

# GE23131-Programming Using C-2024

Quiz navigation



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Question **1**

Correct

Marked out of 1.00

Flag question

Status	Finished
Started	Wednesday, 15 January 2025, 10:32 AM
Completed	Wednesday, 15 January 2025, 10:46 AM
Duration	14 mins 56 secs

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  $4^{\text{th}}$  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  $4^{\text{th}}$  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

- 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 bit;
11     bit = (number>>3) & 1;
12     return bit;
13 }
```

	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  $p^{\text{th}}$  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   →    $n = 10$

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  $p = 1^{\text{st}}$  factor of 1 is returned as the answer.

**Answer:** (penalty regime: 0 %)

Reset answer

```

1  #include<stdio.h>
2  #include<math.h>
3  #include<ctype.h>
4  /*
5   * Complete the 'pthFactor' function below.
6   *
7   * The function is expected to return a LONG_INTEGER.
8   * The function accepts following parameters:
9   * 1. LONG_INTEGER n
10  * 2. LONG_INTEGER p
11  */
12
13  long pthFactor(long n, long p)
14  {
15      long i, count=0, arr[100000] = {0};
16      for(i=1; i<=n; i++)
17      {
18          if(n%i==0)
19          {
20              arr[count++]=i;
21              if(count == p)
22                  break;
23          }
24      }
25      if (count<p)
26          return 0;
27      return arr[--count];
28  }
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```

51  
52

	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! ✓