National University of Computer and Emerging Sciences

Programming Fundamentals
CS188 Lab Manual

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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> ##Create Vector of 0 size vector <type> name; ##Create Vector of size vector <type> name(size);	

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)

Syntax:	
`for (auto i = g1.begin(); i != g1.end(); ++i)` `cout << *i << " ";`	

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:**

`#include <fstream>`
`ofstream MyFile("table.txt");`
`MyFile.close();`
	2 * 1 = 2
	2 * 2 = 4
	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:**

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

	3 * 1 = 3 3 * 2 = 6 3 * 3 = 9 …

Problem#5

Write two strings and swap one with the other.

-	**Output**
#include <string> string s1= “FAST”; string s2= “University;”	Before Swapping: s1: FAST s2: University After Swapping: s1: University s2: FAST