

# GE23131-Programming Using C-2024

## Quiz navigation



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### Question 1

Correct

Marked out of 1.00

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A binary number is a combination of 1s and 0s. Its  $n^{\text{th}}$  least significant digit is the  $n^{\text{th}}$  digit starting from the right starting with 1. Given a decimal number, convert it to binary and determine the value of the the 4<sup>th</sup> 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<sup>th</sup> 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

### 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

- 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

#### 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
9  #include<stdio.h>
10
11 int fourthBit(int number)
12 {
13     return (number >> 3) & 1;
14 }
15
16 int mymain() {
17     int number;
18     scanf("%d", &number);
19     printf("%d\n", fourthBit(number));
20     return 0;
21 }
```

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

Passed all tests! ✓

Question **2**

Correct

Marked out of  
1.00

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

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 → 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  $p = 1$ 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
11 long pthFactor(long n, long p) {
12     int count = 0;
13     for (int i = 1; i <= n; i++) {
14         if (n % i == 0) {
15             count++;
16             if (count == p) {
17                 return i;
18             }
19         }
20     }
21     return 0;
22 }
23
24 int mymain(){
25     int n, p;
26     scanf("%d %d", &n, &p);
27     printf("%ld\n", pthFactor(n, p));
28     return 0;
29 }

```

	Test	Expected	Got	
✓	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

