Q2.

There is a specific template for you guys to start coding.

You can add other members in your class, but please follow the rules shown below.

1. Make sure that your class name is PrimeFactorization.

For this problem, you need to calculate the prime factorization of two number and GCD(Greatest Common Divisor).

Four specific functions you should implement are:

a. The constructor with two integers as arguments.

b. The function: Get\_Prime\_Factorization().

c. The function: Print\_Prime\_Factorization().

d. The function: Print\_GCD\_Factorization().

You must use the result of Get\_Prime\_Factorization() to find the prime factorization of GCD.

See the template for the detail.

# Input Format

Please implement the file I/O part.

You MUST read the input data from the input.txt.

The first line shows the number of test cases.

Each of the following lines contains two integers: a, b.

# Output Format

The output format should contain the prime factorization of two number and GCD.

See the sample output for the detail.

The printed result must be in order (small to large).

If the GCD of two integer is 1 (meansco-prime), then just print " 1 " .

# Sample Input (in input.txt)

5

123456 661152

51284 12387

3254 9182

2813291 870090

1043115528 1201746

# Sample Output

num1 = 123456

num2 = 661152

num1\_Prime\_factor : " 2 2 2 2 2 2 3 643 "

num2\_Prime\_factor : " 2 2 2 2 2 3 71 97 "

GCD\_Prime\_factor : " 2 2 2 2 2 3 "

num1 = 51284

num2 = 12387

num1\_Prime\_factor : " 2 2 12821 "

num2\_Prime\_factor : " 3 4129 "

GCD\_Prime\_factor : " 1 "

num1 = 3254

num2 = 9182

num1\_Prime\_factor : " 2 1627 "

num2\_Prime\_factor : " 2 4591 "

GCD\_Prime\_factor : " 2 "

num1 = 2813291

num2 = 870090

num1\_Prime\_factor : " 13 23 97 97 "

num2\_Prime\_factor : " 2 3 5 13 23 97 "

GCD\_Prime\_factor : " 13 23 97 "

num1 = 1043115528

num2 = 1201746

num1\_Prime\_factor : " 2 2 2 3 7 7 13 31 31 71 "

num2\_Prime\_factor : " 2 3 7 13 31 71 "

GCD\_Prime\_factor : " 2 3 7 13 31 71 "