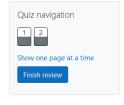
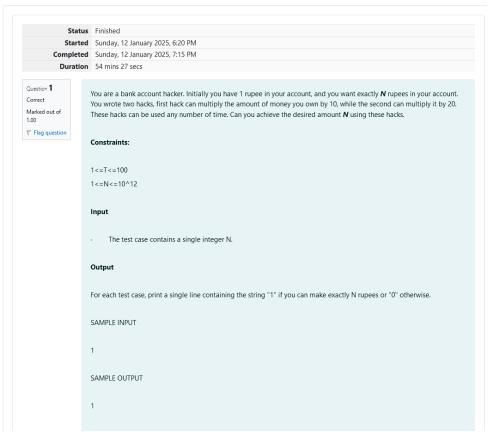
Week-12-Recursive Functions

GE23131-Programming Using C-2024





REC-CIS

2
SAMPLE OUTPUT

0

Answer: (penalty regime: 0 %)

	Test	Expected	Got	
~	printf("%d", myFunc(1))	1	1	~
~	printf("%d", myFunc(2))	0	0	~
~	printf("%d", myFunc(10))	1	1	~
~	printf("%d", myFunc(25))	0	0	~
~	printf("%d", myFunc(200))	1	1	~

Passed all tests! <

Question 2 Correct Marked out of 1.00

Marked out of 1.00 Flag question Find the number of ways that a given integer, \mathbf{X} , can be expressed as the sum of the \mathbf{N}^{th} powers of unique, natural numbers.

For example, if X = 13 and N = 2, we have to find all combinations of unique squares adding up to 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 ≤ X ≤ 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 (

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 10 can be expressed as the sum of unique squares.

Sample Input 1

100 2

Sample Output 1

3

Explanation

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

Sample Input 2

100

3

Sample Output 2

1

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 %)

```
14
       int temp = pow(m, n);
15
        if (temp == x) {
16 +
       return 1;
17
18
19 +
       if (temp > x) {
       return 0;
20
21
22
       return powerSum(x, m + 1, n) + powerSum(x - temp, m + 1, n);
23
24 }
25
26
27
```

	Test	Expected	Got	
~	<pre>printf("%d", powerSum(10, 1, 2))</pre>	1	1	~

Passed all tests! 🗸