Serial Investor!

ZPRAC-16-17-Lab6

[20 points]

Bhuvesh and Rohan are cyber-security interns at the FBI for the semester. They decide to hack into their fellow tutors' systems and see what they are upto, as they both know that their friends are not as innocent as they look while teaching :)

They first target thier friend Shivam. Shivam has recently inherited a lot of money and Bhuvesh and Rohan want to check out how he has been using that new acquired cash. Rohan and Bhuvesh hack into Shivam's bank statement and realise that he has been recently making a lot of bad investments in ventures that provide no returns for him.

Shivam needs your help in deciding the profitable ventures for him. A venture is represented by a positive integer x. A venture x is profitable only if x = factorial(y) for some natural number y. Given n pairs of positive integers a,b such that 1<=a<=b<=10^8, find the number of profitable ventures x such that a≤x≤b.

Input:
First line contains n
Followed by n lines. Each line contains two positive integers a and b separated by a space

Output:
Output n lines, the numbers of profitable ventures between a and b for that pair.

Example:
Input:
2
5 40
2 130

Output:
2
4

Constraints:
1≤n≤1000
1 ≤ a ≤ b ≤ 10^8

Note: You have to use a function to calculate the required number of every pair a and b. Not using functions may lead to 0 credit.