**Practical No. 11**

**Aim: Create an android app to Connect to the Internet and use Broadcast Receiver.**

**MainActivity.java**

package com.example.broadcastreceiver;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.content.IntentFilter;  
import android.os.Bundle;  
public class MainActivity extends AppCompatActivity {  
 private NetworkReceiver networkReceiver;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 networkReceiver = new NetworkReceiver();  
 registerReceiver(networkReceiver, new IntentFilter("android.net.conn.CONNECTIVITY\_CHANGE"));  
 }  
 protected void onDestroy() {  
 super.onDestroy();  
 unregisterReceiver(networkReceiver);  
 }  
}

**NetworkReceiver.java**

package com.example.broadcastreceiver;  
  
import android.content.BroadcastReceiver;  
import android.content.Context;  
import android.content.Intent;  
import android.net.ConnectivityManager;  
import android.net.NetworkInfo;  
import android.util.Log;  
public class NetworkReceiver extends BroadcastReceiver {  
 @Override  
 public void onReceive(Context context, Intent intent) {  
 ConnectivityManager connectivityManager = (ConnectivityManager)  
 context.getSystemService(Context.*CONNECTIVITY\_SERVICE*);  
 NetworkInfo networkInfo = connectivityManager.getActiveNetworkInfo();  
 if (networkInfo != null && networkInfo.isConnected()) {  
 Log.*d*("NetworkReceiver", "Connected to the internet");  
 } else {  
 Log.*d*("NetworkReceiver", "Disconnected from the internet");  
 }  
 }  
}

**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="SY CS"  
 android:textSize="34sp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent" />  
</androidx.constraintlayout.widget.ConstraintLayout>

**AndroidManifest.xml**

*<?*xml version="1.0" encoding="utf-8"*?>*<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:tools="http://schemas.android.com/tools">  
 <uses-permission android:name="android.permission.ACCESS\_NETWORK\_STATE" />  
 <application  
 android:allowBackup="true"  
 android:dataExtractionRules="@xml/data\_extraction\_rules"  
 android:fullBackupContent="@xml/backup\_rules"  
 android:icon="@mipmap/ic\_launcher"  
 android:label="@string/app\_name"  
 android:roundIcon="@mipmap/ic\_launcher\_round"  
 android:supportsRtl="true"  
 android:theme="@style/Theme.BroadcastReceiver"  
 tools:targetApi="31">  
 <activity  
 android:name=".MainActivity"  
 android:exported="true">  
 <intent-filter>  
 <action android:name="android.intent.action.MAIN" />  
 <category android:name="android.intent.category.LAUNCHER" />  
 </intent-filter>  
 </activity>  
 <receiver android:name=".NetworkReceiver"  
 android:enabled="true"  
 android:exported="false">  
 <intent-filter>  
 <action android:name="android.net.conn.CONNECTIVITY\_CHANGE" />  
 </intent-filter>  
 </receiver>  
 </application>  
</manifest>

**Output:**

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**Practical No. 10**

**Aim: Create an android app that demonstrates Screen Navigation Using the App Bar and Tabs.**

**MainActivity.java**

package com.example.navigationdemo;  
  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.fragment.app.Fragment;  
import androidx.viewpager.widget.ViewPager;  
import android.os.Bundle;  
import com.google.android.material.tabs.TabLayout;  
import java.util.ArrayList;  
import java.util.List;  
public class MainActivity extends AppCompatActivity {  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 ViewPager viewPager = findViewById(R.id.*viewPager*);  
 TabLayout tabLayout = findViewById(R.id.*tabLayout*);  
 List<Fragment> fragmentList = new ArrayList<>();  
 fragmentList.add(new FragmentOne());  
 fragmentList.add(new FragmentTwo());  
 List<String> fragmentTitles = new ArrayList<>();  
 fragmentTitles.add("Tab One");  
 fragmentTitles.add("Tab Two");  
 PagerAdapter pagerAdapter = new PagerAdapter(getSupportFragmentManager(), fragmentList, fragmentTitles);  
 viewPager.setAdapter(pagerAdapter);  
 tabLayout.setupWithViewPager(viewPager);  
 }  
}

**PagerAdapter.java**

package com.example.navigationdemo;  
  
import androidx.fragment.app.Fragment;  
import androidx.fragment.app.FragmentManager;  
import androidx.fragment.app.FragmentPagerAdapter;  
import java.util.List;  
public class PagerAdapter extends FragmentPagerAdapter {  
 private final List<Fragment> fragmentList;  
 private final List<String> fragmentTitles;  
 public PagerAdapter(FragmentManager fm, List<Fragment> fragmentList, List<String> fragmentTitles) {  
 super(fm, *BEHAVIOR\_RESUME\_ONLY\_CURRENT\_FRAGMENT*);  
 this.fragmentList = fragmentList;  
 this.fragmentTitles = fragmentTitles;  
 }  
 @Override  
 public Fragment getItem(int position) {  
 return fragmentList.get(position);  
 }  
 @Override  
 public int getCount() {  
 return fragmentList.size();  
 }  
 @Override  
 public CharSequence getPageTitle(int position) {  
 return fragmentTitles.get(position);  
 }  
}

**FragmentOne.java**

package com.example.navigationdemo;  
import ...  
  
public class FragmentOne extends Fragment {  
 private static final String *ARG\_PARAM1* = "param1";  
 private static final String *ARG\_PARAM2* = "param2";  
 private String mParam1;  
 private String mParam2;  
 public FragmentOne() {  
 }  
 public static FragmentOne newInstance(String param1, String param2) {  
 FragmentOne fragment = new FragmentOne();  
 Bundle args = new Bundle();  
 args.putString(*ARG\_PARAM1*, param1);  
 args.putString(*ARG\_PARAM2*, param2);  
 fragment.setArguments(args);  
 return fragment;  
 }  
 @Override  
 public void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 if (getArguments() != null) {  
 mParam1 = getArguments().getString(*ARG\_PARAM1*);  
 mParam2 = getArguments().getString(*ARG\_PARAM2*);  
 }  
 }  
 @Override  
 public View onCreateView(LayoutInflater inflater, ViewGroup container,  
 Bundle savedInstanceState) {  
 return inflater.inflate(R.layout.*fragment\_one*, container, false);  
 }  
}

**FragmentTwo.java**

package com.example.navigationdemo;  
import ...  
  
public class FragmentTwo extends Fragment {  
 private static final String *ARG\_PARAM1* = "param1";  
 private static final String *ARG\_PARAM2* = "param2";  
 private String mParam1;  
 private String mParam2;  
 public FragmentTwo() {  
 }  
 public static FragmentTwo newInstance(String param1, String param2) {  
 FragmentTwo fragment = new FragmentTwo();  
 Bundle args = new Bundle();  
 args.putString(*ARG\_PARAM1*, param1);  
 args.putString(*ARG\_PARAM2*, param2);  
 fragment.setArguments(args);  
 return fragment;  
 }  
 @Override  
 public void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 if (getArguments() != null) {  
 mParam1 = getArguments().getString(*ARG\_PARAM1*);  
 mParam2 = getArguments().getString(*ARG\_PARAM2*);  
 }  
 }  
 @Override  
 public View onCreateView(LayoutInflater inflater, ViewGroup container,  
 Bundle savedInstanceState) {  
 return inflater.inflate(R.layout.*fragment\_two*, container, false);  
 }  
}

**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"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical">  
 <com.google.android.material.tabs.TabLayout  
 android:id="@+id/tabLayout"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 app:tabMode="fixed"  
 app:tabGravity="fill"  
 android:contentDescription="tabs"/>  
 <androidx.viewpager.widget.ViewPager  
 android:id="@+id/viewPager"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:contentDescription="View Pager"/>  
</LinearLayout>

**fragment\_one.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"  
 tools:context=".FragmentOne">  
 <TextView  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:text="Fragement One"  
 android:textSize="24sp"/>  
</FrameLayout>

**fragment\_two.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"  
 tools:context=".FragmentTwo">  
 <TextView  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:text="Fragement Two"  
 android:textSize="24sp"/>  
</FrameLayout>

**Output:**

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**Practical No. 12**

**Aim: Create an android app to show Notifications and Alarm manager.**

**A) Notifications.**

**MainActivity.java**

package com.example.notification;  
  
import android.app.NotificationChannel;  
import android.app.NotificationManager;  
import android.content.pm.PackageManager;  
import android.os.Build;  
import android.os.Bundle;  
import androidx.appcompat.app.AppCompatActivity;  
import android.view.View;  
import android.widget.Button;  
import androidx.core.app.ActivityCompat;  
import androidx.core.app.NotificationCompat;  
import androidx.core.app.NotificationManagerCompat;  
  
public class MainActivity extends AppCompatActivity {  
 private static final String *CHANNEL\_ID* = "notification\_channel";  
 private static final int *NOTIFICATION\_ID* = 101;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 createNotificationChannel();  
 Button showNotificationButton = findViewById(R.id.*show\_notification\_button*);  
 showNotificationButton.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 showNotification();  
 }  
 });  
 }  
 private void createNotificationChannel() {  
 if (Build.VERSION.*SDK\_INT* >= Build.VERSION\_CODES.*O*) {  
 CharSequence name = getString(R.string.*channel\_name*);  
 String description = getString(R.string.*channel\_description*);  
 int importance = NotificationManager.*IMPORTANCE\_DEFAULT*;  
 NotificationChannel channel = new NotificationChannel(*CHANNEL\_ID*, name, importance);  
 channel.setDescription(description);  
 NotificationManager notificationManager = getSystemService(NotificationManager.class);  
 notificationManager.createNotificationChannel(channel);  
 }  
 }  
 private void showNotification() {  
 NotificationCompat.Builder builder = new NotificationCompat.Builder(this, *CHANNEL\_ID*)  
 .setSmallIcon(R.drawable.*baseline\_notifications\_24*)  
 .setContentTitle("Simple Notification")  
 .setContentText("This is a simple Notification.")  
 .setPriority(NotificationCompat.*PRIORITY\_DEFAULT*);  
  
 NotificationManagerCompat notificationManager = NotificationManagerCompat.*from*(this);  
 if (ActivityCompat.*checkSelfPermission*(this, android.Manifest.permission.*POST\_NOTIFICATIONS*) != PackageManager.*PERMISSION\_GRANTED*) {  
 return;  
 }  
 notificationManager.notify(*NOTIFICATION\_ID*, builder.build());  
 }  
}

**AndroidManifest.xml**

*<?*xml version="1.0" encoding="utf-8"*?>*<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:tools="http://schemas.android.com/tools">  
 <uses-permission android:name="android.permission.POST\_NOTIFICATIONS"/>  
 <application  
 android:allowBackup="true"  
 android:dataExtractionRules="@xml/data\_extraction\_rules"  
 android:fullBackupContent="@xml/backup\_rules"  
 android:icon="@mipmap/ic\_launcher"  
 android:label="@string/app\_name"  
 android:roundIcon="@mipmap/ic\_launcher\_round"  
 android:supportsRtl="true"  
 android:theme="@style/Theme.Notification"  
 tools:targetApi="31">  
 <meta-data  
 android:name="com.google.firebase.messaging.default\_notification\_channel\_id"  
 android:value="@string/default\_notification\_channel\_id" />  
 <activity  
 android:name=".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>

**strings.xml**

<resources>  
 <string name="app\_name">notification</string>  
 <string name="channel\_name">Notification channel</string>  
 <string name="channel\_description">This is default notification channel</string>  
 <string name="default\_notification\_channel\_id">1234</string>  
</resources>

**activity\_main.java**

*<?*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"  
 android:padding="16dp"  
 tools:context=".MainActivity">

<Button  
 android:id="@+id/show\_notification\_button"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Show Notification"  
 android:layout\_centerInParent="true"/>  
</RelativeLayout>

**Output:**

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**B) Alarm manager.**

**MainActivity.java**

**AlarmReceiver.java**

**AndroidManifest.xml**

**activity\_main.xml**

**Output:**

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