



CL2001 – Data Structure Lab

Lab Task # 01

Note:

- Plagiarism will not be **tolerated!!**
- Variable names should be meaningful.
- Use comments wherever applicable.
- Submit a cpp file and pdf file containing all of your C++ code with all possible screenshots of every task output on Google Classroom. The name of file should be your roll no followed by your name (roll-no-name.pdf) i.e., (23P-1234-Ali.pdf).

Problem: 1

Develop a C++ program to assist a store in managing its inventory dynamically. Allow the user to input the desired size of the inventory array, and then generate random quantities of product items to fill the array. Your program should address the following tasks using pointer notation:

1. **Calculate the Average Stock Level:** Find the mean (average) stock level of all the products in the inventory.
2. **Identify Critical Products:** Determine and count the products in the inventory that are critically low (less than the average) in stock.
3. **Discover Top-Selling Product:** Call a method named **findTopSellingProduct** to identify and print the product that sells most frequently. In the case of ties, highlight only one top-selling product.
4. **Find Second Best-Selling Product:** Implement a function, **findSecondBestSeller**, to identify and return the second best-selling product based on sales data.
5. **Sort Products by Popularity:** Create a function named **sortByPopularity** to sort the products in descending order based on their sales volume.

By addressing these tasks, your program can provide valuable insights for inventory management, helping the store optimize stock levels, identify crucial items, and enhance overall product performance.

Problem: 2

Create a dynamic array of size n. After taking the elements as input, determine whether the array is in ascending order, descending order, or not in any order.

Note: Use only pointers. Do not provide an index-based solution; otherwise, zero marks will be awarded.