Python Program to Check if Number is Prime

- Level: Easy

Given a positive integer N. The task is to write a Python program to determine if the number is prime.

Examples:

```
Input:  n = 11
Output: true


Input:  n = 15
Output: false


Input:  n = 1
Output: false
```

The idea to check if number is prime is to iterate through all the numbers starting from 2 to sqrt(N) using a for loop and for every number check if it divides N. If we find any number that divides, we return false. If we did not find any number between 2 and N/2 which divides N then it means that N is prime and we will return True. The algorithm can be improved further by observing that all primes are of the form 6k ± 1, with the exception of 2 and 3. Below is the Python program to check if a number is prime:

Code

```python
#py
#Function used to ceck if number is prime
def isPrime(n) :
    # Corner cases
    if (n <= 1) :
        return False
    if (n <= 3) :
        return True
    # This is checked so that we can skip
    # middle five numbers in below loop
    if (n % 2 == 0 or n % 3 == 0) :
        return False
    i = 5
    while(i * i <= n) :
        if (n % i == 0 or n % (i + 2) == 0) :
            return False
        i = i + 6
    return True

# Driver Program
number=12
if (isPrime(number)) :
    print(" true")
else :
    print(" false")
###
```