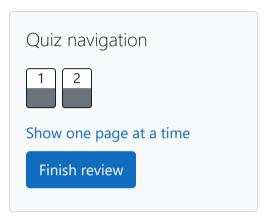
GE23131-Programming Using C-2024



Status	Finished
Started	Sunday, 12 January 2025, 8:06 PM
Completed	Sunday, 12 January 2025, 8:10 PM
Duration	4 mins 8 secs

Question 1

Correct

Marked out of 1.00

Flag question

A binary number is a combination of 1s and 0s. Its nth least significant digit is the nth digit starting from the right starting with 1. Given a decimal number, convert it to binary and determine the value of the the 4th least significant digit.

Example

number = 23

- Convert the decimal number 23 to binary number: $23^{10} = 2^4 + 2^2 + 2^1 + 2^0 = (10111)_2$.
- The value of the 4th index from the right in the binary representation is 0.

Function Description

Complete the function fourthBit in the editor below.

Returns:

int: an integer 0 or 1 matching the 4th least significant digit in the binary representation of number.

Constraints

 $0 \le \text{number} < 2^{31}$

Input Format for Custom Testing

Input from stdin will be processed as follows and passed to the function.

The only line contains an integer, number.

Sample Case 0

Sample Input 0

STDIN Function

 $32 \rightarrow number = 32$

Sample Output 0

Explanation 0

- Convert the decimal number 32 to binary number: $32_{10} = (100000)_2$.
- The value of the 4th index from the right in the binary representation is 0.

Sample Case 1

Sample Input 1

```
STDIN Function
-----
77 → number = 77
```

Sample Output 1

1

Explanation 1

- Convert the decimal number 77 to binary number: $77_{10} = (1001101)_2$.
- The value of the 4th index from the right in the binary representation is 1.

Answer: (penalty regime: 0 %)

```
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        int binary[32];
 2
        int i = 0;
 3
        while (number > 0){
            binary[i] = number % 2;
            number /= 2;
            i ++ ;}
        if(i >= 4)
 8
        return binary[3];
 9
        else
10
        return 0;}
11
```

	Test	Expected	Got	
~	<pre>printf("%d", fourthBit(32))</pre>	0	0	~
~	<pre>printf("%d", fourthBit(77))</pre>	1	1	~

Passed all tests! <

Question ${\bf 2}$

Correct

Determine the factors of a number (i.e., all positive integer values that evenly divide into a number) and then return the p^{th} element of the list, sorted ascending. If there is no p^{th} element, return 0.

r riag question

$$n = 20$$

$$p = 3$$

The factors of 20 in ascending order are $\{1, 2, 4, 5, 10, 20\}$. Using 1-based indexing, if p = 3, then 4 is returned. If p > 6, 0 would be returned.

Function Description

Complete the function pthFactor in the editor below.

pthFactor has the following parameter(s):

int n: the integer whose factors are to be found

int p: the index of the factor to be returned

Returns:

int: the long integer value of the pth integer factor of n or, if there is no factor at that index, then 0 is returned

Constraints

$$1 \le n \le 10^{15}$$

$$1 \le p \le 10^9$$

Input Format for Custom Testing

The first line contains an integer n, the number to factor.

The second line contains an integer p, the 1-based index of the factor to return.

Sample Case 0

Sample Input 0

STDIN Function

$$10 \rightarrow n = 10$$

$$3 \rightarrow p = 3$$

Sample Output 0

5

Explanation 0

Factoring n = 10 results in $\{1, 2, 5, 10\}$. Return the $p = 3^{rd}$ factor, 5, as the answer.

Sample Case 1

Sample Input 1

$$10 \rightarrow n = 10$$

$$5 \rightarrow p = 5$$

Sample Output 1

0

Explanation 1

Factoring n = 10 results in $\{1, 2, 5, 10\}$. There are only 4 factors and p = 5, therefore 0 is returned as the answer.

Sample Case 2

Sample Input 2

STDIN Function

$$1 \rightarrow n = 1$$

$$1 \rightarrow p = 1$$

Sample Output 2

1

Explanation 2

Answer: (penalty regime: 0 %)

Reset answer

```
1 v long pthFactor(long n, long p) {
2    int count = 0;
3 v    for ( long i = 1 ; i <= n ; ++i ){
4 v        if( n % i == 0){
            count ++;
            if(count == p)
            return i;
        }}return 0;}</pre>
```

	Test	Expected	Got	
~	<pre>printf("%ld", pthFactor(10, 3))</pre>	5	5	~
~	<pre>printf("%ld", pthFactor(10, 5))</pre>	0	0	~
~	<pre>printf("%ld", pthFactor(1, 1))</pre>	1	1	~

Finish review