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Status	Finished
Started	Monday, 13 January 2025, 7:43 PM
Completed	Monday, 13 January 2025, 7:53 PM
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Question 1
Correct
Marked out of 1.00
Flag question

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

· 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  
5  * The function accepts INTEGER number as  
6  */  
7  
8 int fourthBit(int n)  
9 {  
10     int i=0;  
11     int bit[32];
```

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
5   * The function accepts INTEGER number as
6   */
7
8  int fourthBit(int n)
9  {
10     int i=0;
11     int bit[32];
12     while(n>0){
13
14         bit[i]=n%2;
15         n/=2;
16         i++;
17     }
18     if(i>=4){
19         return bit[3];
20     }
21     else
22         return 0;
23 }
24

```

	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

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

```

	Test	Expected	Got
✓	<code>printf("%ld", pthFactor(10, 3))</code>	5	5
✓	<code>printf("%ld", pthFactor(10, 5))</code>	0	0
✓	<code>printf("%ld", pthFactor(1, 1))</code>	1	1

Passed all tests! ✓

Finish review