Questions on Arrays

Question1:

Given an integer array nums, find the subarraywith the largest sum, and return *its sum*.

**Example 1:**

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

**Output:** 6

**Explanation:** The subarray [4,-1,2,1] has the largest sum 6.

**Example 2:**

**Input:** nums = [1]

**Output:** 1

**Explanation:** The subarray [1] has the largest sum 1.

**Example 3:**

**Input:** nums = [5,4,-1,7,8]

**Output:** 23

**Explanation:** The subarray [5,4,-1,7,8] has the largest sum 23.

Question2:

Given an unsorted array of integers nums, return *the length of the longest consecutive elements sequence.*

You must write an algorithm that runs in O(n) time.

**Example 1:**

**Input:** nums = [100,4,200,1,3,2]

**Output:** 4

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

**Example 2:**

**Input:** nums = [0,3,7,2,5,8,4,6,0,1]

**Output:** 9

Question3:

Given an integer array nums, return all the triplets [nums[i], nums[j], nums[k]] such that i != j, i != k, and j != k, and nums[i] + nums[j] + nums[k] == 0.

Notice that the solution set must not contain duplicate triplets.

**Example 1:**

**Input:** nums = [-1,0,1,2,-1,-4]

**Output:** [[-1,-1,2],[-1,0,1]]

**Explanation:**

nums[0] + nums[1] + nums[2] = (-1) + 0 + 1 = 0.

nums[1] + nums[2] + nums[4] = 0 + 1 + (-1) = 0.

nums[0] + nums[3] + nums[4] = (-1) + 2 + (-1) = 0.

The distinct triplets are [-1,0,1] and [-1,-1,2].

Notice that the order of the output and the order of the triplets does not matter.

**Example 2:**

**Input:** nums = [0,1,1]

**Output:** []

**Explanation:** The only possible triplet does not sum up to 0.

**Example 3:**

**Input:** nums = [0,0,0]

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

**Explanation:** The only possible triplet sums up to 0.

Question4:

Given an integer array nums of length n and an integer target, find three integers in nums such that the sum is closest to target.

Return *the sum of the three integers*.

You may assume that each input would have exactly one solution.

**Example 1:**

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

**Output:** 2

**Explanation:** The sum that is closest to the target is 2. (-1 + 2 + 1 = 2).

**Example 2:**

**Input:** nums = [0,0,0], target = 1

**Output:** 0

**Explanation:** The sum that is closest to the target is 0. (0 + 0 + 0 = 0).

Question5:

Given an array nums of n integers, return *an array of all the****unique****quadruplets* [nums[a], nums[b], nums[c], nums[d]] such that:

* 0 <= a, b, c, d < n
* a, b, c, and d are **distinct**.
* nums[a] + nums[b] + nums[c] + nums[d] == target

You may return the answer in **any order**.

**Example 1:**

**Input:** nums = [1,0,-1,0,-2,2], target = 0

**Output:** [[-2,-1,1,2],[-2,0,0,2],[-1,0,0,1]]

**Example 2:**

**Input:** nums = [2,2,2,2,2], target = 8

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