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Coding Arena

Time Left

04 **24** **19**
hr   min   sec

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Rules & Regulations

Problem : Double And Add One

Launch Code Editor

If you like numbers, you may have been fascinated by prime numbers.
Here's a problem related to prime numbers: Accept input numbers N and i. Identify all prime numbers P up to N with the following property:

$P_1=2*P+1$ is also prime
$P_2=2*P_1+1$ is also prime
...
$P_i=2*P(i-1)+1$ is also prime

Example: Inputs N=100, i=3

Let's start with p=2(it is also prime). Since i=3 we need 3 consecutive prime numbers that satisfy the Double and Add 1 property explained below:
$p_1=2*p+1$ translates to $p_1=2*2+1=5$, which is prime
$p_2=2*p_1+1$ translates to $p_2=2*5+1=11$, which is prime
$p_3=2*p_2+1$ translates to $p_3=2*11+1=23$, which is prime

Hence p=2 is to be included in the output.

Next, if p=3, the derived numbers are 7, 15, 31 of which 15 is not prime. Hence p=3 is not a solution

Exploring other primes up to 100 in this fashion, we identify the following additional numbers to be included in the solution for i=3:

5 (since the derived numbers 11, 23, 47 are all prime)
89 (since the derived numbers 179, 359, 719 are all prime)

Hence the output would be: 2, 5, 89

Input format for the example: 100 3
Output format for the example: 2 5 89
(Numbers separated by single space)

Input Format:

First line contains an integer N
Second line contains integer i

Output Format:

Space delimited prime numbers satisfying Double and Add 1 property in the given range N

Constraints:

1. 2< N <= 100000
2. 1< i <= 10

Sample Input and Output

Example Number	Sample Input	Sample Output
1	100 3	2 5 89

| 2 | 20 | |
| | 2 | 2 5 11 |

Note:

Please do not use package and namespace in your code. For object oriented languages your code should be written in one class.

Note:

Participants submitting solutions in C language should not use functions from <conio.h> / <process.h> as these files do not exist in gcc

Note:

For C and C++, return type of main() function should be int.

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Submit Answer

☐ I , **SOUPTIK SARKAR** confirm that the answer submitted is my own.

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