

Lab 09

Repetitions-II (nested while loops)

NOTE: Outputs should be properly formatted.

Problem 01

You are required to create a basic student grade management system that calculates the average grade for each student. The program should ask the user to input the number of students, and for each student, it should take the number of subjects and then the marks for each subject. The program will calculate and display the average marks of each student.

- The program should ask for the number of students.
- For each student, ask for the number of subjects.
- For each subject, take the marks as input.
- Calculate and display the average marks for each student.

Input Validation: Do not accept negative values or values greater than 100 for marks input.

Problem 02

Write a C++ program that takes as input number of rows (1-9) and print a number pyramid using only nested while loops.

```
Enter number of rows: 5
 1
22
33333
4444444
555555555
```

Problem 03

Write a complete C++ program called Integer Square Builder that will ask the user for a single digit integer greater than 0. Validate the input and ask the user for input until a valid integer is given.

Use the integer given by the user to build a square on the screen. The size of the square should be based on the integer given and the square should be displayed in a frame. The length of the sides of the square should be equal to the input integer.

Note: Use setw and setfill for formatting top and bottom frame (-----)

Check below screenshot for the sample input and output:

```
Please enter a single digit, positive, non-zero integer: 6
Here is your square:
-----
|666666|
|666666|
|666666|
|666666|
|666666|
|666666|
-----
```