

National University of Computer and Emerging Sciences



Programming Fundamentals CS188 Lab Manual

Course Instructor

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Section


BDS-1B1 & B2

Semester

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**FAST School of Computing
Department of Software
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National University of Computer and Emerging Sciences, Lahore Campus

	PF Lab # 11		
	Course Name:	Programming Fundamentals	Course Code:
	Program:	BS(DS)	Semester:
	Duration:	3 hours	Total Points:
	Lab Date:	Saturday, December 11, 2021	Weight
	Section:	BDS-1B1, 1B2	Page(s):

Instruction/Notes: Cheating during the lab will result in negative marks

Topics Covered: 2D Arrays, Char Array

Submission Instructions:

1. Save all .cpp files according to the following naming convention {ROLLNO}_{ACTIVITYNO}_{TASKNO}.cpp **FOR EXAMPLE.** 21L-XXXX_A01_P01.cpp, 21L-XXXX_A01_P02.cpp, 21L-XXXX_A02_P01.cpp
2. Now create a new folder according to the following naming convention {ROLLNO}_{LABNO} e.g. 21L-XXXX_L02
3. Move all of your .cpp files to this newly created directory and compress it into a single file.
4. Submit this compressed file on Google Classroom.
5. You will get 10 Bonus point if you will follow these instructions correctly.

Problems

Write C++ Code of the following Problems using For Loop.

Problem#1

Write a program that takes two matrices as input and return their subtraction.

Input	Output
Enter size of row:2 Enter size of column:2 Enter elements of matrix A 6 7 5 1 Enter elements of matrix B 4 0 7 5	A-B 2 0 -2 -4

Problem#2

Write a function that takes an integer array and data to be searched and implements linear search algorithm. This algorithm examines each element in the array until it finds a match, starting at the beginning of the array until the end. The search is finished and terminated once the target element is located. If the target element is not present in the array then it should print that the search was unsuccessful. The elements of array are.

9	55	60	81	49	66	49	10
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Input	Output
Enter search element: 49	49 is found at index 5 in the array.

Problem#3

Write a program that generates a 2D array of ten random integers and compare it with Premium Bond Number entered by user to announce Premium bond winner.

Note:

For random number generator include following header file and code.

```
#include <cstdlib>
```

```
int r = (rand() % 9) + 1;
```

Input					Output				
Enter your Premium Bond number:					Premium Bond Prize Winner:				
8	6	5	4	3	8	9	7	4	3
2	2	8	4	5	2	2	8	4	5
					You Lost the prize from 2 numbers.				

Problem#4

An IELTS examiner wants you to prepare a program that grades user exams. The Exam comprises over 20 MCQs type questions. Here are the correct answers.

1. B 6. A 11. B 16. C
2. D 7. B 12. C 17. C
3. A 8. A 13. D 18. B
4. A 9. C 14. A 19. D
5. C 10. D 15. D 20. A

It stores the answer in an array and asks the user to input their answer. Then it compares the answers and grade the student based on following criteria.

- A grade if correctly answered questions are ≥ 18
- B grade if correctly answered questions are ≥ 14
- C grade if correctly answered questions are ≥ 10
- Fail if a student gets less than 50 percent in exam.

Input	Output
Enter your answers. 1. B 6. A 11. B 16. C 2. D 7. B 12. C 17. C 3. A 8. A 13. D 18. B 4. A 9. C 14. A 19. D 5. C 10. D 15. D 20. A	You got A grade

Problem#5

Write a program that takes string as user input and convert lower case string into upper case string and vice versa.

Input	Output
Enter the string: pAkisTan	PaKIStAN

Problem#6

Write a program that takes an array of cstrings (2d null terminated char array) of students names in a class of 50 as input and then sort these names alphabetically (by using bubble sort or selection sort).

Input	Output
Enter Student names: Furqan Saim Asher Hashir Navroz..... Enter 1 for Bubble Sort and 2 for Selection sort:1	Student Names after applying Bubble Sort: Asher Furqan Hashir Navroz Saim.....