

Branch : MCA

Semester : Spring Semester 2022-23

Course Code : CA3205

Laboratory Name : Numerical Computing Lab

Assignment No. : ASSIGNMENT – 2

Assignment Title : Functions to C++

- 1) Write a function in C++ to print the following pattern by taking number of lines, and difference as parameters with default arguments.

no. of lines =5, difference =1

1

2 3

4 5 6

7 8 9 1

2 3 4 5 6

no. of lines =4, difference =2

1

3 5

7 9 1

3 5 7 9

- i. The default value of number of lines is 5
 - ii. The default value of difference is 1
- 2) Write a program in C++ to define a structure 'product' with data members : productid and rating (in range 1 to 5). Input productid and rating for 'n' number of products. Write a function to return the number of TOP rated, AVERAGE rated, and LOW rated products using reference arguments, where criteria for each category is given as follows:
- i. TOP rated : rating ≥ 4
 - ii. AVERAGE rated : $3 \leq \text{rating} < 4$
 - iii. LOW rated : below 3
- 3) Write a C++ program with following inline function.
- i. Verifying Ideal gas law (Chemistry)
 - ii. To compute buoyant force using archimedes principle
 - iii. Final displacement using newton's first law of motion
 - iv. To compute a XOR b

- 4) Write a program in C++ to define an overloaded functions "**plusoverloaded**" that returns result depending on the type of inputs
- i. if two floats are passed, then addition operation to be performed on inputs.
 - ii. if two strings are passed, then concatenation of two strings is performed.
 - iii. if an integer array, its size and an integer is passed then the given integer is added to all the elements of the array.
 - iv. If two integer arrays are passed, the both the arrays are merged by eliminating duplicate entries.

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