2020-02-22 - Handout – Arrays

# Q1. Two Sum

Link: <https://leetcode.com/problems/two-sum/>

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**].

# Q2. Product of Array Except Self

Link: <https://leetcode.com/problems/product-of-array-except-self/>

Given an array nums of *n* integers where *n* > 1,  return an array output such that output[i] is equal to the product of all the elements of nums except nums[i].

**Example:**

**Input: [1,2,3,4]**

**Output:** [24,12,8,6]

**Note:**Please solve it **without division** and in O(*n*).

**Follow up:**  
Could you solve it with constant space complexity? (The output array **does not** count as extra space for the purpose of space complexity analysis.)

# Q3. Flatten Nested List Iterator

Link: <https://leetcode.com/problems/flatten-nested-list-iterator/>

Given a nested list of integers, implement an iterator to flatten it. Each element is either an integer, or a list -- whose elements may also be integers or other lists.

**Example 1:**

**Input:** [[1,1],2,[1,1]]

**Output:** [1,1,2,1,1]

**Explanation:** By calling *next* repeatedly until *hasNext* returns false,

  the order of elements returned by *next* should be: [1,1,2,1,1].

**Example 2:**

**Input:** [1,[4,[6]]]

**Output:** [1,4,6]

**Explanation:** By calling *next* repeatedly until *hasNext* returns false,

  the order of elements returned by *next* should be: [1,4,6].

# Q4. Spiral Matrix

Link: <https://leetcode.com/problems/spiral-matrix/>

Given a matrix of *m* x *n* elements (*m* rows, *n* columns), return all elements of the matrix in spiral order.

**Example 1:**

**Input:**

[

[ 1, 2, 3 ],

[ 4, 5, 6 ],

[ 7, 8, 9 ]

]

**Output:** [1,2,3,6,9,8,7,4,5]

**Example 2:**

**Input:**

[

[1, 2, 3, 4],

[5, 6, 7, 8],

[9,10,11,12]

]

**Output:** [1,2,3,4,8,12,11,10,9,5,6,7]