Expt. No. 5
Date: 16-09-2026

# Solving Problems using for, while, do-while loops and nested loops

## Spot Quest #1: Nested for Loop

The first-year academic coordinator wants to analyze the performance of students across multiple laboratory sessions. There are N laboratory sessions, and each session evaluates M students. The values of N and M are entered at the beginning of the program. For every session, the marks obtained by each student are entered. Develop a C program using nested for loops to:

1. Process all students in every laboratory session.
2. Calculate the average mark for each laboratory session.
3. Determine the highest mark obtained in each session.
4. Count the number of students who scored below the specified pass mark in each session.
5. Calculate the overall average across all sessions and students.
6. Display a suitable performance summary.

## Spot Quest #2: do... while Loop

The CEG campus administration wants to develop a simple utility-billing application for its facilities. When the application starts, the operator must process at least one facility. For each facility, the operator enters: Facility identification number, Number of electricity units consumed, Cost per unit.

The program calculates and displays the electricity charge for that facility. After processing a facility, the operator is asked: “Do you want to process another facility? (Y/N)”**.** If the response is Y, the next facility is processed. If the response is N, the program terminates. Develop a C program using a do–while loop that:

1. Processes at least one facility.
2. Accepts the required input for each facility.
3. Calculates the electricity charge.
4. Displays the charge for each facility.
5. Maintains the total number of facilities processed.
6. Calculates the cumulative electricity charge.
7. Displays the final summary after the operator terminates the process.