Oh, mountains! Tu and Lu won’t miss out on going climbing this year. One thing has always been impressing them – the mountain ridges.

We can define mountain ridges of numbers like this: If we put the signs ‘>’ and ‘<’ between the values by comparing them, then they are alternating. For instance, 3 5 2 8 1 form a mountain ridge since we have ‘<><>’, while 3 5 7 1 do not. Moreover, a co-prime mountain ridge is a mountain ridge where the numbers forming it are co-prime.

By given length and maximum allowed number, your task is to find the count of co-prime mountain ridges with such parameters. Due to the fact that this count may be too large, you have to print its value modulo $10^{9}+7$.

**Input**

The first line of the file **mountains.in** contains two integers n, m – the length and the maximum allowed number of the ridges.

**Output**

The first line of the file **mountains.out** contains one integer – the count of co – prime mountain ridges modulo $10^{9}+7.$

**Constraints**

$$1\leq n\leq 35$$

$$1\leq m\leq 10^{5}$$

**Time limit: 0.5 sec.**

**Memory limit: 256 MB**

**Sample test**

|  |  |
| --- | --- |
| **Input (mountains.in)** | **Output (mountains.out)** |
| 3 4 | 26 |

**Sample test explanation**

Some of the sequences are: {1,2,1}, {1,3,2}, {1,3,1}, {2,1,3}, {2,3,2}, {2,1,2}, {2,3,1}, {3,2,3}, {3,1,3}, {3,1,2}, {1,4,1}, {3,4,1}, {3,4,3}, {1,4,3}

 **Sample test 2**

|  |  |
| --- | --- |
| **Input (mountains.in)** | **Output (mountains.out)** |
| 18 4056 | 842407430 |