Java Problem

Given an array of integers arr, a lucky integer is an integer that has a frequency in the array equal to its value.

Return the largest lucky integer in the array. If there is no lucky integer return -1.

Example 1:

Input: arr = [2,2,3,4]

Output: 2

Explanation: The only lucky number in the array is 2 because frequency[2] == 2.

Example 2:

Input: arr = [1,2,2,3,3,3]

Output: 3

Explanation: 1, 2 and 3 are all lucky numbers, return the largest of them.

Example 3:

Input: arr = [2,2,2,3,3]

Output: -1

Explanation: There are no lucky numbers in the array.

**Java Problem (5/20)**

Given an integer array nums, return true if any value appears at least twice in the array, and return false if every element is distinct.

Example 1:

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

Output: true

Example 2:

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

Output: false

Example 3:

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

Output: true

Java Problem (4/20)

Given an array nums of size n, return the majority element.

The majority element is the element that appears more than ⌊n / 2⌋ times. You may assume that the majority element always exists in the array.

Example 1:

Input: nums = [3,2,3]

Output: 3

Example 2:

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

Output: 2

**Java Challenge (1/20)**

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

A word is a maximal substring consisting of non-space characters only.

Example 1:

Input: s = "Hello World"

Output: 5

Explanation: The last word is "World" with length 5.

Example 2:

Input: s = " fly me to the moon "

Output: 4

Explanation: The last word is "moon" with length 4.

Example 3:

Input: s = "luffy is still joyboy"

Output: 6

Explanation: The last word is "joyboy" with length 6.

**Java Challenge (2/20)**

A phrase is a palindrome if, after converting all uppercase letters into lowercase letters and removing all non-alphanumeric characters, it reads the same forward and backward. Alphanumeric characters include letters and numbers.

Given a string s, return true if it is a palindrome, or false otherwise.

Example 1:

Input: s = "A man, a plan, a canal: Panama"

Output: true

Explanation: "amanaplanacanalpanama" is a palindrome.

Example 2:

Input: s = "race a car"

Output: false

Explanation: "raceacar" is not a palindrome.

Example 3:

Input: s = " "

Output: true

Explanation: s is an empty string "" after removing non-alphanumeric characters.

Since an empty string reads the same forward and backward, it is a palindrome.

**Java Challenge (5/20)**

Write an algorithm to determine if a number n is happy.

A happy number is a number defined by the following process:

Starting with any positive integer, replace the number by the sum of the squares of its digits.

Repeat the process until the number equals 1 (where it will stay), or it loops endlessly in a cycle which does not include 1.

Those numbers for which this process ends in 1 are happy.

Return true if n is a happy number, and false if not.

Example 1:

Input: n = 19

Output: true

Explanation:

12 + 92 = 82

82 + 22 = 68

62 + 82 = 100

12 + 02 + 02 = 1

Example 2:

Input: n = 2

Output: false

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**Java Challenge (2/20)**

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