Prime Number Generator and Checker

Submitted By -

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Prime Number Generator and Checker

Introduction-

- A prime number is a natural number that is greater than 1 and which is divisible by itself or by 1.
- The main objective of this program is to generate prime numbers within a given range and check whether a given number is prime.
- In this project we will create algorithm to by conditionals to check and generate prime numbers in a given range.
- This project implements Prime Number Generator and Checking using SymPy' functions to ensure accuracy and efficiency

Methodology-

This program allows the user to generate prime numbers within a given range using the **SymPy** module. The methods below are followed while creating the program

1. **Taking Inputs:**
    - The user first enters the **lower limit (a)** and **upper limit (b)** of the range.
2. **Checking the Range:**
    - If the lower limit (a) is greater than the upper limit (b) then a error message is displayed, and the function recursively calls itself.
3. **Finding Prime Number:**
    - A loop iterates from a to b, checking each number.
    - The **sympy.isprime(i)** function is used to determine if i is a prime number.
    - If a number is prime, it is **added to the prime_list**.
4. **Results:**
    - After checking all numbers in the range, the list of prime numbers is printed.

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Code-

```
import sympy # Importing the sympy library to use its isprime() function
def prime_number():
   # Taking user input for the lower and upper limit of the range
   a=int(input("Enter the lower limit of the range:"))
   b=int(input("Enter the upper limit of the range:"))

   prime_list=[] # Initializing an empty list to store prime numbers

   if a>b:
     print("\nEnter the correct range")
     print("\n")
     prime_number()#fuction Recurrstion
   else:
    for i in range(a,b+1):
     if sympy.isprime(i):
       prime_list.append(i)
   print("\nThe Prime Number in the given range are",prime_list)

prime_number()   # Calling the function to execute
```

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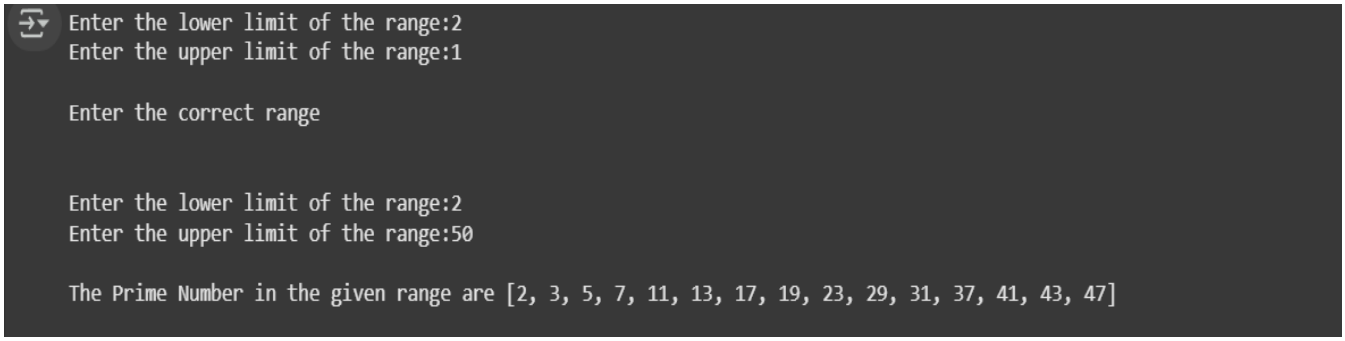
Output-



Credits-

- Image 1 taken form-

https://www.dreamstime.com/photos-images/prime-numbers.html

- Image 2 (Kiet Logo) taken from-

https://kietalumni.com/joinkaa.php

- Image 3 Screenshot of code taken from-

https://colab.research.google.com/drive/1VIPtU467GQwP_4SYfkHadp1lWzZXrb38