Prime\PrimeCheck.txt

```Assignment 8 : Prime Number Check ```

1. Activity_prime_check.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=".prime_check">

    <LinearLayout
        android:id="@+id/main"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        android:padding="16dp"
        app:layout_constraintTop_toTopOf="parent">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="51dp"
            android:orientation="vertical">

            <TextView
                android:id="@+id/textView4"
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:text="Prime Check"
                android:fontFamily="sans-serif-smallcaps"
                android:gravity="center"
                android:textStyle="bold"
                android:textSize="40dp"
                android:background="@drawable/shape_btn"
                android:textColor="@color/black"/>
        </LinearLayout>

        <Space
            android:layout_width="match_parent"
            android:layout_height="109dp" />

        <EditText
            android:id="@+id/inputNumber"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="Enter a number"
            android:inputType="number" />

        <Button
            android:id="@+id/checkButton"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_gravity="center_horizontal"
            android:layout_marginTop="16dp"
            android:text="Check Prime" />
```
```

```
        <TextView
            android:id="@+id/resultText"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:paddingTop="16dp"
            android:textColor="@color/white"
            android:text="Result will be displayed here" />
    </LinearLayout>


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

2. prime_check.java :

```
package com.example.assignmenthub;

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

import androidx.appcompat.app.AppCompatActivity;

public class prime_check extends AppCompatActivity {

    // Declare views
    private EditText inputNumber;
    private Button checkButton;
    private TextView resultText;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_prime_check);

        // Initialize views
        inputNumber = findViewById(R.id.inputNumber);
        checkButton = findViewById(R.id.checkButton);
        resultText = findViewById(R.id.resultText);

        // Set button click listener
        checkButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                primeCheck();
            }
        });
    }

    // Method to handle prime check
    private void primeCheck() {
        // Get user input
        String input = inputNumber.getText().toString();

        // Validate input
        if (input.isEmpty()) {
            Toast.makeText(this, "Please enter a number", Toast.LENGTH_SHORT).show();
```

```
            return;
        }

        try {
            int number = Integer.parseInt(input);

            // Check if the number is prime
            String result = primeCheckFun(number);
            resultText.setText(result);
        } catch (NumberFormatException e) {
            Toast.makeText(this, "Please enter a valid number", Toast.LENGTH_SHORT).show();
        }
    }

    // Method to check if a number is prime
    private String primeCheckFun(int number) {
        boolean isPrime = isPrime(number);

        if (isPrime) {
            return number + " is a prime number.";
        } else {
            return number + " is not a prime number.";
        }
    }

    // Helper function to determine if a number is prime
    private boolean isPrime(int num) {
        if (num <= 1) return false;

        for (int i = 2; i <= Math.sqrt(num); i++) {
            if (num % i == 0) return false;
        }
        return true;
    }
}
```