National University of Computer and Emerging Sciences



Programming Fundamentals CS188 Lab Manual

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Section BDS-1B1 & B2

Semester FALL 2021

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Objectives

After performing this lab, students will be able to:

Write C++ Code for the problems involving 2D-Arrays.

Instructions

- For each problem, your filename should be "q Number".cpp. e.g For Problem 1, create "q1.cpp".
- Zip all files in a folder and your submission zip filename must be your rollno. e.g "21L1234.zip". Note your zip file shall contain all the .cpp files for the problems you solved.
- Submit the zip folder on Google classroom.
- Use #include <string> library for string related problems.
- Plagiarism is strictly prohibited.
- Good Luck.

Problems

Write C++ Code for the following Problems.

Problem#1

- Create a Vector of Size 10.
- Increase its size to 13 by pushing 1, 2, 3 values. (Use push back)
- Display the size of the vector
- Display all values of the vector
- Decrease its size to 11 by removing last 2 values (Use pop back)
- Display size of the vector
- Display max size of the vector. (Use max size)
- Fetch Last Index Value with at() vector function and by array method.
- Fetch Last Index + 1 Value with at() vector function and by array method. Specify the difference in comments.
- Use insert() and erase() to insert element and erase it.

| • Use clear to remove() all values from vector. | |
|---|--|
| Syntax: #include <vector></vector> | |
| ##Create Vector of 0 size vector <type> name; ##Create Vector of size vector <type> name(size);</type></type> | |

Problem#2

- Create a Vector of Size 10.
- Use iterator to populate its values (Use begin and end)
- Use iterator to display its values
- Use iterator to display its values in reverse order (Use rbegin and rend)

Problem#3

Write table of 2 in a file named as table.txt

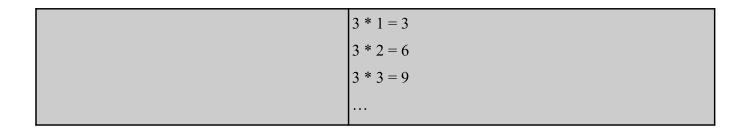
How to read and write file in c++: https://www.w3schools.com/cpp/cpp files.asp

| Syntax: | table.txt: |
|---|------------|
| | 2 * 1 = 2 |
| " — 55 G — 65 G | 2 * 2 = 4 |
| MyFile.close(); | 2 * 3 = 6 |
| | 2 * 4 = 8 |
| | 2 * 5 = 10 |
| | |

Problem#4

Read table of 2 from the above file, display on console and append table of 3 in the file.

| Syntax: | table.txt: |
|--|------------|
| | 2 * 1 = 2 |
| MyFile | 2 * 2 = 4 |
| .open ("a.txt",ios::app); // Append mode | 2 * 3 = 6 |
| check if file is open: | 2 * 4 = 8 |
| <pre>if (MyFile.is_open()) ####</pre> | 2 * 5 = 10 |
| | |



Problem#5

Write two strings and swap one with the other.

| - | Output |
|----------------------------|------------------|
| #include <string></string> | Before Swapping: |
| string s1= "FAST"; | s1: FAST |
| string s2= "University;" | s2: University |
| | |
| | After Swapping: |
| | s1: University |
| | s2: FAST |