Academic year: 2022-2023   **Branch/ Class:** B.Tech
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Question-1:

Design an App that prints 5 random numbers of cards (1 to 13) when select cards button is pressed, on clicking sort button, these numbers need to send to second activity and sort and display. When the reply button is pressed, the sum of the cards needs to be returned back to the MainActivity.
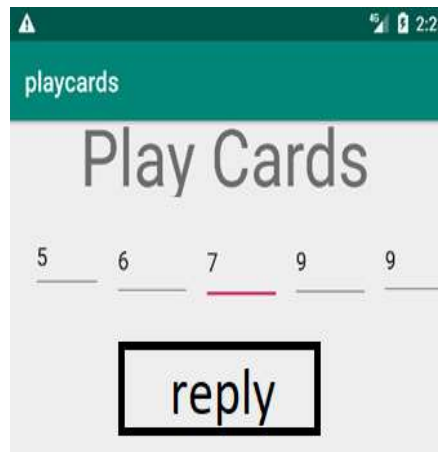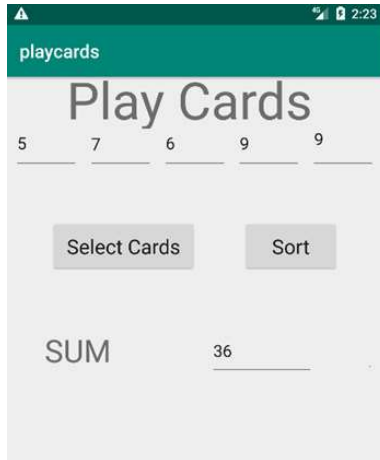
CODE:

MainActivity.java:

```java
package com.example.playcards;

import android.content.Intent;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

import java.util.ArrayList;
import java.util.Random;

public class MainActivity extends AppCompatActivity {
    TextView textView,textView2;
    Button button,button2;
    EditText n1,n2,n3,n4,n5,n6;
```

```java
    Random rand = new Random();
    ArrayList<Integer> numbers = new ArrayList<Integer>();
    int number = rand.nextInt(13) +1 ;
    int number1 = rand.nextInt(13) +1 ;
    int number2 = rand.nextInt(13) +1 ;
    int number3 = rand.nextInt(13) +1 ;
    int number4 = rand.nextInt(13) +1 ;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        textView=findViewById(R.id.textView);
        textView2=findViewById(R.id.textView2);
        button=findViewById(R.id.button);
        button2=findViewById(R.id.button2);
        n1=findViewById(R.id.n1);
        n2=findViewById(R.id.n2);
        n3=findViewById(R.id.n3);
        n4=findViewById(R.id.n4);
        n5=findViewById(R.id.n5);
        n6=findViewById(R.id.n6);
        numbers.add(number);
        numbers.add(number1);
        numbers.add(number2);
        numbers.add(number3);
        numbers.add(number4);
        button.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                n1.setText(String.valueOf(number));
                n2.setText(String.valueOf(number1));
                n3.setText(String.valueOf(number2));
                n4.setText(String.valueOf(number3));
                n5.setText(String.valueOf(number4));
            }
        });



        button2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent intent = new Intent(MainActivity.this,sort.class);
                intent.putIntegerArrayListExtra("x1",numbers);



                startActivity(intent);
            }
        });


    }
}
```

Sort.java:

```java
package com.example.playcards;
import android.annotation.SuppressLint;
import android.content.Intent;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

import java.util.*;

public class sort extends AppCompatActivity {
    Button b1;
    EditText e1,e2,e3,e4,e5;
    int j =0;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_sort2);
        b1=findViewById(R.id.b1);
        e1=findViewById(R.id.e1);
        e2=findViewById(R.id.e2);
        e3=findViewById(R.id.e3);
        e4=findViewById(R.id.e4);
        e5=findViewById(R.id.e5);
        Intent intent1 = getIntent();
        ArrayList List=intent1.getIntegerArrayListExtra("x1");
        Collections.sort(List);
        e1.setText(String.valueOf(List.get(0)));
        e2.setText(String.valueOf(List.get(1)));
        e3.setText(String.valueOf(List.get(2)));
        e4.setText(String.valueOf(List.get(3)));
        e5.setText(String.valueOf(List.get(4)));

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {

            }

        });


    }
}
```

activity_main.xml:

```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">

    <Button
        android:id="@+id/button2"
        android:layout_width="wrap_content"
```

```xml
        android:layout_height="wrap_content"
        android:layout_marginStart="11dp"
        android:layout_marginBottom="41dp"
        android:text="Sort"
        app:layout_constraintBottom_toTopOf="@+id/n6"
        app:layout_constraintStart_toEndOf="@+id/button" />

    <EditText
        android:id="@+id/n6"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="58dp"
        android:layout_marginEnd="59dp"
        android:ems="10"
        android:inputType="number"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toEndOf="@+id/textView2"
        app:layout_constraintTop_toTopOf="@+id/textView2" />

    <EditText
        android:id="@+id/n2"
        android:layout_width="55dp"
        android:layout_height="wrap_content"
        android:layout_marginStart="70dp"
        android:layout_marginTop="73dp"
        android:layout_marginEnd="74dp"
        android:ems="10"
        android:inputType="number"
        app:layout_constraintEnd_toEndOf="@+id/n3"
        app:layout_constraintStart_toStartOf="@+id/n1"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

    <EditText
        android:id="@+id/n1"
        android:layout_width="55dp"
        android:layout_height="wrap_content"
        android:layout_marginStart="34dp"
        android:ems="10"
        android:inputType="number"
        app:layout_constraintBaseline_toBaselineOf="@+id/n2"
        app:layout_constraintStart_toStartOf="parent" />

    <EditText
        android:id="@+id/n3"
        android:layout_width="55dp"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="number"
        app:layout_constraintBaseline_toBaselineOf="@+id/n2"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent" />

    <EditText
        android:id="@+id/n4"
        android:layout_width="55dp"
        android:layout_height="wrap_content"
        android:layout_marginStart="75dp"
        android:layout_marginTop="182dp"
        android:layout_marginEnd="73dp"
        android:layout_marginBottom="183dp"
        android:ems="10"
```

```xml
        android:inputType="number"
        app:layout_constraintBottom_toTopOf="@+id/n6"
        app:layout_constraintEnd_toEndOf="@+id/n5"
        app:layout_constraintStart_toStartOf="@+id/n3"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/n5"
        android:layout_width="55dp"
        android:layout_height="wrap_content"
        android:layout_marginStart="30dp"
        android:layout_marginEnd="30dp"
        android:ems="10"
        android:inputType="number"
        app:layout_constraintBaseline_toBaselineOf="@+id/n4"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toEndOf="@+id/button2" />

    <TextView
        android:id="@+id/textView"
        android:layout_width="204dp"
        android:layout_height="39dp"
        android:layout_marginTop="70dp"
        android:layout_marginBottom="73dp"
        android:text="PLAY CARDS"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toTopOf="@+id/n4"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="63dp"
        android:text="Select Cards"
        app:layout_constraintBaseline_toBaselineOf="@+id/button2"
        app:layout_constraintStart_toStartOf="@+id/textView2" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="12dp"
        android:layout_marginBottom="276dp"
        android:text="SUM"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintStart_toStartOf="parent" />

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

activity_sort2.xml:

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
```

```xml
    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/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="11dp"
        android:layout_marginBottom="41dp"
        android:text="Sort"
        app:layout_constraintBottom_toTopOf="@+id/n6"
        app:layout_constraintStart_toEndOf="@+id/button" />

    <EditText
        android:id="@+id/n6"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="58dp"
        android:layout_marginEnd="59dp"
        android:ems="10"
        android:inputType="number"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toEndOf="@+id/textView2"
        app:layout_constraintTop_toTopOf="@+id/textView2" />

    <EditText
        android:id="@+id/n2"
        android:layout_width="55dp"
        android:layout_height="wrap_content"
        android:layout_marginStart="70dp"
        android:layout_marginTop="73dp"
        android:layout_marginEnd="74dp"
        android:ems="10"
        android:inputType="number"
        app:layout_constraintEnd_toEndOf="@+id/n3"
        app:layout_constraintStart_toStartOf="@+id/n1"
        app:layout_constraintTop_toBottomOf="@+id/textView" />

    <EditText
        android:id="@+id/n1"
        android:layout_width="55dp"
        android:layout_height="wrap_content"
        android:layout_marginStart="34dp"
        android:ems="10"
        android:inputType="number"
        app:layout_constraintBaseline_toBaselineOf="@+id/n2"
        app:layout_constraintStart_toStartOf="parent" />

    <EditText
        android:id="@+id/n3"
        android:layout_width="55dp"
        android:layout_height="wrap_content"
        android:ems="10"
        android:inputType="number"
        app:layout_constraintBaseline_toBaselineOf="@+id/n2"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent" />
```

```xml
    <EditText
        android:id="@+id/n4"
        android:layout_width="55dp"
        android:layout_height="wrap_content"
        android:layout_marginStart="75dp"
        android:layout_marginTop="182dp"
        android:layout_marginEnd="73dp"
        android:layout_marginBottom="183dp"
        android:ems="10"
        android:inputType="number"
        app:layout_constraintBottom_toTopOf="@+id/n6"
        app:layout_constraintEnd_toEndOf="@+id/n5"
        app:layout_constraintStart_toStartOf="@+id/n3"
        app:layout_constraintTop_toTopOf="parent" />

    <EditText
        android:id="@+id/n5"
        android:layout_width="55dp"
        android:layout_height="wrap_content"
        android:layout_marginStart="30dp"
        android:layout_marginEnd="30dp"
        android:ems="10"
        android:inputType="number"
        app:layout_constraintBaseline_toBaselineOf="@+id/n4"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toEndOf="@+id/button2" />

    <TextView
        android:id="@+id/textView"
        android:layout_width="204dp"
        android:layout_height="39dp"
        android:layout_marginTop="70dp"
        android:layout_marginBottom="73dp"
        android:text="PLAY CARDS"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toTopOf="@+id/n4"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="63dp"
        android:text="Select Cards"
        app:layout_constraintBaseline_toBaselineOf="@+id/button2"
        app:layout_constraintStart_toStartOf="@+id/textView2" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="12dp"
        android:layout_marginBottom="276dp"
        android:text="SUM"
        android:textAppearance="@style/TextAppearance.AppCompat.Display1"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintStart_toStartOf="parent" />

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

Output:

Screen 1 (11:35 PM):

PLAY CARDS

11   5   7   8   10

SELECT CARDS   SORT

SUM

1st step

2nd step

Screen 2 (11:35 PM):

5   7   8   10   11

RETURN

SUM

3rd step

Screen 3 (11:57 PM):

PLAY CARDS

11   5   7   8   10

SELECT CARDS   SORT

SUM   41