**Assignment 2**

IT 332 – Mobile Application Development

Deadline: 30 October, 2024 (11:59 PM)

Submitted by

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**Github\_Repo: [SHAPE APP PROJECT](https://github.com/Osmi-Bytes/Mobile-App-Development.git)**

**Kotlin Code:**

package com.example.myapplication  
  
import android.os.Bundle  
import android.view.View  
import android.widget.Button  
import android.widget.EditText  
import android.widget.ImageView  
import android.widget.Toast  
//import androidx.activity.EdgeToEdge  
import androidx.appcompat.app.AppCompatActivity  
import androidx.core.graphics.Insets  
import androidx.core.view.ViewCompat  
import androidx.core.view.WindowInsetsCompat  
  
class MainActivity : AppCompatActivity() {  
  
 private lateinit var numberInput: EditText  
 private lateinit var squareImage: ImageView  
 private lateinit var triangleImage: ImageView  
  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 //EdgeToEdge.enable(this)  
 setContentView(R.layout.*activity\_main*)  
  
 numberInput = findViewById(R.id.*numberInput*)  
 val btnCheck = findViewById<Button>(R.id.*btnCheck*)  
 squareImage = findViewById(R.id.*squareImage*)  
 triangleImage = findViewById(R.id.*triangleImage*)  
  
 ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.*main*)) **{** v, insets **->** val systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBars())  
 v.setPadding(systemBars.left, systemBars.top, systemBars.right, systemBars.bottom)  
 insets  
 **}** btnCheck.setOnClickListener **{** checkNumber() **}** }  
  
 private fun checkNumber() {  
 val numberStr = numberInput.*text*.toString()  
  
 if (numberStr.*isEmpty*()) {  
 Toast.makeText(this, "Please enter a value", Toast.*LENGTH\_SHORT*).show()  
 return  
 }  
  
 val number = numberStr.*toInt*()  
  
 val isSquare = isSquareNumber(number)  
 val isTriangular = isTriangularNumber(number)  
  
 squareImage.*visibility* = if (isSquare) View.*VISIBLE* else View.*GONE* triangleImage.*visibility* = if (isTriangular) View.*VISIBLE* else View.*GONE* }

private fun isSquareNumber(number: Int): Boolean {  
 val sqrt = Math.sqrt(number.toDouble()).toInt()  
 return sqrt \* sqrt == number  
 }  
  
 private fun isTriangularNumber(number: Int): Boolean {  
 if (number < 1) return false  
  
 val num = 8 \* number + 1  
 val squareRoot = Math.sqrt(num.toDouble()).toInt()  
  
 return squareRoot \* squareRoot == num  
 }  
}

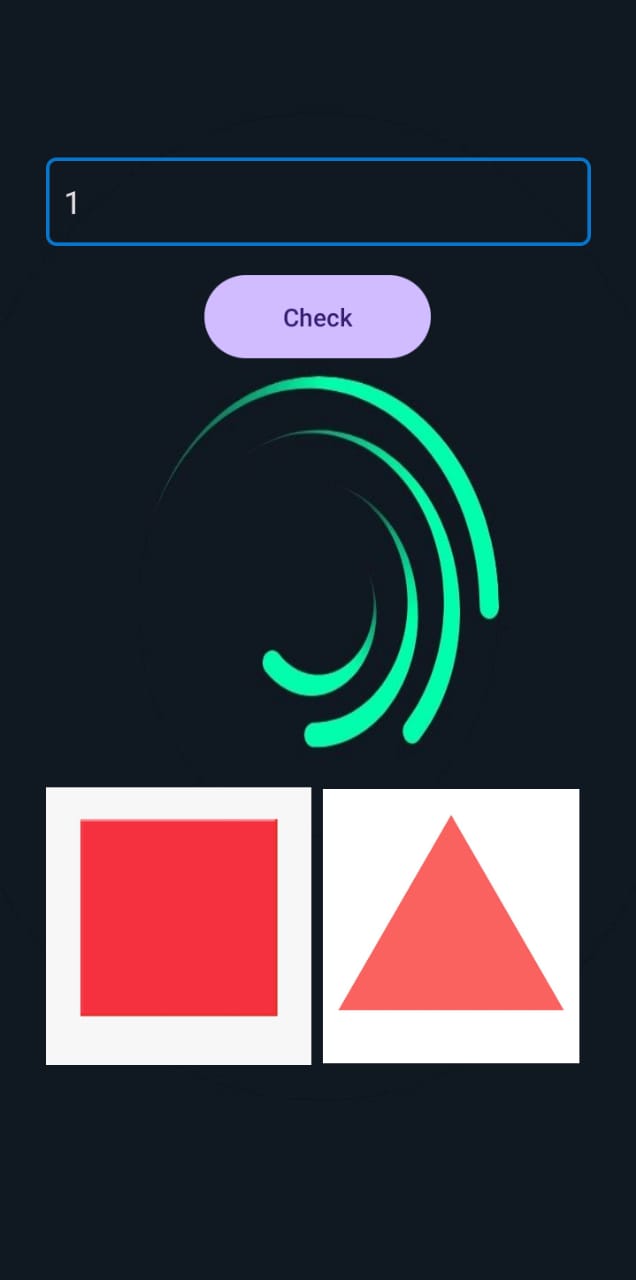
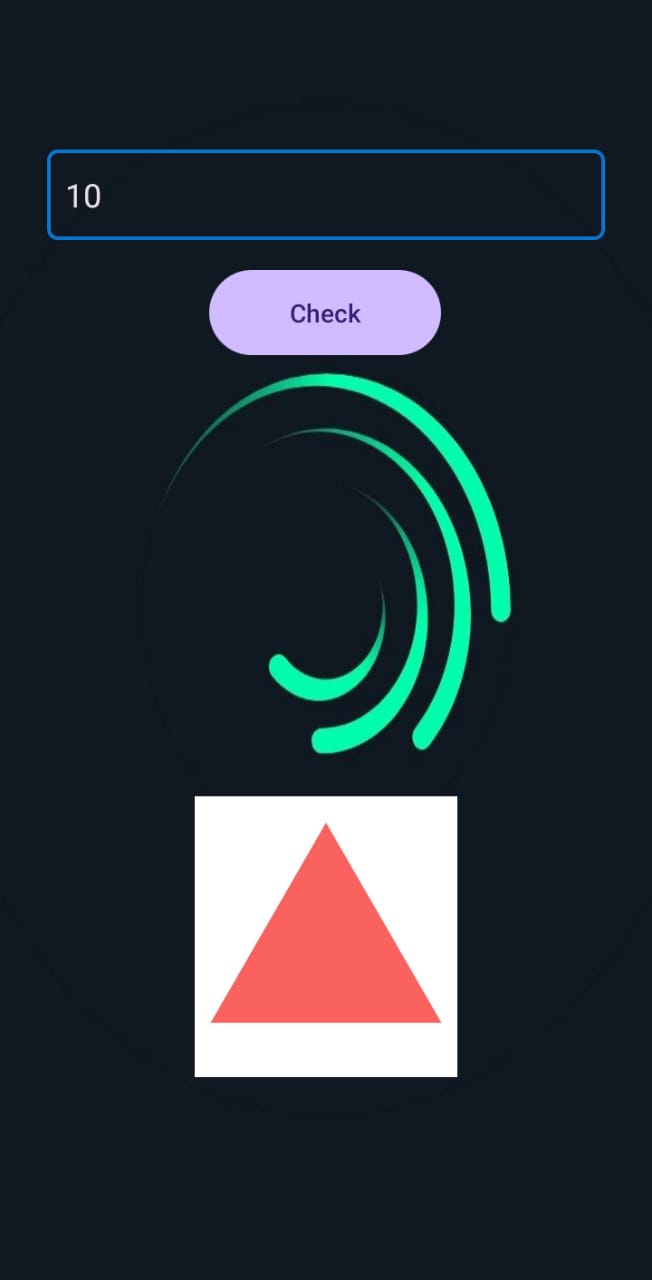
**Activity\_main.xml**

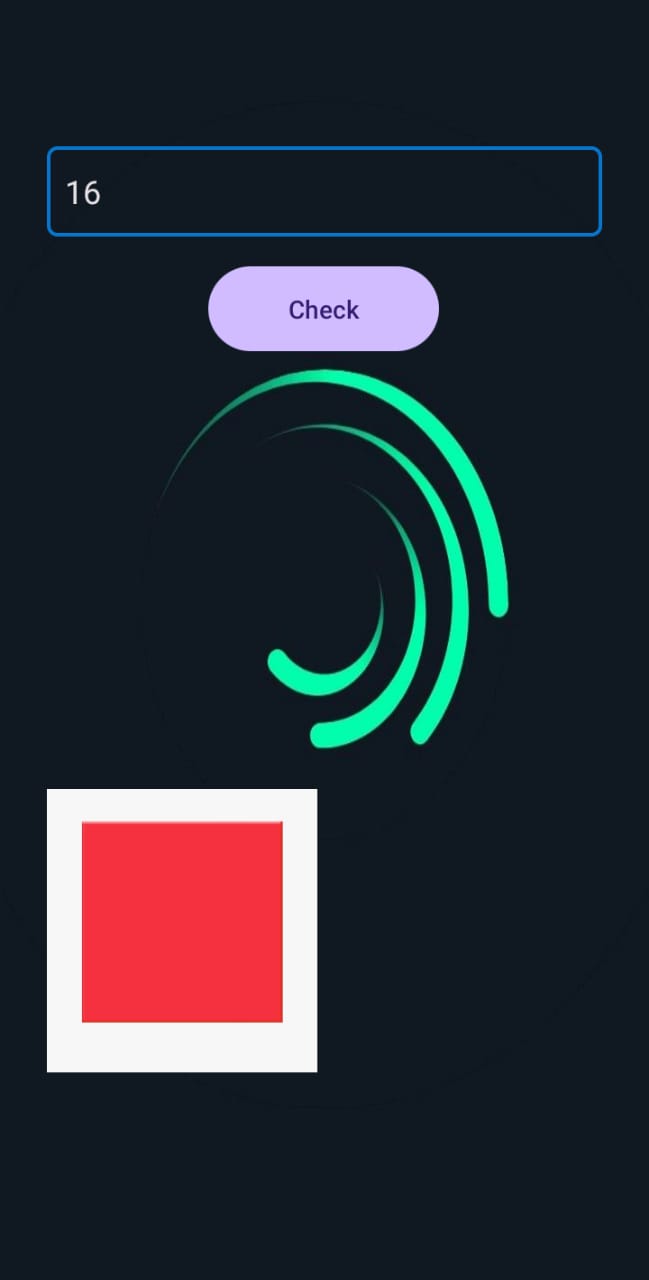
<?xml version="1.0" encoding="utf-8"?>  
<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:background="@drawable/bg2"  
 tools:context=".MainActivity">  
  
  
 <EditText  
 android:id="@+id/numberInput"  
 android:layout\_width="308dp"  
 android:layout\_height="50dp"  
 android:layout\_margin="80dp"  
 android:background="@drawable/rounded\_border"  
 android:hint="Enter a number"  
 android:inputType="number"  
 android:padding="10dp"  
 android:textColorHint="#808080"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.023" />  
  
 <Button  
 android:id="@+id/btnCheck"  
 android:layout\_width="128dp"  
 android:layout\_height="55dp"  
 android:layout\_margin="16dp"  
 android:layout\_marginTop="208dp"  
 android:text="Check"  
 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="0.215" />  
  
 <LinearLayout  
 android:layout\_width="308dp"  
 android:layout\_height="190dp"  
 android:layout\_margin="80dp"  
 android:orientation="horizontal"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.9"  
 >  
  
 <ImageView  
 android:id="@+id/squareImage"  
 android:layout\_width="150dp"  
 android:layout\_height="165dp"  
 android:layout\_marginTop="20dp"  
 android:src="@drawable/square\_image"  
 android:visibility="gone"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
  
 />  
 <ImageView  
 android:id="@+id/triangleImage"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="25dp"  
 android:layout\_marginBottom="10dp"  
 android:src="@drawable/triangle\_image"  
 android:visibility="gone"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
  
 />  
 </LinearLayout>  
  
  
</androidx.constraintlayout.widget.ConstraintLayout>

**rounded\_border.xml**

<?xml version="1.0" encoding="utf-8"?>  
<shape xmlns:android="http://schemas.android.com/apk/res/android">  
 <solid android:color="@android:color/transparent" />  
 <corners android:radius="5dp" />  
 <stroke  
 android:width="2dp"  
 android:color="#0776CC" /> </shape>

**Screenshots:**

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