# **LAB SESSION 03**:

**IMPLEMENTATION OF CLEAN CODE TECHNIQUE**

**Date of the Session: / / Time of the Session: \_\_\_\_\_\_to**

**Pre-Lab:**

1. List down the symptoms of Bad code in Java

**Solution:**

1. Give some Clean code techniques in Java.

**Solution:**

**In-Lab:**

1. Given a **non-empty** array num\_arr containing **only positive integers**, find if the array can be partitioned into two subsets such that the sum of elements in both subsets is equal.

Follow Clean Coding logic.

**Example 1:**

Input: num\_arr  = [1,5,11,5]

Output: true

Explanation: The array can be partitioned as [1, 5, 5] and [11].

**Example 2:**

Input: num\_arr  = [1,2,3,5]

Output: false

Explanation: The array cannot be partitioned into equal sum subsets.

**Constraints:**

* 1 <= num\_arr .length <= 200
* 1 <= num\_arr  [i] <= 100

**Solution:**

1. You are given a **0-indexed** integer array nums. In one step, **remove** all elements nums[i] where nums[i - 1] > nums[i] for all 0 < i < nums.length.

Follow Clean Coding logic.

Return *the number of steps performed until*nums*becomes a****non-decreasing****array*.

**Example 1:**

Input: nums = [5,3,4,4,7,3,6,11,8,5,11]

Output: 3

**Explanation:** The following are the steps performed:

- Step 1: [5,**3**,4,4,7,**3**,6,11,**8**,**5**,11] becomes [5,4,4,7,6,11,11]

- Step 2: [5,**4**,4,7,**6**,11,11] becomes [5,4,7,11,11]

- Step 3: [5,**4**,7,11,11] becomes [5,7,11,11]

[5,7,11,11] is a non-decreasing array. Therefore, we return 3.

**Example 2:**

Input: nums = [4,5,7,7,13]

Output: 0

Explanation: nums is already a non-decreasing array. Therefore, we return 0.

**Constraints:**

* 1. 1 <= nums.length <= 105
  2. 1 <= nums[i] <= 109

**Solution:**

* 1. You are required to compute the power of a number by implementing a calculator. Create a class *MyCalculator* which consists of a single method long power(int, int). This method takes two integers, n and p, as parameters and finds np . If either n or p is negative, then the method must throw an exception which says "**n or p should not be negative**". Also, if both n and p are zero, then the method must throw an exception which says "**n and p should not be zero**"

For example, *-4* and *-5* would result in **java.lang.Exception: n or p should not be negative.**

Complete the function power in class *MyCalculator* and return the appropriate result after the power operation or an appropriate exception as detailed above.

**Input Format**

Each line of the input contains two integers, n and p. The locked stub code in the editor reads the input and sends the values to the method as parameters.

**Output Format**

Each line of the output contains the result np, if both n and p are positive. If either n or p is negative, the output contains "n and p should be non-negative". If both n and p are zero, the output contains "n and p should not be zero.". This is printed by the locked stub code in the editor.

**Sample Input 0**

3 5

2 4

0 0

-1 -2

-1 3

**Sample Output 0**

243

16

java.lang.Exception: n and p should not be zero.

java.lang.Exception: n or p should not be negative.

java.lang.Exception: n or p should not be negative.

**Solution:**

**Post-Lab:**

1. Write a Java program to print k factorial numbers by following clean coding patterns.

**Solution:**

(For Evaluator’s use only)

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| |  |  | | --- | --- | | Comment of the Evaluator (if Any) | Evaluator’s Observation  Marks Secured: \_\_\_\_\_\_\_ out of \_\_\_\_\_\_\_\_ Full Name of the Evaluator:  Signature of the Evaluator Date of Evaluation: | |

**Reference Links:**

**Pre Lab**

**In lab:**

1. <https://leetcode.com/problems/partition-equal-subset-sum/discuss/762524/java-clean-code-dynamic-programming-technique>
2. <https://leetcode.com/problems/steps-to-make-array-non-decreasing/>
3. https://www.hackerrank.com/challenges/java-exception-handling/problem

**Postlab:**

https://leetcode.com/problems/steps[Hello](https://leetcode.com/problems/steps-to-make-array-non-decreasing/)-to-make-array-non-decreasing/

https://leetcode.com/problems/steps-to-make-array-non-<https://leetcode.com/problems/steps-to-make-array-non-decreasing/>/