Check for Prime

Given a positive integer, check if the number is prime or not. A prime is a natural number greater than 1 that has no positive divisors other than 1 and itself. Examples of first few prime numbers are {2, 3, 5}.

Examples:

```
Input:  n = 11
Output: true

Input:  n = 15
Output: false

Input:  n = 1
Output: false
```

School Method :

Python

```python
# Check for Prime
# naive

def isprime(n) :
    if n == 1 :
        return False
    i = 2
    while (i * i <= n) :
        if n % i == 0 :
            return False
        i += 1
    return True


n = 7
print(isprime(n))
```

Output:

```
true
```

Time complexity of this solution is O(sqrt(n))

Efficient Method:

Python

```
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

if(isPrime(11)) :
    print(" true")
else :
    print(" false")

if(isPrime(15)) :
    print(" true")
else :
    print(" false")
```

Output:

```
true
false
```

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