



REC-CIS

GE23131-Programming Using C-2024

Quiz navigation



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Question 1

Correct

Marked out of 1.00

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Status Finished

Started Tuesday, 14 January 2025, 1:59 PM

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Duration 6 mins 12 secs

A binary number is a combination of 1s and 0s. Its n^{th} least significant digit is the n^{th} digit starting from the right starting with 1. Given a decimal number, convert it to binary and determine the value of the 4^{th} 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 4^{th} index from the right in the binary representation is 0.

Function Description

Complete the function fourthBit in the editor below.

fourthBit has the following parameter(s):

int number: a decimal integer

Returns:

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

Constraints

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

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 → number = 32

Sample Output 0

0

Explanation 0



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Sample Input 0

STDIN Function

32 → number = 32

Sample Output 0

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 %)

Reset answer

```
1 /*
2  * Complete the 'fourthBit' function below
3  *
4  * The function is expected to return an integer.
5  * The function accepts INTEGER number as parameter.
6  */
7
8 int fourthBit(int number)
9 {
10     int binary[32];
11     int i=0;
12     while(number>0)
13     {
14         binary[i]=number%2;
15         number/=2;
16         i++;
17     }
18     if(i>=4)
19     {
20         return binary[3];
21     }
22     else
23     return 0;
24 }
25
```

	Test	Expected	Got
✓	printf("%d", fourthBit(32))	0	0
✓	printf("%d", fourthBit(77))	1	1

Passed all tests! ✓

Question 2

Correct

Marked out of 1.00

Flag question

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.

Example

$n = 20$

$p = 3$

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 p^{th} integer factor of n or, if there is no factor at that index, then 0 is returned

Constraints

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

$1 \leq p \leq 10^9$

Input Format for Custom Testing

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

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 → $n = 10$

3 → $p = 3$

Sample Output 0

5

Explanation 0

5

Explanation 0

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

Sample Case 1**Sample Input 1**

STDIN Function

— —

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

Factoring $n = 1$ results in $\{1\}$. The $p = 1^{\text{st}}$ factor of 1 is returned as the answer.

Answer: (penalty regime: 0 %)[Reset answer](#)

```
1 /*
2  * Complete the 'pthFactor' function below
3  *
4  * The function is expected to return a LONG_INTEGER
5  * The function accepts following parameters:
6  * 1. LONG_INTEGER n
7  * 2. LONG_INTEGER p
8  */
9
10 long pthFactor(long n, long p)
11 {
12     int count=0;
13     for(long i=1;i<=n;++i)
14     {
15         if(n%i==0)
16         {
17             count++;
18             if(count==p)
19             {
20                 return i;
21             }
22         }
23     }
24     return 0;
25 }
```

10 → n = 10
5 → 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 → n = 1
1 → p = 1

Sample Output 2

1

Explanation 2

Factoring n = 1 results in {1}. The p = 1st factor of 1 is returned as the answer.

Answer: (penalty regime: 0 %)

Reset answer

```
1  /*  
2  * Complete the 'pthFactor' function below  
3  *  
4  * The function is expected to return a LONG_INTEGER  
5  * The function accepts following parameters:  
6  * 1. LONG_INTEGER n  
7  * 2. LONG_INTEGER p  
8  */  
9  
10 long pthFactor(long n, long p)  
11 {  
12     int count=0;  
13     for(long i=1;i<=n;++i)  
14     {  
15         if(n%i==0)  
16         {  
17             count++;  
18             if(count==p)  
19             {  
20                 return i;  
21             }  
22         }  
23     }  
24     return 0;  
25 }
```

	Test	Expected	G
✓	printf("%ld", pthFactor(10, 3))	5	5
✓	printf("%ld", pthFactor(10, 5))	0	0
✓	printf("%ld", pthFactor(1, 1))	1	1

Passed all tests! ✓

Finish review