

## Question A

Given an array of integers, return indices of the two numbers such that they add up to a specific target.

You may assume that each input would have *exactly* one solution, and you may not use the *same* element twice.

Example:

Given `nums = [2, 7, 11, 15]`, `target = 9`,

Because `nums[0] + nums[1] = 2 + 7 = 9`,  
return `[0, 1]`.

Bonus points if solved in  $O(n)$ .

## Question B

Write an algorithm to determine if a number 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, and 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 numbers.

Example:

Input: 19

Output: true

Explanation:

$$1^2 + 9^2 = 82$$

$$8^2 + 2^2 = 68$$

$$6^2 + 8^2 = 100$$

$$1^2 + 0^2 + 0^2 = 1$$

## Question C

Given an array of strings, group anagrams together.

Example:

Input: ["eat", "tea", "tan", "ate", "nat", "bat"],

Output:

```
[  
  ["ate", "eat", "tea"],  
  ["nat", "tan"],  
  ["bat"]  
]
```

Note:

- All inputs will be in lowercase.
- The order of your output does not matter.