National Institute of Technology Calicut
Department of Computer Science and Engineering

Monsoon 2021
S1 MCA
CS2092D Programming Laboratory

Policies for Submission and Evaluation

You must submit your assignment in the moodle (Eduserver) course page, on or before the submission deadline. Also, ensure that your programs in the assignment must compile and execute without errors in any server. During evaluation your uploaded programs will be checked in your personal computer only. Failure to execute programs in the assignment without compilation errors may lead to zero marks for that program.

Your submission will also be tested for plagiarism, by automated tools. In case your code fails to pass the test, you will be straightaway awarded zero marks for this assignment and considered by the examiner for awarding F grade in the course. Detection of ANY malpractice regarding the lab course will also lead to awarding an F grade. Last date for submitting:

Naming Conventions for Submission

Submit a single ZIP (.zip) file (do not submit in any other archived formats like .rar or .tar.gz). The name of this file must be ASSG<NUMBER>_<ROLLNO>_<FIRSTNAME>.zip. (eg: ASSG1_MxxyyyyCA_LAXMAN.zip). DO NOT add any other files (like temporary files, input files, etc.) except your source code, into the zip archive. The source codes must be named as ASSG<NUMBER>_<ROLLNO>_<FIRSTNAME>_<PROGRAM-NO>.<extension>. (For example: ASSG2_MxxyyyyCA_LAXMAN_1.c). If there are multiple parts for a particular question, then name the source files for each part separately as in ASSG2_MxxyyyyCA_LAXMAN_1b.c.

If you do not conform to the above naming conventions, your submission might not be recognized by some automated tools, and hence will lead to a score of 0 for the submission. So, make sure that you follow the naming conventions.

Standard of Conduct

Violations of academic integrity will be severely penalized. Each student is expected to adhere to high standards of ethical conduct, especially those related to cheating and plagiarism. Any submitted work MUST BE an individual effort. Any academic dishonesty will result in zero marks in the corresponding exam or evaluation and will be reported to the department council for record keeping and for permission to assign an F grade in the course. The department policy on academic integrity can be found at: https://minerva.nitc.ac.in/sites/default/files/attachments/news/Academic-Integrity_new_0.pdf

Assignment-2
Questions

1.a) Find the smallest element in the array.

Input1 : n=6, 1 2 3 4 5 6

Output1 : 1

Input2 : n=4, 12 34 5 6

Output2 : 5

1.b)Given an array of size n containing only 0s, 1s, and 2s; sort the array in ascending order.

Input1 : n=5, 0 2 1 2 0

Output1 : 0 0 1 2 2

Input2 : n=3, 0 2 1

Output2 : 0 1 2

2.a) Write a program to swap two number using pointer

Input 1 : 10 5

Output1 : 5 10

Input 2 : -1 5

Output 2 : 5 -1

2.b) Write a program to reverse an array using pointers.

Note : Here n is the size array

Input 1 : n=5, 1 2 3 4 5

Output 1: 5 4 3 2 1

Input 2 : n=7, 8 0 8 1 1 4 3

Output 2: 3 4 1 1 8 0 8

3. a) Write a C program for searching an element k in an unsorted array.

Input1: [19,25,99,36,11,44,85,27], k=44

Output1: element is found at index 5

Input2: [24,85,94,63,58,101], k=91

Output2: element not found

3. b) Write a C program for rotate an array by two position left.

Input1: [19,25,99,36,11,44,85,27]

Output1:[99,36,11,44,85,27,19,25]

Input2: [1,2,3,4,5,6,7,8,9]

Output2: [3,4,5,6,7,8,9,1,2]

4.a) Find two elements in an array such that their sum equals to ‘K’. (if more than one pair exists, print the first pair only).

Input1: [42, 23, 15, 10, 16, 8, 4], k=23

Output1:[15,8]

Input2: [42, 23, 15, 10, 16, 8, 4], k=29

Output2: No pair exist with sum 29

4.b) Write a C program to find the maximum and minimum element in a given array.

Input1: [19,25,99,36,11,44,85,27]

Output1:min=11, max=99

Input2: [1,2,3,4,5,6,7,8,9]

Output2: min=1, max=9

5.a) Write a program to sort an array using insertion sort

Input 1 : 0 2 1 4 0 7

Output 1: 0 0 1 2 4 7

Input 2 : 67 54 33 -1 0 99

Output 2: -1 0 33 54 67 99

5.b) Given an array of size n and an integer k you have to sort the array using insertion sort and print the sorted array and k th element of the sorted array.

Input 1 : n=6, k=3, 0 2 1 4 0 7

Output 1: 0 0 1 2 4 7 kth element: 1

Input 2 : n=6, 9 8 7 6 5 4 k=5

Output 2: 4 5 6 7 8 9 kth element : 8