Aim: Implement and perform exception handling..

Program Code:

activity_main.xml:

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

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/tv1"/>

</RelativeLayout>
```

MainActivity.java:

```java
package com.example.myapplication14;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    TextView tv1;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        try{
            tv1.setText("WELCOME");
        }
        catch (Exception e){
            Toast.makeText(this,e.getMessage(),Toast.LENGTH_LONG).show();
```

```
        }
    }
}
```

Result

Program compiled successfully and output verified.

Output

My Application14

Attempt to invoke virtual method 'void
android.widget.TextView.setText(java
.lang.CharSequence)' on a null object
reference

Aim: Develop an application that use GridView with images and display Toast on selection.

Program Code:

activity_main.xml:

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

    <ImageView
        android:layout_width="match_parent"
        android:layout_height="300dp"
        android:id="@+id/img1"
        android:src="@drawable/img1"
        android:scaleType="centerCrop"
        android:layout_row="0"
        android:layout_column="0" />
    <ImageView
        android:layout_width="match_parent"
        android:layout_height="300dp"
        android:layout_column="0"
        android:scaleType="centerCrop"
        android:src="@drawable/img2"
        android:id="@+id/img2"
        android:layout_row="1"/>

</GridLayout>
```

MainActivity.java:

```java
package com.example.gridview;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Toast;
import android.widget.ImageView;
```

```
public class MainActivity extends AppCompatActivity {
   ImageView image1,image2;

   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      image1=findViewById(R.id.img1);
      image2=findViewById(R.id.img2);
      image1.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            Toast.makeText(getApplicationContext(),"Effel
Tower",Toast.LENGTH_LONG).show();
         }
      });
      image2.setOnClickListener(new View.OnClickListener() {
         @Override
         public void onClick(View view) {
            Toast.makeText(getApplicationContext(),"Taj
Mahal",Toast.LENGTH_LONG).show();
         }
      });
   }
}
```
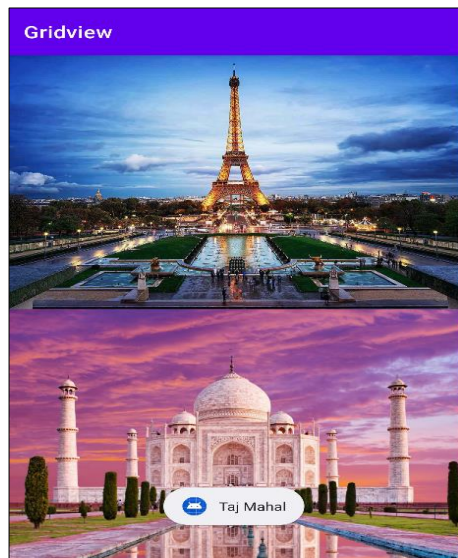
Result
Program compiled successfully and output verified.

Output

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

Program Code:

activity_main.xml:
```
<?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"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Select your nation:"
        android:id="@+id/t1"
        android:textSize="20dp" />

    <Spinner
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/t1"
        android:id="@+id/spinner"/>

</RelativeLayout>
```

MainActivity.java:
```
package com.example.Spinner;

import androidx.annotation.NonNull;
import androidx.appcompat.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{
```

```java
String[] country={"India","China","U.S.A","Russia","Other"};
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    Spinner spin=(Spinner)findViewById(R.id.spinner);
    spin.setOnItemSelectedListener(this);
    ArrayAdapter ar=new ArrayAdapter(this, android.R.layout.simple_spinner_item,country);
    ar.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
    spin.setAdapter(ar);
}
@Override
public void onItemSelected(AdapterView arg0, View arg1, int position, long id){
    Toast.makeText(getApplicationContext(),country[position] ,
        Toast.LENGTH_LONG).show();
}

@Override
public void onNothingSelected(AdapterView<?> adapterView){

}
}
```
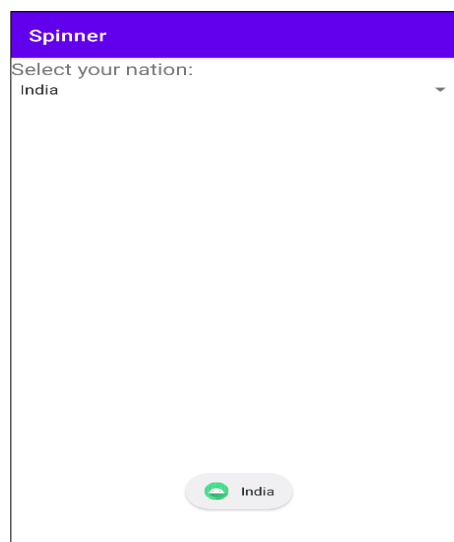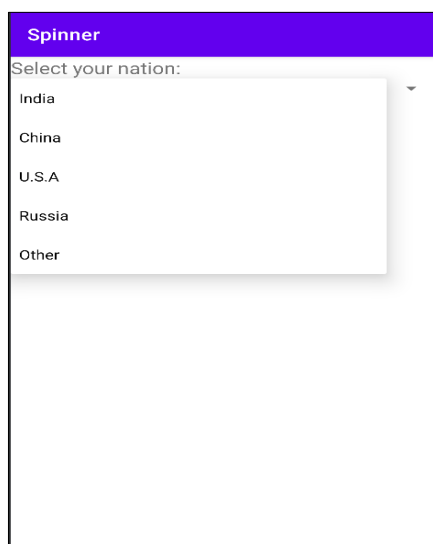
Result

Program compiled successfully and output verified.

Output

Aim: Implement Navigation drawer.

Program Code:

activity_main.xml:

```xml
<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/my_drawer_layout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity"
    tools:ignore="HardcodedText">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent">

        <TextView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginTop="128dp"
            android:gravity="center"
            android:text="Welcome to Galaxy"
            android:textSize="18sp" />
    </LinearLayout>

    <com.google.android.material.navigation.NavigationView
        android:layout_width="wrap_content"
        android:layout_height="match_parent"
        android:layout_gravity="start"
        app:menu="@menu/menu" />

</androidx.drawerlayout.widget.DrawerLayout>
```

menu.xml:

```xml
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/item1"
        android:title="My Account"/>
```

```xml
    <item
        android:id="@+id/item2"
        android:title="Settings"/>
    <item
        android:id="@+id/item3"
        android:title="Logout"/>

</menu>
```

strings.xml:
```xml
<resources>
    <string name="app_name">Navigation Drawer</string>
    <!-- to toggle the open close button of the navigation drawer -->
    <string name="nav_open">Open</string>
    <string name="nav_close">Close</string>
</resources>
```

MainActivity.java:
```java
package com.example.myapplication16;

import androidx.annotation.NonNull;
import androidx.appcompat.app.ActionBarDrawerToggle;
import androidx.appcompat.app.AppCompatActivity;
import androidx.drawerlayout.widget.DrawerLayout;

import android.os.Bundle;
import android.view.MenuItem;

public class MainActivity extends AppCompatActivity {
    public DrawerLayout drawerLayout;
    public ActionBarDrawerToggle actionBarDrawerToggle;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        drawerLayout = findViewById(R.id.my_drawer_layout);
        actionBarDrawerToggle = new ActionBarDrawerToggle(this, drawerLayout,
R.string.nav_open, R.string.nav_close);
        getSupportActionBar().setDisplayHomeAsUpEnabled(true);
    }
    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item){
        if (actionBarDrawerToggle.onOptionsItemSelected(item)){
            return true;
```
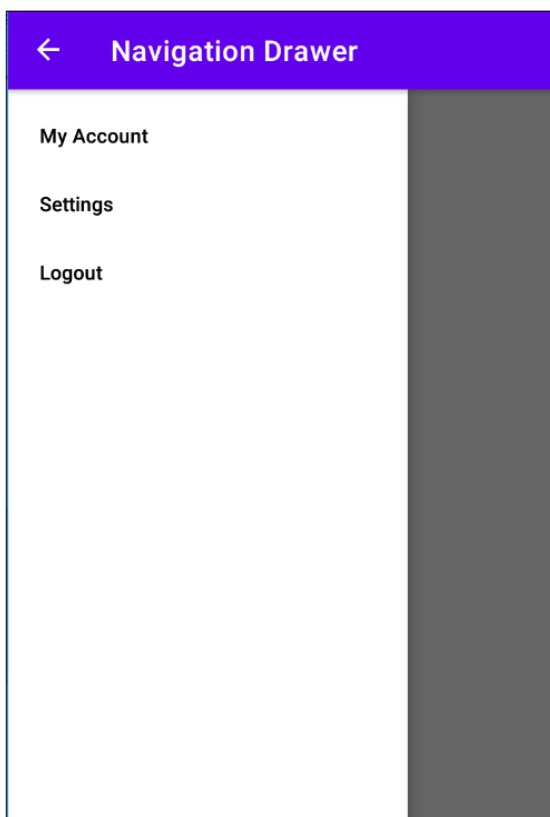
```
        }
        return super.onOptionsItemSelected(item);
    }
}
```

Result

Program compiled successfully and output verified.

Output

Aim: Create database using SQLite and perform INSERT, SELECT, UPDATE and DELETE on SQLite database.

Program Code:

activity_main.xml:

```xml
<?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="10dp"
    tools:context=".MainActivity">


    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="24dp"
        android:text="Name"
        android:id="@+id/t1"/>

    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter the Name"
        android:textSize="24dp"
        android:id="@+id/et1"
        android:layout_below="@+id/t1"/>

    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="24dp"
        android:id="@+id/t2"
        android:text="Contact No."
        android:layout_below="@+id/et1"/>

    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
```

```xml
    android:hint="Enter the Contact No."
    android:textSize="24dp"
    android:id="@+id/et2"
    android:layout_below="@+id/t2"/>

<TextView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:textSize="24dp"
    android:text="DOB"
    android:id="@+id/t3"
    android:layout_below="@+id/et2"/>

<EditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="Enter the DOB"
    android:textSize="24dp"
    android:id="@+id/et3"
    android:layout_below="@+id/t3"/>

<Button
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="INSERT"
    android:id="@+id/btn1"
    android:textSize="24dp"
    android:layout_marginLeft="10dp"
    android:layout_below="@+id/et3"/>

<Button
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="UPDATE"
    android:id="@+id/btn2"
    android:textSize="24dp"
    android:layout_marginLeft="10dp"
    android:layout_below="@+id/btn1"/>

<Button
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text=" DELETE "
    android:id="@+id/btn3"
    android:textSize="24dp"
    android:layout_marginLeft="10dp"
```

```xml
            android:layout_below="@+id/btn2"/>
    <Button
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="VIEW"
        android:id="@+id/btn4"
        android:textSize="24dp"
        android:layout_marginLeft="10dp"
        android:layout_below="@+id/btn3"/>

</RelativeLayout>
```

DBHelper.java:
```java
package com.example.myapplication13;
import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

import androidx.annotation.NonNull;
import androidx.annotation.Nullable;

public class DBHelper extends SQLiteOpenHelper {
    public DBHelper(@Nullable Context context) {
        super(context, "userdata.db", null, 1);
    }

    @Override
    public void onCreate(SQLiteDatabase DB) {
        DB.execSQL("Create Table userdetails(name TEXT primary key,contact TEXT, dob
TEXT)");
    }

    @Override
    public void onUpgrade(SQLiteDatabase DB, int i, int i1) {
        DB.execSQL("drop Table if exists userdetails");
    }

    public Boolean insertData(String name, String contact, String dob) {
        SQLiteDatabase DB = this.getWritableDatabase();
        ContentValues contentValues = new ContentValues();
        contentValues.put("name", name);
        contentValues.put("contact", contact);
        contentValues.put("dob", dob);
        long result = DB.insert("userdetails", null, contentValues);
```

```java
      if (result == -1)
         return false;
      else
         return true;
   }

   public Boolean updateData(String name, String contact, String dob) {
      SQLiteDatabase DB = this.getWritableDatabase();
      ContentValues contentValues = new ContentValues();
      contentValues.put("contact", contact);
      contentValues.put("dob", dob);
      Cursor cursor = DB.rawQuery("select * from userdetails where name=?", new
String[]{name});
      if (cursor.getCount() > 0) {

         long result = DB.update("userdetails", contentValues, "name=?", new String[]{name});
         if (result == -1)
            return false;
         else
            return true;
      } else {
         return false;
      }
   }

   public Boolean deleteData(String name) {
      SQLiteDatabase DB = this.getWritableDatabase();
      Cursor cursor = DB.rawQuery("select * from userdetails where name=?", new
String[]{name});
      if (cursor.getCount() > 0) {
         long result = DB.delete("userdetails", "name=?", new String[]{name});
         if (result == -1)
            return false;
         else
            return true;
      } else {
         return false;
      }
   }

   public Cursor getData() {
      SQLiteDatabase DB = this.getWritableDatabase();

      Cursor cursor = DB.rawQuery("select * from userdetails", null);
      return cursor;
```

```
    }
}
```

MainActivity.java:
```java
package com.example.myapplication13;

import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;

import android.database.Cursor;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    EditText et1,et2,et3;
    Button Insert,Update,Delete,View;
    DBHelper db;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        et1 = findViewById(R.id.et1);
        et2 = findViewById(R.id.et2);
        et3 = findViewById(R.id.et3);

        Insert = findViewById(R.id.btn1);
        Update = findViewById(R.id.btn2);
        Delete = findViewById(R.id.btn3);
        View = findViewById(R.id.btn4);
        db = new DBHelper(this);


        Insert.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(android.view.View view) {
                String name = et1.getText().toString();
                String contact = et2.getText().toString();
                String dob = et3.getText().toString();

                boolean checkInsertData = db.insertData(name, contact, dob);
                if (checkInsertData == true)
                    Toast.makeText(MainActivity.this, "New entry inserted",
```

53

```java
Toast.LENGTH_LONG).show();
        else
            Toast.makeText(MainActivity.this, "New entry Not inserted",
Toast.LENGTH_LONG).show();

      }
    });

    Update.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(android.view.View view) {
        String name= et1.getText().toString();
        String contact=et2.getText().toString();
        String dob= et3.getText().toString();

        boolean checkUpdateData= db.updateData(name,contact,dob);
        if(checkUpdateData==true)
          Toast.makeText(MainActivity.this,"Entry updated",Toast.LENGTH_LONG).show();
        else
          Toast.makeText(MainActivity.this,"Entry Not
Updated",Toast.LENGTH_LONG).show();

      }
    });

    Delete.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(android.view.View view) {
        String name= et1.getText().toString();


        boolean checkDeleteData= db.deleteData(name);
        if(checkDeleteData==true)
          Toast.makeText(MainActivity.this,"Entry deleted",Toast.LENGTH_LONG).show();
        else
          Toast.makeText(MainActivity.this,"Entry Not
deleted",Toast.LENGTH_LONG).show();

      }
    });

    View.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(android.view.View view) {
        Cursor res=db.getData();
```

```
        if (res.getCount() == 0) {
            Toast.makeText(MainActivity.this, "No entry exists",
Toast.LENGTH_LONG).show();
            return;
        }
        StringBuffer buffer = new StringBuffer();
        while (res.moveToNext()) {
            buffer.append("name:" + res.getString(0) + "\n");
            buffer.append("contact:" + res.getString(1) + "\n");
            buffer.append("data of birth:" + res.getString(2) + "\n\n\n\n\n");
        }
        AlertDialog.Builder builder=new AlertDialog.Builder(MainActivity.this);
        builder.setCancelable(true);
        builder.setTitle("User Enteries");
        builder.setMessage(buffer.toString());
        builder.show();
    }

    });
  }
}
```

Result

Program compiled successfully and output verified.

Output

My Application

Please enter the details below:

xyz

9876000000

07021998

INSERT NEW DATA

UPDATE DATA

DELETE DATA

VIEW DATA

Entry deleted

My Application

Name

User Enteries

name:Aradhya
contact:8596471532
data of birth:12.03.2011