# Phase Gate

## Light House Cohort 24

## You will love it

# Question 1:

- **An Integer n is a power of two, if there exists an interger x such that n == 2x**

**Example 1:**
**Input: n = 1**
**Output: true**

**Example 2:**
**Input: n = 16**
**Output: true**

**Example 3:**
**Input: n = 3**
**Output: false**

# Question 2:

- **Given a string s consisting of words and spaces, return the length of the last word in the string.**

**Example 1:**
**Input: s = “Hello World”**
**Output: 5**

**Example 2:**
**Input: s = “ fly me  to  the moon”**
**Ouput: 4**

**Example 3:**
**Input: s = “luffy is still joyboy”**
**Output: 6**

# Question 3

- **Given a non-empty array of integers nums, every element appears twice except for one. Find that single one**

**Example 1:**
**Input: nums = [2, 2, 1]**

**Output: 1**

**Example 2:**

**Input: nums = [4, 1, 2, 1, 2]**

**Output: 4**

**Example 3:**

**Input: nums = [1]**

**Output: 1**

# Question 4

- **Write a function that takes in a array of numbers and return an array in which the element in the array is arrange in descending order**

**Example 1:**
**Input: nums = [1, 4, 6, 2, 5]**

**Output: result = [6, 5, 4, 2, 1]**

**Example 2:**
**Input: nums = [1, 2, 3, 4, 5, 6]**

**Output: result = [6, 5, 4, 3, 2, 1]**

**Example 3:**

**Input: nums = [6, 5, 4, 3, 2, 1]**

**Output: result = [6, 5, 4, 3, 2, 1]**

# Question 5

- **Write a function that takes in integer and return true if the integer is palindrome.**

**Example 1:**
**Input: nums = 121**

**Output: true**

**Example 2:**
**Input: 142**

**Output: false**

**Example 3:**

**Input: 11111**

**Output: true**

# Question 6

- **Write a function that takes in two input of string and return true if the second input is a substring of the first input**

**Example 1:**
**Input: firstInput = “ABCD”, secondInput = “BC”**

**Output: true**

**Example 2:**
**Input: firstInput = “ABCD” secondInput = “BDC”**

**Output: false**

# Question 7

- **Given a signed 32-bit integer x, return x with its digits reversed**

**Example 1:**
**Input: x = 123**

**Output: 321**

**Example 2:**
**Input: x = -123**

**Output: -321**

**Example 3:**

**Input: x = 120**

**Output: 21**

# Question 8

- **Given a 0-indexed string word and a character ch, reverse the segment of word that starts at index 0 and ends at the index of the first occurrence of ch (inclusive). If the character ch does not exist in word, do nothing**

**Example 1:**
**Input: word = “abcdef”, ch = “d”**

**Output: “dcbaef”**

**Example 2:**
**Input: word = “xyxzxe”, ch = “z”**

**Output: “zxyxxe”**

**Example 3:**

**Input: word = “abcd” ch = “z”**

**Output: “abcd”**

# Question 9

- **Given an integer n, return the number of prime numbers that are strictly less than n**

**Example 1:**

**Input: n = 10**

**Output: 4**

**Explanation: There are four prime numbers less than 10, they are 2, 3, 5, 7**

**Example 2:**
**Input: n = 0**

**Output: 0**

**Example 3:**

**Input: n = 1**

**Output: 0**

# Question 10

- **Given an array of numbers you are to create a function which convert the even number to zero and the odd number to one**

**Example 1:**

**Input: nums = [1, 2, 3, 4, 5]**

**Output: [1, 0, 1, 0, 1]**

**Example 2:**
**Input: nums =** [4, 5, 8, 8, 2, 9]

**Output: [0, 1, 0, 0, 0, 1]**