

# Normas

Resuelve lo que puedas, no te agobies sino sabes algo. No es necesario terminar la prueba, completa solo lo que sepas hacer. Las respuestas deben estar todas en lenguaje PHP orientado a objetos.



## Fizz Buzz

Write a function that outputs the string representation of numbers from 1 to n. But for multiples of three it should output “Fizz” instead of the number and for the multiples of five output “Buzz”. For numbers which are multiples of both three and five output “FizzBuzz”.

Java

Example:

Input: n = 15

Output:

```
[  
    "1",  
    "2",  
    "Fizz",  
    "4",  
    "Buzz",  
    "Fizz",  
    "7",  
    "8",  
    "Fizz",  
    "Buzz",  
    "11",  
    "Fizz",  
    "13",  
    "14",  
    "FizzBuzz"  
]
```

# Top K Frequent Elements

Given a non-empty array of integers, return the k most frequent elements.

Java

Example 1:

Input: nums = [1,1,1,2,2,3], k = 1

Output: [1]

Example 2:

Input: nums = [1,1,1,2,2,3], k = 2

Output: [1,2]

Note:

You may assume k is always valid,  $1 \leq k \leq$  number of unique elements. Your algorithm's time complexity must be better than  $O(n \log n)$ , where n is the array's size.

# Longest Consecutive Sequence

Given an unsorted array of integers, find the length of the longest consecutive elements sequence.

Your algorithm should run in  $O(n)$  complexity.

Java

Example:

Input: [100, 4, 200, 1, 3, 2]

Output: 4

Explanation: The longest consecutive elements sequence is [1, 2, 3, 4].  
Therefore its  
length is 4.

# Basket Prices

Create a service using the middleware pattern to calculate the basket price. Given an array of ProductItems and the User, create a service where you can provide different rules to calculate the final basket price.

Product Items:

Product Name	Items	Unit Price
Coffee	2	50 cent
Cookies	1	1 €

The Rules will be:

- If the User is less than 21 years old, he has 15% of total discount.
- If he bought more than 3 items of the same product, you have a 5% discount (This offer only applies for this product).
- If the total amount is over 100\$, you have a 20% of total discount.

# Laravel Party

Given two databases one of those with a table Users (id, name, email) another one with a table Exam (id, user\_id, exam\_date, updated\_at, created\_at, deleted\_at). Create the Laravel models with the relationships between both tables.

Note:

The important point here is that we are using two databases and we want to use Eloquent Relationships between both databases.