

# GE23131-Programming Using C-2024

<b>Status</b>	Finished
<b>Started</b>	Tuesday, 14 January 2025, 10:40 PM
<b>Completed</b>	Tuesday, 14 January 2025, 10:47 PM
<b>Duration</b>	7 mins 23 secs

## 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

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

### 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



## 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' f
3      *
4      * The function is expected t
5      * The function accepts INTEG
6      */
7
8  int fourthBit(int number)
9  ▾ {
10     int bin[32];
11     int i=0;
12     while(number>0)
13  ▾ {
14         bin[i]=number%2;
15         number/=2;
16         i++;
17     }
18     if(i>=4)
19  ▾ {
20         return bin[3];
21     }
22     else
```



	Expected	Got	
", fourthBit(32))	0	0	✓
", 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  $p^{\text{th}}$  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



### 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' 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     int c=0;
13     for(long i=1;i<=n;++i)
14     {
15         if(n%i==0)
16         {
17             c++;
18             if(c==p)
19             {
20                 return i;
21             }
22         }
23     }
```

```
17 c++;
18 if(c==p)
19 {
20     return i;
21 }
22 }
23 }
24 return 0;
25 }
```

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

Passed all tests! ✓

Finish review

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