{% note info %} **摘要** Title: 868. 筛质数 Tag: 埃及筛、线性筛 Memory Limit: 64 MB Time Limit: 1000 ms {% endnote %}

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868. 筛质数

- 题意

> 给定一个正整数 n，请你求出 1~n 中质数的个数。

- 思路

定理：1 ~ n 中有$\frac{n}{ln_n}$个质数

- 代码

  - **埃式筛** $O(nloglogn)$

```
N = int(1e6 + 10)
prime, st, ans = [0] * N, [0] * N, [0] * N


def init():
    cnt = 0
    for i in range(2, N):
        if st[i] == 0:
            prime[cnt] = i
            cnt += 1
            for j in range(i + i, N, i):
                st[j] = 1
        ans[i] = cnt
init()
n = int(input())
print(ans[n])
```

  - **线性筛 n只会被它的最小质因子筛掉** $O(n)$

```
N = int(1e6 + 10)
st, prime = [0] * N, [0] * N #st代表是否被筛
cnt = 0
def init(n):
    global cnt
```

```
    for i in range(2, n + 1):
        if st[i] == 0:
            prime[cnt] = i
            cnt += 1
        j = 0
        while i * prime[j] <= n:
            st[i * prime[j]] = 1
            if i % prime[j] == 0:
                break
            j += 1

n = int(input())
init(n)
print(cnt)
```