CL1002
Programming Fundamentals

Lab 07
Tasks

NATIONAL UNIVERSITY OF COMPUTER AND EMERGING SCIENCES

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LAB EXERCISES

Task 01 – Student Performance Tracker

A teacher maintains exam scores of her 10 students. After every test, she spends time manually finding the top scorer, lowest marks, and the class average. To make this faster, she decides to automate the process. Your task is to write a program that stores the marks of all 10 students in an integer array. Using loops, the program should calculate the highest and lowest marks, along with the average score of the class. The output should clearly display these three values, helping the teacher evaluate overall class performance instantly.

Task 02 – Weekly Temperature Monitor

A small city weather station records the daily temperature (in Celsius) for seven consecutive days. The staff wants a summary showing how many days were “hot” (above 30°C) and how many were “moderate” (30°C or below).
You need to write a program that stores all 7 temperature readings in an array, processes them using loops, and prints the number of hot and moderate days. This will help the team identify patterns in the weekly temperature trend.

Task 03 – Inventory Correction System

A shop owner keeps track of product quantities in an array. During data entry, sometimes negative numbers are entered by mistake, even though stock quantities can never be negative.
You are required to create a simple program that reads the stock quantities of 8 products into an array. Then, it should check each value and replace any negative quantity with 0. The program should finally display the corrected stock list to ensure accurate inventory management.

Task 04 – Attendance Consistency Checker

A training institute tracks student attendance for a week. Each day is marked as 1 for present and 0 for absent. The manager wants to check the weekly attendance consistency of a trainee.
Write a program that stores attendance for 7 days in an array. Use a loop to count the total number of days the trainee was present. Based on the total, display a summary message such as “Excellent Attendance”, “Average Attendance”, or “Needs Improvement”.

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Task 05 – Username Input Validation

An online registration form requires that usernames only contain alphabetic characters (A–Z or a–z). To prevent invalid input, the form should only accept letters and stop reading when any other character is entered.
Write a program that reads a username using a **scanset** (%[A-Za-z]) so only alphabetic characters are stored in the character array. After input, display the username that was successfully accepted by the system.

Task 06 – Password Entry Check

A company's internal login system allows employees to create passwords that contain only numbers and symbols, but not alphabets. The system needs a way to check how long the entered password is and whether it meets the basic requirement for length.
Create a program that reads the password using a **negated scanset** (%[^A-Za-z]), ensuring that alphabets are excluded. After reading the input, count the total number of characters entered and display both the password and its length to the user.

Task 07 – Favorite Number Survey

During a classroom survey, 10 students were asked to share their favorite number between 1 and 10. The instructor wants to find out which number is the most common among them.
Write a program that stores the 10 numbers in an array. Use loops to determine which number appears the most times and print that number along with the number of occurrences. This will help the instructor understand the class's preferences in a simple way.

Task 08 – Product Rating Analysis

A small retail shop collects customer ratings (on a scale of 1 to 10) for 5 new products. The shop owner wants to know the average rating and identify which products scored below 5 so they can be improved.
Write a program that stores the ratings in an array, calculates the average rating, and displays it. The program should then print a list of all products that received ratings below 5 under the title "Needs Improvement."

Task 09 – Secret Word Revealer

A word-guessing game asks the player to enter a secret word that contains only alphabets. The program should store each letter of the word and display how it is positioned in memory.
Write a program that takes a word input using **scanset** (%[A-Za-z]). Then, print each character of the word

along with its index position. This helps players understand how arrays store characters sequentially in memory.

Task 10 – Luggage Weight Checker

At an airport check-in counter, six passengers' luggage weights are recorded before boarding. Any bag weighing more than 25 kilograms is considered overweight and must be flagged.
Write a program that stores the weights of six bags in an array. Using loops, display the weight of each bag and mark those exceeding 25 kg as "Overweight". At the end, display how many bags were found to be overweight. This helps the staff quickly identify excess luggage cases.