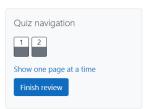
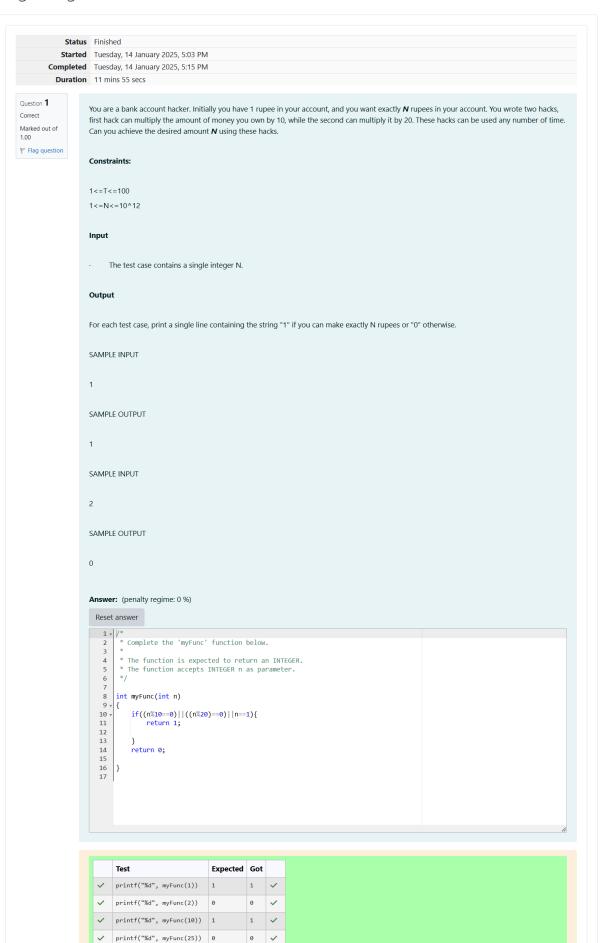
# GE23131-Programming Using C-2024





Question **2**Correct
Marked out of 1.00

Flag question

Find the number of ways that a given integer, **X**, can be expressed as the sum of the **N**<sup>th</sup> powers of unique, natural numbers.

For example, if  $\mathbf{X} = \mathbf{13}$  and  $\mathbf{N} = \mathbf{2}$ , we have to find all combinations of unique squares adding up to  $\mathbf{13}$ . The only solution is  $2^2 + 3^2$ .

#### **Function Description**

Complete the powerSum function in the editor below. It should return an integer that represents the number of possible combinations.

powerSum has the following parameter(s):

X: the integer to sum to

N: the integer power to raise numbers to

Input Format

The first line contains an integer X.

The second line contains an integer N.

#### Constraints

 $1 \le X \le 1000$ 

 $2 \le N \le 10$ 

#### **Output Format**

Output a single integer, the number of possible combinations calculated.

#### Sample Input 0

10

2

# Sample Output 0

1

#### Explanation 0

If X = 10 and N = 2, we need to find the number of ways that 10 can be represented as the sum of squares of unique numbers.

$$10 = 1^2 + 3^2$$

This is the only way in which  ${\it 10}$  can be expressed as the sum of unique squares.

## Sample Input 1

100

2

## Sample Output 1

3

## Explanation 1

$$100 = (10^2) = (6^2 + 8^2) = (1^2 + 3^2 + 4^2 + 5^2 + 7^2)$$

#### Sample Input 2

100

3

```
Sample Output 2

1

Explanation 2

100 can be expressed as the sum of the cubes of 1, 2, 3, 4.

(1 + 8 + 27 + 64 = 100). There is no other way to express 100 as the sum of cubes.
```

```
Answer: (penalty regime: 0 %)
```

```
Test Expected Got

printf("%d", powerSum(10, 1, 2)) 1 1 

Passed all tests! ✓
```

Finish review