Lab01_D3_SimplecppDrawing_Conditions

Q1 A) Number Classification

Given an integer **n** as input, your task is to write a program to classify it based on its value:

- 1. **Positive**: If the integer is greater than zero.
- 2. **Negative**: If the integer is less than zero.
- 3. Zero: If the integer is exactly zero.

Input Format

• A single integer '**n**'.

Output Format

- Print "Positive" if the integer is greater than zero.
- Print "Negative" if the integer is less than zero.
- Print "Zero" if the integer is exactly zero.

Assumptions on the input

Assume that the user enters any integer value (positive,negative or zero) in the range -1000 to 1000.

Input	Output
5	Positive
-3	Negative
0	Zero

Q1 B) Grades

Write a C++ program that takes an integer score (representing a student's marks) as input and classifies the score into a letter grade based on the following criteria:

- A: Score is between 90 and 100 (inclusive)
- B: Score is between 80 and 89 (inclusive)
- C: Score is between 70 and 79 (inclusive)
- D: Score is between 60 and 69 (inclusive)
- F: Score is below 60

For example,

If the student's marks are 90, then the grade corresponding to it is "A". Hence, print "A".

Input Format

• The input is an integer 'n'

Output Format

• The output should contain students' grades corresponding to the given marks.

Assumptions on Input

• Assume that the value of n entered by the user is between 1 and 100, both inclusive.

Note

- Do not write any C++ statements for printing general messages. For example, the following should NOT be present in your program:
 - o cout << "Enter a number:",</p>
 - cout << "The computed answer is", etc.
- cout should be used to print only the computed final output. In addition, do not print unnecessary spaces unless specified in the program.
- If any hard coding is found, or if any test case passes by merely writing a cout statement and without any logic, then the marks for that test case will NOT be awarded.

Visible Test Cases

Input	Output
90	A
10	F
83	В

Q2) Point Location Relative to Line

Given a non-vertical line defined by the equation Ax+By+C=0 and a point (x,y), determine the point's location (above/on/below) relative to the line. Write a program for this.

Input Format

- Three integers: A, B, and C representing the coefficients in the line equation Ax+By+C=0.
- Two floating-point numbers : x and y representing the coordinates of the point.

Output Format

- Print "On the Line" if the point lies exactly on the line.
- Print "Above the Line" if the point lies above the line.
- Print "Below the Line" if the point lies below the line.

Assumption on input

Assume B is not equal to 0.

Input	Output
1 -1 0 2 2	On the Line
12-3 10	Below the Line
1 2 3 -3 4	Above the Line

Q4) Star

Write a program using simplecpp to draw a 5-pointed star with each side of 200 units. Use the repeat command.



Note

- Do not write any C++ statements for printing general messages. For example, the following should NOT be present in your program:
 - o cout << "Enter a number:",</p>
 - \circ cout << "The computed answer is", etc.
- cout should be used to print only the computed final output. In addition, do not print unnecessary spaces unless specified in the program.
- If any hard coding is found, or if any test case passes by merely writing a cout statement and without any logic, then the marks for that test case will NOT be awarded.

Q5) Patterns

Write a program using *simplecpp* to draw the patterns (examples given below) with each side of length 50 units. Nested repeat may be required. As input, you will be given an integer n which denotes the number of sides of the dashed line polygon.

For example,

if n = 6, then the pattern will look like



if n = 3, then the pattern will look like



if n = 8, then the pattern will look like



Note

- Do not write any C++ statements for printing general messages. For example, the following should NOT be present in your program:
 - cout << "Enter a number:",
 - cout << "The computed answer is", etc.
- cout should be used to print only the computed final output. In addition, do not print unnecessary spaces unless specified in the program.
- If any hard coding is found, or if any test case passes by merely writing a cout statement and without any logic, then the marks for that test case will NOT be awarded.