# 2024-04-13 - Handout – Permutation Combination

## Q1. Permutations

Link: https://leetcode.com/problems/permutations/

Given an array nums of distinct integers, return *all the possible permutations*. You can return the answer in **any order**.

Constraints:

- 1 <= nums.length <= 6
- -10 <= nums[i] <= 10
- All the numbers of nums are unique

**Example 1:**

**Input:** nums = [1]

**Output:** [[1]]

**Example 2:**

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

**Output:** [[1,2,3], [1,3,2], [2,1,3], [2,3,1], [3,1,2], [3,2,1]]

## Q2. Permutations II

Link: https://leetcode.com/problems/permutations-ii/

Given a collection of numbers, nums, that might contain duplicates, return all possible unique permutations in any order.

Constraints:

- 1 <= nums.length <= 8
- -10 <= nums[i] <= 10

**Example 1:**

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

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

**Example 2:**

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

**Output:**
**[[1,2,3],[1,3,2],[2,1,3],[2,3,1],[3,1,2],[3,2,1]]**

## Q3. Subsets

Link: https://leetcode.com/problems/subsets/description/

Given an integer array nums of unique elements, return all possible subsets (the power set). The solution set must not contain duplicate subsets. Return the solution in any order.

Constraints:

- 1 <= nums.length <= 10
- -10 <= nums[i] <= 10
- All the numbers of nums are unique

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Example 1:
Input: nums = [1,2,3]
Output: [[],[1],[2],[1,2],[3],[1,3],[2,3],[1,2,3]]
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Example 2:
Input: nums = [0]
Output: [[],[0]]
```

### Q4. Subsets II

Link: https://leetcode.com/problems/subsets-ii/

Given an integer array nums that may contain duplicates, return all possible subsets (the power set).

The solution set must not contain duplicate subsets. Return the solution in any order.

Constraints:

- 1 <= nums.length <= 10
- -10 <= nums[i] <= 10

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Example 1:
Input: nums = [1,2,2]
Output: [[],[1],[1,2],[1,2,2],[2],[2,2]]
```

```
Example 2:
Input: nums = [0]
Output: [[],[0]]
```