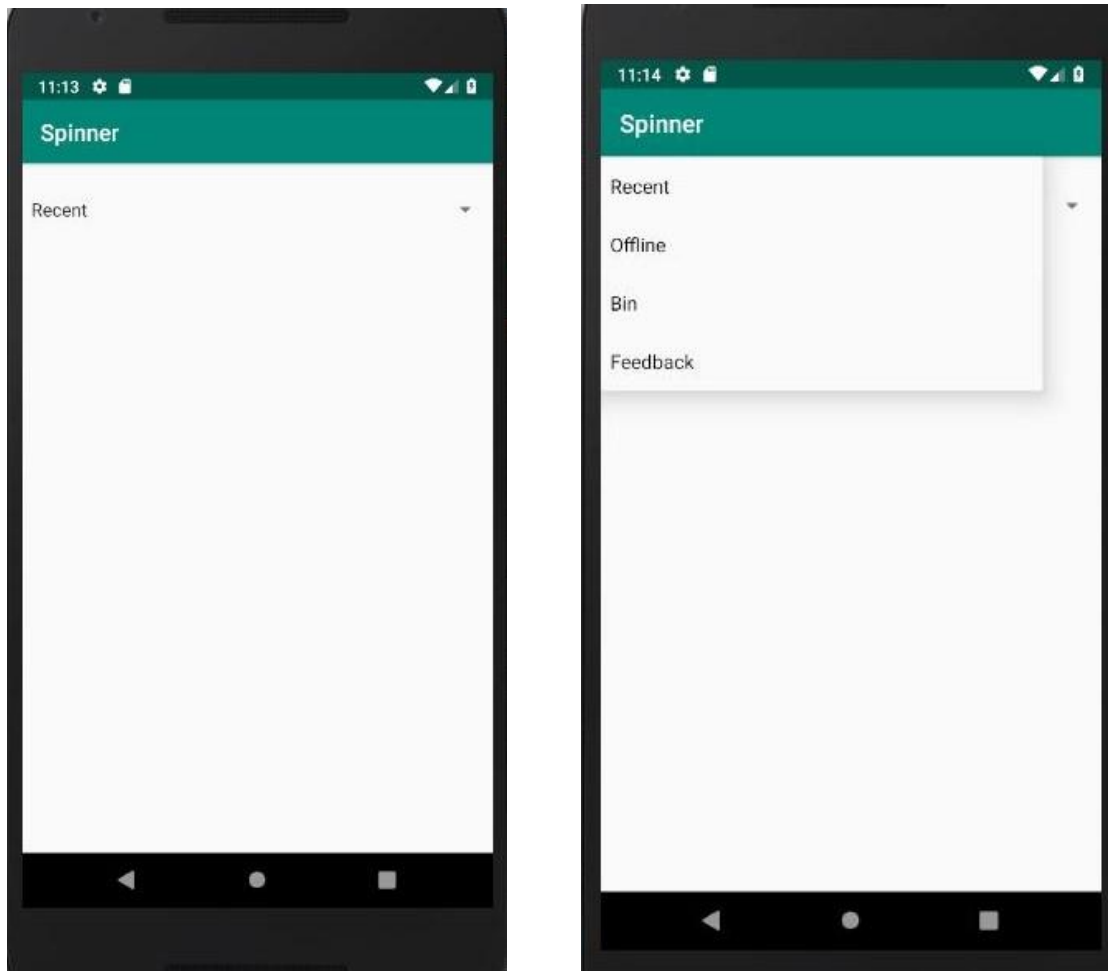
| | ```
    public void onItemSelected(AdapterView<?> arg0, View arg1, int
position,long id) {
        Toast.makeText(getApplicationContext(), Options[position],
Toast.LENGTH_LONG).show();
    }

    @Override
    public void onNothingSelected(AdapterView<?> arg0) {
// TODO Auto-generated method stub

    }
}
``` |

| 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=".MainActivity">

    <Spinner
        android:id="@+id/spinner"
        android:layout_width="match_parent"
        android:layout_height="80dp" />

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

OUTPUT

RESULT: The above program is successfully executed and obtained the output.

PROGRAM 3

AIM: Apply themes via code and manifest file

PROGRAM CODE

| MainActivity.java | ```
package com.example.themes;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import com.example.manifest.R;
public class MainActivity extends AppCompatActivity {
  @Override
  protected void onCreate(Bundle savedInstanceState) {
     super.onCreate(savedInstanceState);
     setContentView(R.layout.activity_main);
  }
  public void onSubmit(View view){
     Intent i = new Intent(getApplicationContext(), MainActivity2.class);
     startActivity(i);
  }
}
``` |
|---|---|

| 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="#EBEDE8"
  tools:context="com.example.themes.MainActivity">

  <Button
     android:id="@+id/button"
     android:layout_width="132dp"
     android:layout_height="48dp"
     android:layout_marginStart="166dp"
     android:layout_marginTop="121dp"
     android:layout_marginEnd="137dp"
     android:layout_marginBottom="233dp"
``` |
|---|---|

	android:background="#421515"
	android:backgroundTint="#712424"
	android:onClick="onSubmit"
	android:text="CHANGE"
	android:textColorHighlight="#3E2C2C"
	android:textStyle="bold"
	app:layout_constraintBottom_toBottomOf="parent"
	app:layout_constraintEnd_toEndOf="parent"
	app:layout_constraintHorizontal_bias="1.0"
	app:layout_constraintStart_toStartOf="parent"
	app:layout_constraintTop_toBottomOf="@+id/imageView"
	app:layout_constraintVertical_bias="0.0"
	app:rippleColor="#220404" />
	
	  <ImageView
	    android:id="@+id/imageView"
	    android:layout_width="wrap_content"
	    android:layout_height="wrap_content"
	    android:layout_marginStart="92dp"
	    android:layout_marginTop="40dp"
	    app:layout_constraintStart_toStartOf="parent"
	    app:layout_constraintTop_toTopOf="parent"
	    app:srcCompat="@drawable/d2" />
	</androidx.constraintlayout.widget.ConstraintLayout>

MainActivity2.
java
	``java
	package com.example.themes;
	import androidx.appcompat.app.AppCompatActivity;
	import android.content.Intent;
	import android.os.Bundle;
	import android.view.View;
	import com.example.manifest.R;
	public class MainActivity2 extends AppCompatActivity {
	  @Override
	  protected void onCreate(Bundle savedInstanceState) {
	    super.onCreate(savedInstanceState);
	    setContentView(R.layout.activity_main2);
	  }
	  public void onReturn(View view){
	    Intent i = new Intent(getApplicationContext(), MainActivity.class);
	    startActivity(i);
	  }}
	``

activity_main2. 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"

```xml
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#EBEDE8"
    tools:context="com.example.themes.MainActivity2">

    <Button
        android:id="@+id/button"
        android:layout_width="132dp"
        android:layout_height="48dp"
        android:layout_marginStart="166dp"
        android:layout_marginTop="121dp"
        android:layout_marginEnd="137dp"
        android:layout_marginBottom="233dp"
        android:background="#421515"
        android:backgroundTint="#712424"
        android:onClick="onSubmit"
        android:text="CHANGE"
        android:textColorHighlight="#3E2C2C"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="1.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/imageView"
        app:layout_constraintVertical_bias="0.0"
        app:rippleColor="#220404" />

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="92dp"
        android:layout_marginTop="40dp"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:srcCompat="@drawable/d2" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

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

	`<manifest`
	`xmlns:android="http://schemas.android.com/apk/res/android"`
	`    package="com.example.manifest">`
	
	`    <application`

	android:allowBackup="true"
	android:icon="@mipmap/ic_launcher"
	android:label="@string/app_name"
	android:roundIcon="@mipmap/ic_launcher_round"
	android:supportsRtl="true"
	android:theme="@style/Theme.Manifest">
	<activity
	   android:name="com.example.themes.MainActivity2"
	   android:exported="false"
	   android:theme="@style/Theme.Manifest1"/>
	<activity
	   android:name="com.example.themes.MainActivity"
	   android:exported="true">
	<intent-filter>
	   <action android:name="android.intent.action.MAIN" />
	   <category
	android:name="android.intent.category.LAUNCHER" />
	</intent-filter>
	</activity>
	</application>
	</manifest>

Themes.xml	<resources xmlns:tools="http://schemas.android.com/tools"> <!-- Base application theme. --> <style name="Theme.Manifest" parent="Theme.MaterialComponents.DayNight.DarkActionBar"> <!-- Primary brand color. --> <item name="colorPrimary">@color/purple_200</item> <item name="colorPrimaryVariant">@color/teal_700</item> <item name="colorOnPrimary">@color/teal_200</item> <!-- Secondary brand color. --> <item name="colorSecondary">@color/purple_500</item> <item name="colorSecondaryVariant">@color/purple_200</item> <item name="colorOnSecondary">@color/teal_700</item> <!-- Status bar color. --> <item name="android:statusBarColor" tools:targetApi="l">?attr/colorPrimaryVariant</item> <!-- Customize your theme here. --> </style> <style name="Theme.Manifest1" parent="Theme.MaterialComponents.DayNight.DarkActionBar"> <!-- Primary brand color. --> <item name="colorPrimary">#888038</item> <item name="colorPrimaryVariant">#D17AE1</item> <item name="colorOnPrimary">@color/teal_700</item>

	<!-- Secondary brand color. --> <item name="colorSecondary">@color/purple_200</item> <item name="colorSecondaryVariant">#E91E63</item> <item name="colorOnSecondary">#00BCD4</item> <!-- Status bar color. --> <item name="android:statusBarColor" tools:targetApi="l">?attr/colorPrimaryVariant</item> <!-- Customize your theme here. --> </style> </resources>

OUTPUT

RESULT: The above program is successfully executed and obtained the output.

PROGRAM 4

AIM: Develop application using Fragments

PROGRAM CODE:

MainActivity.java	package com.example.fragmentsq4;
| | ```
import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.Fragment;
import androidx.fragment.app.FragmentManager;
import androidx.fragment.app.FragmentTransaction;

import android.os.Bundle;
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);
  }

  public void fragement1Start(View view){
     replaceFragement(new Fragment_1());
  }

  public void fragement2Start(View view){
     replaceFragement(new Fragment_2());
  }

  public void replaceFragement(Fragment pragment){
     FragmentManager fm = getSupportFragmentManager();
     FragmentTransaction ft = fm.beginTransaction();
     ft.replace(R.id.fra,pragment);
     ft.commit();
  }

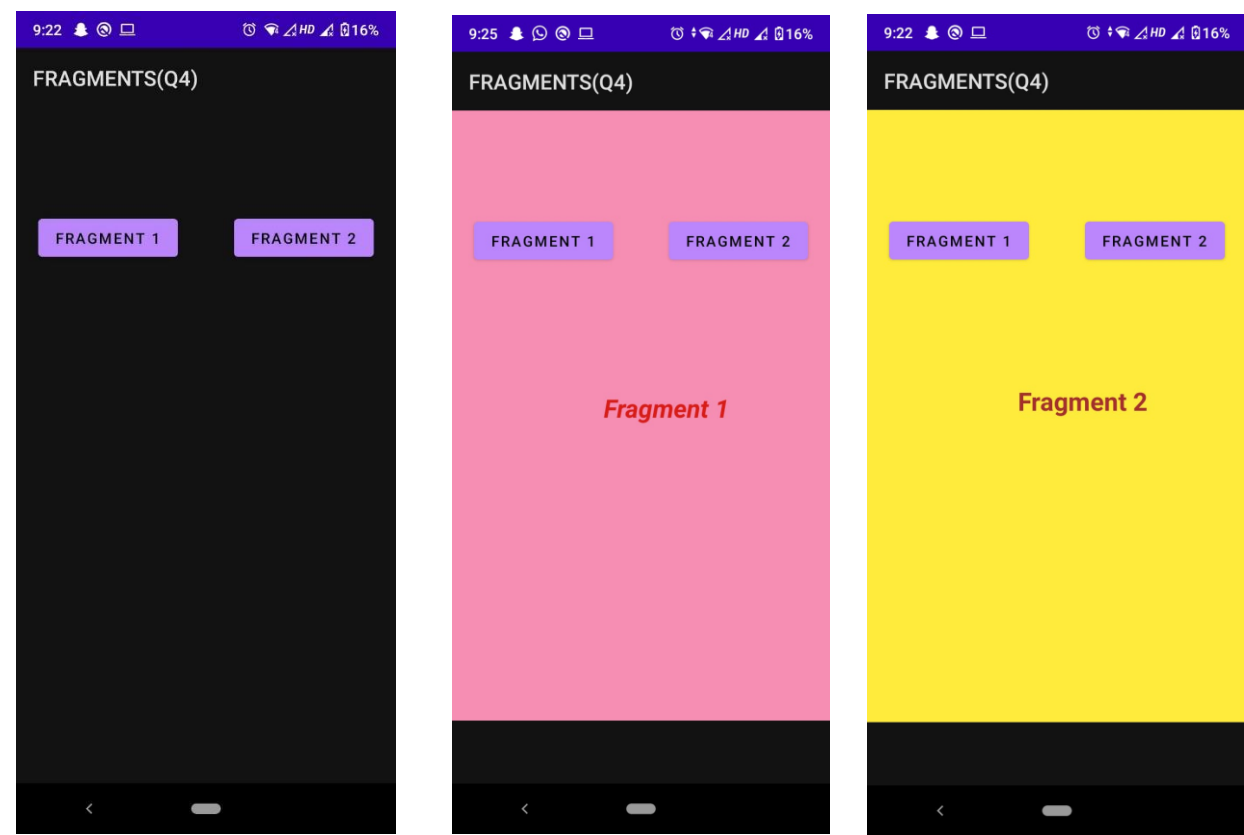}
``` |

| activity_main.xml | ```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">

  <Button
    android:id="@+id/f2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="32dp"
    android:layout_marginTop="100dp"
    android:onClick="fragement2Start"
    android:text="Fragment 2"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.5"
    app:layout_constraintStart_toEndOf="@+id/f1"
    app:layout_constraintTop_toTopOf="parent" />

  <Button
    android:id="@+id/f1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="100dp"
    android:onClick="fragement1Start"
    android:text="Fragment 1"
    app:layout_constraintEnd_toStartOf="@+id/f2"
    app:layout_constraintHorizontal_bias="0.5"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

  <FrameLayout
    android:id="@+id/fra"
    android:layout_width="409dp"
    android:layout_height="581dp"
    tools:layout_editor_absoluteX="2dp"
    tools:layout_editor_absoluteY="148dp">

  </FrameLayout>

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

Fragment_1.java	`package com.example.fragmentsq4;`
	
	`import android.os.Bundle;`
	
	`import androidx.fragment.app.Fragment;`
	
	`import android.view.LayoutInflater;`
	`import android.view.View;`
	`import android.view.ViewGroup;`
	
	`public class Fragment_1 extends Fragment {`
	`  @Override`
	`  public View onCreateView(LayoutInflater inflater, ViewGroup container,`
	`                 Bundle savedInstanceState) {`
	`    // Inflate the layout for this fragment`
	`    return inflater.inflate(R.layout.fragment_1, container, false);`
	`  }`
	`}`

Fragment_1.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/frameLayout2"`
	`  android:layout_width="match_parent"`
	`  android:layout_height="match_parent"`
	`  android:background="#F68DB3"`
	`  tools:context=".Fragment_1">`
	
	`  <TextView`
	`    android:id="@+id/textView2"`
	`    android:layout_width="154dp"`
	`    android:layout_height="46dp"`
	`    android:text="Fragment 1"`
	`    android:textAlignment="center"`
	`    android:textColor="#DA1C16"`
	`    android:textSize="24sp"`
	`    android:textStyle="bold|italic"`
	`    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="0.499" /> </androidx.constraintlayout.widget.ConstraintLayout>

Fragment_2.java	```java
	package com.example.fragmentsq4;
	
	import android.os.Bundle;
	
	import androidx.fragment.app.Fragment;
	
	import android.view.LayoutInflater;
	import android.view.View;
	import android.view.ViewGroup;
	
	public class Fragment_2 extends Fragment {
	
	  @Override
	  public View onCreateView(LayoutInflater inflater, ViewGroup container,
	                 Bundle savedInstanceState) {
	    // Inflate the layout for this fragment
	    return inflater.inflate(R.layout.fragment_2, container, false);
	  }
	}
	``

Fragment_2.xml	```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/frameLayout"
	  android:layout_width="match_parent"
	  android:layout_height="match_parent"
	  android:background="#7DE40F"
	  tools:context=".Fragment_2">
	
	  <!-- TODO: Update blank fragment layout -->
	
	  <TextView
	    android:id="@+id/textView"
	    android:layout_width="131dp"
	    android:layout_height="61dp"
	    android:text="Fragment 2"
	    android:textAlignment="center"
	    android:textColor="#121111"
	    android:textSize="24sp"
	    android:textStyle="bold"
	``

	app:layout_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" /> </androidx.constraintlayout.widget.ConstraintLayout>

OUTPUT

RESULT: The above program is successfully executed and obtained the output.

PROGRAM 5

AIM: Implement Navigation drawer.

PROGRAM CODE:

MainActivity.java	package com.example.navigationco4_q5;

```
package com.example.navigationco4_q5;

import android.os.Bundle; import android.view.View; import
android.view.Menu;
import com.google.android.material.snackbar.Snackbar;
import com.google.android.material.navigation.NavigationView;
import androidx.navigation.NavController; import
androidx.navigation.Navigation;
import androidx.navigation.ui.AppBarConfiguration; import
androidx.navigation.ui.NavigationUI;
import androidx.drawerlayout.widget.DrawerLayout; import
androidx.appcompat.app.AppCompatActivity;

import
com.example.navigationco4_q5.databinding.ActivityMainBinding; public
class MainActivity extends AppCompatActivity {
private AppBarConfiguration mAppBarConfiguration; private
ActivityMainBinding binding;

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

binding = ActivityMainBinding.inflate(getLayoutInflater());
setContentView(binding.getRoot());

setSupportActionBar(binding.appBarMain.toolbar);
binding.appBarMain.fab.setOnClickListener(new
View.OnClickListener() {
@Override
public void onClick(View view) {
Snackbar.make(view, "Replace with your own action",
Snackbar.LENGTH_LONG)
.setAction("Action", null).show();
}
});
```

| | ```
DrawerLayout drawer = binding.drawerLayout;

NavigationView navigationView = binding.navView;
// Passing each menu ID as a set of Ids because each
// menu should be considered as top level destinations.
mAppBarConfiguration = new AppBarConfiguration.Builder(
R.id.nav_home, R.id.nav_gallery, R.id.nav_slideshow ,
R.id.nav_contacts)
.setOpenableLayout(drawer)
.build();
NavController navController = Navigation.findNavController(this,
R.id.nav_host_fragment_content_main);
NavigationUI.setupActionBarWithNavController(this, navController,
mAppBarConfiguration);
NavigationUI.setupWithNavController(navigationView, navController);
}

@Override
public boolean onCreateOptionsMenu(Menu menu) {
// Inflate the menu; this adds items to the action bar if it is present.
getMenuInflater().inflate(R.menu.main, menu);
return true;
}

@Override
public boolean onSupportNavigateUp() {
NavController navController = Navigation.findNavController(this,
R.id.nav_host_fragment_content_main); return
NavigationUI.navigateUp(navController, mAppBarConfiguration)
|| super.onSupportNavigateUp();
}
}
``` |

| activity_main.xml | ```
<?xml version="1.0" encoding="utf-8"?>
<androidx.drawerlayout.widget.DrawerLayout
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/drawer_layout" android:layout_width="match_parent"
android:layout_height="match_parent"
android:fitsSystemWindows="true" tools:openDrawer="start">

<include android:id="@+id/app_bar_main"
layout="@layout/app_bar_main" android:layout_width="match_parent"
``` |

	android:layout_height="match_parent" /> <com.google.android.material.navigation.NavigationView android:id="@+id/nav_view" android:layout_width="wrap_content" android:layout_height="match_parent" android:layout_gravity="start" android:fitsSystemWindows="true" app:headerLayout="@layout/nav_header_main" app:menu="@menu/activity_main_drawer" /> </androidx.drawerlayout.widget.DrawerLayout>

Activity_main_drawer .xml	<?xml version="1.0" encoding="utf-8"?> <menu xmlns:android="http://schemas.android.com/apk/res/android" xmlns:tools="http://schemas.android.com/tools" tools:showIn="navigation_view"> <group android:checkableBehavior="single"> <item android:id="@+id/nav_home" android:icon="@drawable/ic_menu_camera" android:title="@string/menu_home" /> <item android:id="@+id/nav_gallery" android:icon="@drawable/ic_menu_gallery" android:title="@string/menu_gallery" /> <item android:id="@+id/nav_slideshow" android:icon="@drawable/ic_menu_slideshow" android:title="@string/menu_slideshow" /> <item android:id="@+id/nav_contacts" android:icon="@drawable/ic_baseline_contacts_24" android:title="@string/menu_contacts" /> </group> </menu>
ContactsFragments.ja va	package com.example.navigationco4_q5.ui.contacts; import android.os.Bundle; import android.view.LayoutInflater; import android.view.View; import android.view.ViewGroup; import android.widget.TextView; import androidx.annotation.NonNull; import androidx.annotation.Nullable; import androidx.fragment.app.Fragment; import androidx.lifecycle.Observer; import androidx.lifecycle.ViewModelProvider; import com.example.navigationco4_q5.R;

	import com.example.navigationco4_q5.databinding.FragmentContactsBinding;
	
	public class ContactsFragments extends Fragment {
	
	private ContactsViewModel ContactsViewModel;
	private FragmentContactsBinding binding;
	
	public View onCreateView(@NonNull LayoutInflater inflater,
	ViewGroup container, Bundle savedInstanceState) {
	ContactsViewModel =new
	ViewModelProvider(this).get(ContactsViewModel.class);
	binding = FragmentContactsBinding.inflate(inflater, container, false);
	View root = binding.getRoot();
	
	final TextView textView = binding.textContacts;
	ContactsViewModel.getText().observe(getViewLifecycleOwner(),
	new Observer<String>() {
	@Override
	public void onChanged(@Nullable String s) { textView.setText(s);
	}
	});
	return root;
	
	}
	}

Fragments_contacts.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=".ui.contacts.ContactsFragments"> <TextView android:id="@+id/text_contacts" 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_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent"

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

ContactsViewModel.java	package com.example.navigationco4_q5.ui.contacts;
	
	import androidx.lifecycle.LiveData;
	import androidx.lifecycle.MutableLiveData;
	import androidx.lifecycle.ViewModel;
	
	public class ContactsViewModel extends ViewModel { private MutableLiveData<String> mText;
	public ContactsViewModel()
	{
	mText = new MutableLiveData<>(); mText.setValue("This is contacts fragment");
	}
	
	public LiveData<String> getText() {
	
	return mText;
	}
	}

GalleryFragment.java	package com.example.navigationco4_q5.ui.gallery;
	
	import android.os.Bundle;
	import android.view.LayoutInflater; import android.view.View;
	import android.view.ViewGroup; import android.widget.TextView;
	import androidx.annotation.NonNull;
	import androidx.annotation.Nullable;
	import androidx.fragment.app.Fragment;
	import androidx.lifecycle.Observer;
	import androidx.lifecycle.ViewModelProvider;
	
	import com.example.navigationco4_q5.R;
	import com.example.navigationco4_q5.databinding.FragmentGalleryBinding; public class GalleryFragment extends Fragment {
	private GalleryViewModel galleryViewModel; private FragmentGalleryBinding binding;
	
	public View onCreateView(@NonNull LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {
	galleryViewModel =new ViewModelProvider(this).get(GalleryViewModel.class);

	binding = FragmentGalleryBinding.inflate(inflater, container, false); View root = binding.getRoot();
	
	final TextView textView = binding.textGallery; galleryViewModel.getText().observe(getViewLifecycleOwner(), new Observer<String>() {
	@Override
	public void onChanged(@Nullable String s) { textView.setText(s);
	}
	
	});
	return root;
	}
	
	@Override
	public void onDestroyView() { super.onDestroyView(); binding = null;
	}
	}

Fragments_gallery.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=".ui.gallery.GalleryFragment"> <TextView android:id="@+id/text_gallery" 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_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" /> </androidx.constraintlayout.widget.ConstraintLayout>
GalleryViewModel.java	package com.example.navigationco4_q5.ui.gallery; import androidx.lifecycle.LiveData; import androidx.lifecycle.MutableLiveData; import androidx.lifecycle.ViewModel;

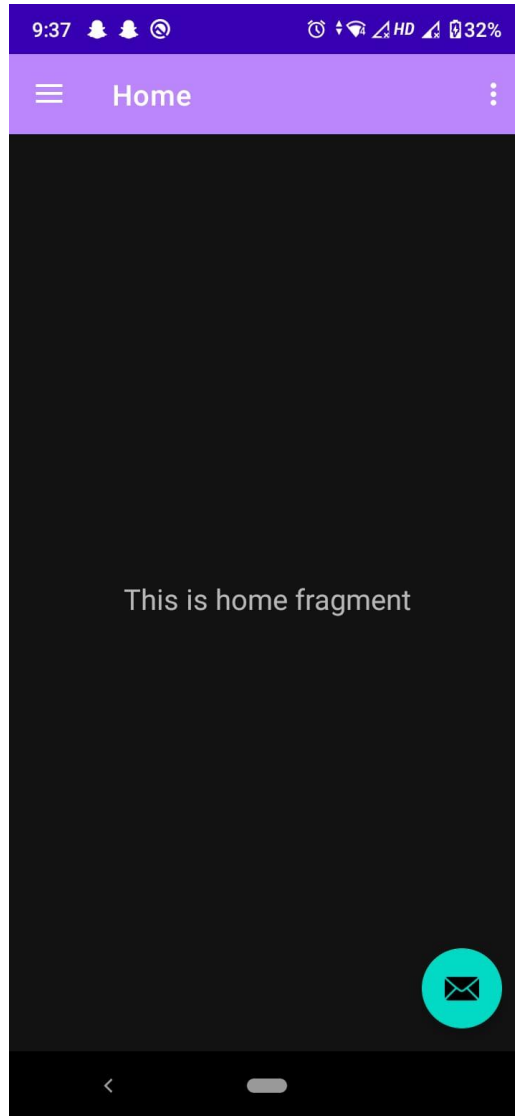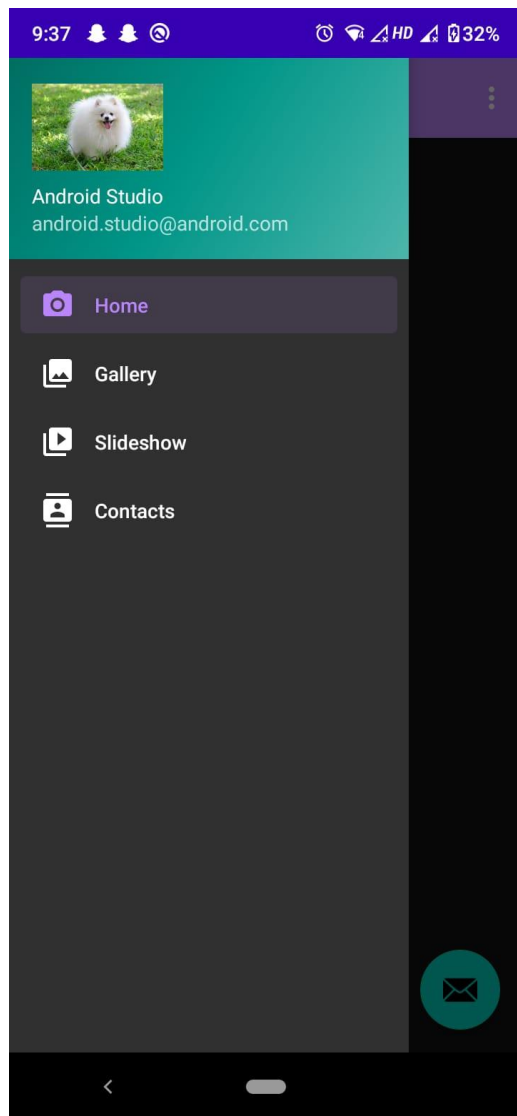|	

	public class GalleryViewModel extends ViewModel { private MutableLiveData<String> mText;
	public GalleryViewModel() {
	mText = new MutableLiveData<>(); mText.setValue("This is gallery fragment");
	}
	
	public LiveData<String> getText() { return mText;
	}
	}

HomeFragment.java	package com.example.navigationco4_q5.ui.home;
	
	import android.os.Bundle;
	import android.view.LayoutInflater; import android.view.View;
	import android.view.ViewGroup; import android.widget.TextView;
	import androidx.annotation.NonNull;
	import androidx.annotation.Nullable; import androidx.fragment.app.Fragment;
	import androidx.lifecycle.Observer;
	import androidx.lifecycle.ViewModelProvider;
	import com.example.navigationco4_q5.R;
	import com.example.navigationco4_q5.databinding.FragmentHomeBinding;
	public class HomeFragment extends Fragment {
	private HomeViewModel homeViewModel; private FragmentHomeBinding binding;
	
	public View onCreateView(@NonNull LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {
	homeViewModel =new ViewModelProvider(this).get(HomeViewModel.class);
	
	binding = FragmentHomeBinding.inflate(inflater, container, false);
	View root = binding.getRoot();
	
	final TextView textView = binding.textHome;
	homeViewModel.getText().observe(getViewLifecycleOwner(), new Observer<String>() {
	@Override
	public void onChanged(@Nullable String s) { textView.setText(s);
	}
	});
	return root;
	}
	
	@Override

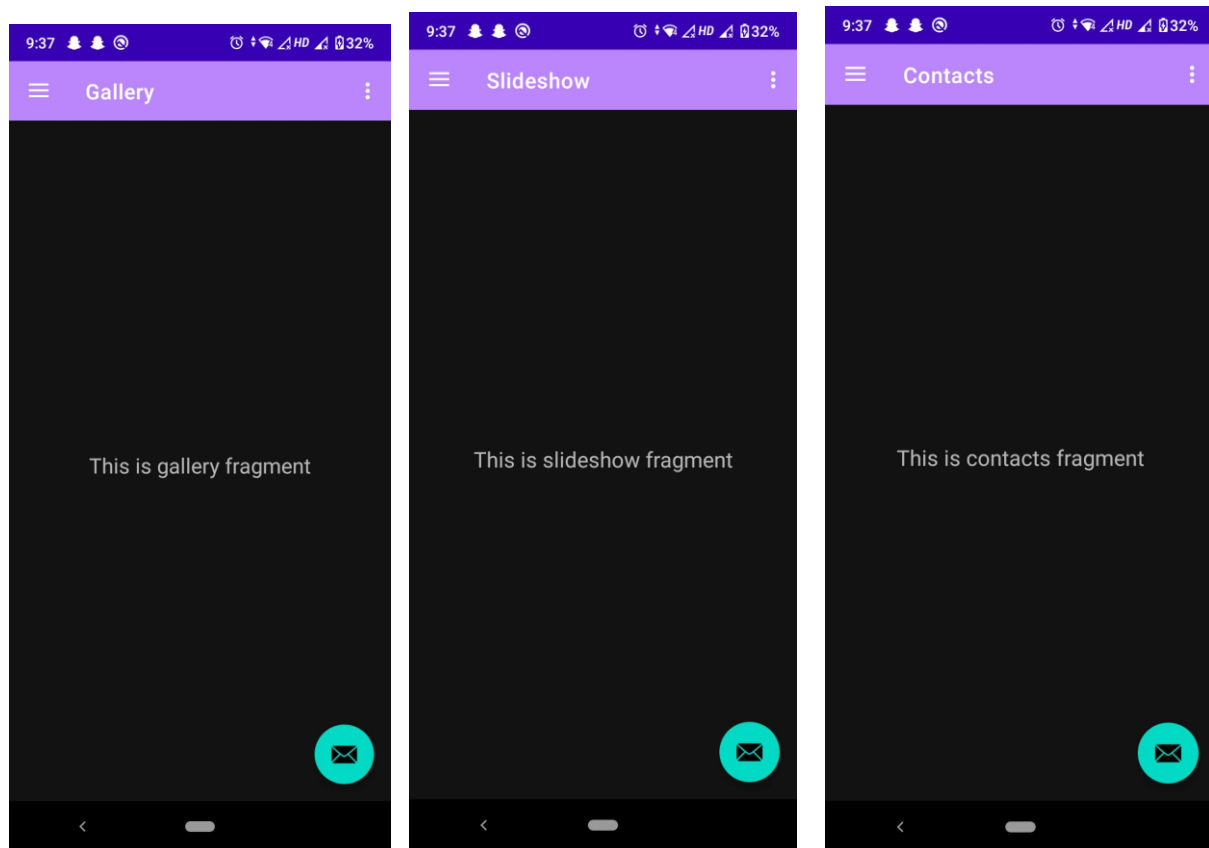|	

	public void onDestroyView() { super.onDestroyView(); binding = null;
	}
	}

Fragments_home.xml	```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=".ui.home.HomeFragment">
	
	<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_constraintBottom_toBottomOf="parent"
	app:layout_constraintEnd_toEndOf="parent"
	app:layout_constraintStart_toStartOf="parent"
	app:layout_constraintTop_toTopOf="parent" />
	
	</androidx.constraintlayout.widget.ConstraintLayout>
	``

HomeViewModel.java	```java
	package com.example.navigationco4_q5.ui.home;
	
	import androidx.lifecycle.LiveData;
	import androidx.lifecycle.MutableLiveData;
	import androidx.lifecycle.ViewModel;
	
	public class HomeViewModel extends ViewModel { private
	MutableLiveData<String> mText;
	public HomeViewModel() {
	mText = new MutableLiveData<>();
	mText.setValue("This is home fragment");
	}
	
	public LiveData<String> getText() { return mText;
	}
	}
	``

Fragments_slideshow.xml	```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=".ui.slideshow.SlideshowFragment"> <TextView android:id="@+id/text_slideshow" 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_constraintBottom_toBottomOf="parent" app:layout_constraintEnd_toEndOf="parent" app:layout_constraintStart_toStartOf="parent" app:layout_constraintTop_toTopOf="parent" /> </androidx.constraintlayout.widget.ConstraintLayout>
Mobile_navigation.xml	<?xml version="1.0" encoding="utf-8"?> <navigation 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/mobile_navigation" app:startDestination="@+id/nav_home"> <fragment android:id="@+id/nav_home" android:name="com.example.navigationco4_q5.ui.home.HomeFrag ment" android:label="@string/menu_home" tools:layout="@layout/fragment_home" /> <fragment android:id="@+id/nav_gallery" android:name="com.example.navigationco4_q5.ui.gallery.GalleryFra gment" android:label="@string/menu_gallery" tools:layout="@layout/fragment_gallery" /> <fragment android:id="@+id/nav_slideshow" android:name="com.example.navigationco4_q5.ui.slideshow.Slidesh owFragment" android:label="@string/menu_slideshow" tools:layout="@layout/fragment_slideshow" /> <fragment android:id="@+id/nav_contacts" android:name="com.example.navigationco4_q5.ui.contacts.Contacts Fragments" android:label="@string/menu_contacts" tools:layout="@layout/fragment_contacts" />
Nav_header_main.xml	<?xml version="1.0" encoding="utf-8"?>

| | ```xml
<LinearLayout
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="@dimen/nav_header_height"
android:background="@drawable/side_nav_bar"
android:gravity="bottom"
android:orientation="vertical"
android:paddingLeft="@dimen/activity_horizontal_margin"
android:paddingTop="@dimen/activity_vertical_margin"
android:paddingRight="@dimen/activity_horizontal_margin"
android:paddingBottom="@dimen/activity_vertical_margin"
android:theme="@style/ThemeOverlay.AppCompat.Dark">

<ImageView android:id="@+id/imageView"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:contentDescription="@string/nav_header_desc"
android:paddingTop="@dimen/nav_header_vertical_spacing"
app:srcCompat="@drawable/puppy" />

<TextView android:layout_width="match_parent"
android:layout_height="wrap_content"
android:paddingTop="@dimen/nav_header_vertical_spacing"
android:text="@string/nav_header_title"
android:textAppearance="@style/TextAppearance.AppCompat.Body
1" />

<TextView

android:id="@+id/textView" android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="@string/nav_header_subtitle" />
</LinearLayout>
``` |
| SlideshowFragment.java | ```java
package com.example.navigationco4_q5.ui.slideshow;

import android.os.Bundle;
import android.view.LayoutInflater; import android.view.View;
import android.view.ViewGroup; import android.widget.TextView;
import androidx.annotation.NonNull;
import androidx.annotation.Nullable;
import androidx.fragment.app.Fragment;
import androidx.lifecycle.Observer;
import androidx.lifecycle.ViewModelProvider;
import com.example.navigationco4_q5.R;
``` |

	import com.example.navigationco4_q5.databinding.FragmentSlideshowBinding;
	public class SlideshowFragment extends Fragment {
	private SlideshowViewModel slideshowViewModel;
	private FragmentSlideshowBinding binding;
	
	public View onCreateView(@NonNull LayoutInflater inflater,
	ViewGroup container, Bundle savedInstanceState) {
	slideshowViewModel =new
	ViewModelProvider(this).get(SlideshowViewModel.class);
	
	binding = FragmentSlideshowBinding.inflate(inflater, container,
	false);
	View root = binding.getRoot();
	
	final TextView textView = binding.textSlideshow;
	slideshowViewModel.getText().observe(getViewLifecycleOwner(),
	new Observer<String>() {
	@Override
	public void onChanged(@Nullable String s) { textView.setText(s);
	}
	});
	return root;
	}
	
	@Override
	public void onDestroyView() { super.onDestroyView(); binding =
	null;
	}
	}

SlideshowViewModel
.java
	package com.example.navigationco4_q5.ui.slideshow;
	
	import androidx.lifecycle.LiveData;
	import androidx.lifecycle.MutableLiveData;
	import androidx.lifecycle.ViewModel;
	
	public class SlideshowViewModel extends ViewModel {
	private MutableLiveData<String> mText;
	public SlideshowViewModel() {
	mText = new MutableLiveData<>(); mText.setValue("This is
	slideshow fragment");
	}
	
	public LiveData<String> getText() { return mText;
	}}

RESULT: The above program is successfully executed and obtained the output.