1. Find the Sum of All Prime Numbers in a Given Range

Explanation

A prime number is a natural number greater than 1 that has no positive divisors other than 1 and itself. The goal here is to find the sum of all prime numbers within a given range ([L, R]).

Steps to Solve

1. Take two numbers, `L` (lower bound) and `R` (upper bound).
2. Iterate through all numbers from `L` to `R`.
3. Check if each number is prime:
   - A number is prime if it is greater than 1 and is only divisible by 1 and itself.
4. If a number is prime, add it to the sum.
5. Print the final sum.

Expected Input & Output

Input:

```
L = 10, R = 20
```

Prime Numbers in Range:

```
11, 13, 17, 19
```

Output:

```
Sum = 60
```

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2. Count the Number of Prime Numbers in a Specific Range

Explanation

This problem is similar to the previous one but instead of summing up the prime numbers, we just count how many prime numbers exist in the given range.

Steps to Solve

1. Take two numbers, `L` and `R`.
2. Iterate through all numbers from `L` to `R`.
3. Check if each number is prime.
4. Maintain a count of prime numbers.
5. Print the final count.

Expected Input & Output

Input:

```
L = 10, R = 30
```

Prime Numbers in Range:

```
11, 13, 17, 19, 23, 29
```

Output:

```
Count = 6
```

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3. Check if a Number is a Harshad Number

Explanation

A **Harshad Number (Niven Number)** is a number that is divisible by the sum of its digits.

Steps to Solve

1. Take a number `N`.
2. Find the sum of its digits.
3. Check if `N` is divisible by this sum.
   - If `N % (sum of digits) == 0`, then it is a Harshad Number.
   - Otherwise, it is not.

Example Calculation

Input:

```
N = 18
```

Steps:

- Sum of digits = `1 + 8 = 9`
- Check divisibility: `18 % 9 == 0` (Yes)

Output:

```
18 is a Harshad Number
```

Another Example

Input:

```
N = 23
```

Steps:

- Sum of digits = `2 + 3 = 5`
- Check divisibility: `23 % 5 != 0` (No)

Output:

```
23 is NOT a Harshad Number
```