AI ASSISTED CODING
LAB ASSIGNMENT-1

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Task-1: Write a python program to check a given number Prime number or not without using functions.

Code:-

```python
num = int(input("Enter a number: "))
 if num <
2:
    print(f"{num} is not a prime number")
else:      is_prime = True
        for i in range(2,
num):          if num % i ==
0:              is_prime =
False                break
        if
is_prime:
        print(f"{num} is a prime number")
else:         print(f"{num} is not a prime
number")
```

Output:

Task-2: Optimize the above code using functions.

Code:-

```python
def is_prime(num):
if num < 2:
        return False    for i in
range(2, int(num**0.5) + 1):        if
num % i == 0:            return False
return True
 num = int(input("Enter a number:
")) if is_prime(num):
    print(f"{num} is a prime number")
else:
    print(f"{num} is not a prime number")
```

Output:

Observation:-

In **Task-01**, the program first takes one variable and stores the number given by the user in that variable.

After that, the program uses an **if condition** to check whether the given number is less than **2**.
If this condition is true, the program prints that the given number is **not a prime number**.

Then, the program uses a **loop** that runs from **2 to num−1**.

Inside the loop, the program checks whether the given number is divisible by any value in that range.

- If it is divisible, the program prints that the number is **not prime** and stops the loop.

- If the loop finishes without finding any divisor, the program prints that the number is **prime**.

In **Task-02**, the program first takes one variable and stores the number given by the user in that variable.
After that, the program uses an **if condition** to check whether the given number is less than **2**.
If this condition is true, the program prints that the given number is **not a prime number**.
Then, the program calculates the **square root of the given number** and stores it in another variable.
After that, the program uses a **loop** that runs from **2 to √num**.
Inside the loop, the program checks whether the given number is divisible by any value in this range.
- If it is divisible, the program prints that the number is **not prime** and stops the loop.
- If the loop finishes without finding any divisor, the program prints that the number is **prime**.