



## GE23131-Programming Using C-2024

Status	Finished
Started	Monday, 13 January 2025, 5:31 PM
Completed	Monday, 13 January 2025, 5:58 PM
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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:

$23_{10} = 2^4 + 2^2 + 2^1 + 2^0 = (10111)_2$

- 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

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

### 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**

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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**

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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' f
3  *
4  * The function is expected t
5  * The function accepts INTEG
6  */
7
8  int fourthBit(int number)
9  {
10     return(number>>3)&1;
11 }
```

	Test	Exp
✓	<code>printf("%d", fourthBit(32))</code>	0
✓	<code>printf("%d", fourthBit(77))</code>	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  $p^{\text{th}}$  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
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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
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-------	-------

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
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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' f
3   *
4   * The function is expected t
5   * The function accepts follo
6   * 1. LONG_INTEGER n
7   * 2. LONG_INTEGER p
8   */
9
10 long pthFactor(long n, long p
11 {
12     long j=0;
13     for(long i=1;i<=n;i++){
14         if(n%i==0){
15             j++;
16             if(j==p){
17                 return i;
18             }
19         }
20     }
21     return 0;
22 }
```

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

Passed all tests! ✓