**Day 25: Running Time and Complexity**

**Task**  
A *prime* is a natural number greater than 1 that has no positive divisors other than 1 and itself. Given a number, n, determine and print whether it's Prime or Not prime.

**Note:** If possible, try to come up with a O(√n) primality algorithm, or see what sort of optimizations you come up with for an O(n) algorithm. Be sure to check out the *Editorial* after submitting your code!

**Input Format**

The first line contains an integer, T, the number of test cases.  
Each of the T subsequent lines contains an integer, n, to be tested for primality.

**Constraints**

* 1 < T < 30
* 1 < n < 2 X 109

**Output Format**

For each test case, print whether n is Prime or Not prime on a new line.

**Sample Input**

3

12

5

7

**Sample Output**

Not prime

Prime

Prime

**Explanation**

*Test Case 0:* n=12.  
12 is divisible by numbers other than 1 and itself (i.e.: 2, 3, 6), so we print Not prime on a new line.

*Test Case 1:* n=5.  
5 is only divisible 1 and itself, so we print Prime on a new line.

*Test Case 2:* n=7.  
7 is only divisible 1 and itself, so we print Prime on a new line.