North South University, CSE115, Assignment 1,
Fall 2025, Due Date: 4th December, 2025

1)Write a C program to modify an element in index k (value from user) in an array of all unique integers.
2) Write a C program to delete an element from index k (value from user) in an array of all unique integers.
3) Write a C program to insert an element in index k (value from user) in an array of all unique integers.
4) Consider an array int X[100]. Populate the first n elements of the array (n to be taken from user). Populate the first n elements of the array, then add/insert a new element after the first n element.
5) Write a C program that reads the size and elements of an array of float values from user and then computes the average of the numbers in it and prints it. Then it should compute number of elements which are greater than average and prints those elements.
Sample input/output:
Enter array size: 5
Enter elements: 12 13 16 15 14
Average = 14.000000, The elements greater than average are: 16, 15
6)Write a C program to display all unique elements (elements that occur only once) in an array of integers
7) Write a C program to count the total number of duplicate (more than once) element in an array of integers.
Sample input/output:
Input the number of elements to be stored in array: 5
Input elements are: 9 15 13 15 9
Expected output: Total number of duplicate element found in array: 2

8) Write a C program with a function that will reverse the elements in an array of integers.
Function Prototype: void RevArr (int arr[], int size);

9) Write a C program to rotate an array by N positions (N to be given by user). Function prototype: void shiftArr1Pos (int arr1[], int arrSize); void arr1Rotate (int arr1[], int arrSize, int rotFrom)

Sample Input:
Enter array elements: 0 3 6 9 12 14 18 20 22 25 27
Expected Output:
From index 4 Position, array elements are: 12 14 18 20 22 25 27
Array elements prior to index 4: 0 3 6 9
After rotating from index 4, the array is: 12 14 18 20 22 25 27 0 3 6 9

10) Write a C program with the function which replaces all occurrence of one character with another character in a string and displays the modified string in main().
Function prototype: void Replace (char arr[], char oldChar, char newChar); Replace ( ) replaces all occurrences of oldChar with newChar in string pointed to by arr.

11) Write a C program to remove all characters in a string except the alphabets.
Sample Input Strintg: corona2_update1ne$ws.co3m
Expected Output: coronaupdatenewscom

12)Declare two strings A and B of size 100 and 50 respectively. Then take user input for both the string. Concatenate (join) B at the end of A using loop [you are not allowed to use library functions]. Display the final string after concatenation.
Enter first string: Bangla
Enter second string: desh
After joining, first string is: Bangladesh

13) Write a C program to check whether a string is palindrome (eg: "DAD", "MADAM") or not
[You may not use any string.h library function to solve the problem]

14) struct student{ int ID; char fname[20]; char lname[20]; int age; float cgpa; }; Using the structure student (declared above), enter the records of 5 students in an array of structure named stlist[] and display
1)information of student whose ID is provided by user. If Invalid ID, then show an error message,
2) the name of youngest student
3) detail information of student/students with highest cgpa
4) information of students whose first name (fname) is not John

15) Create a structure called Student with the following members: ID, Name, CgpaAge, Gender, ContactNumber and Address. Assume that there will be maximum of 100 students in the array.
Populate the array with information of n number of students (the number n is to be provided by user). [You may write a menu driven program or you may make function calls from main().You may not declare the array of structure as global variable.]
a) Write a function to display id and names of all students who have a CGPA more than 3.5 in the n number of students in the array
b)Write a function to insert a new student information at the end of n number of students in the array
c)Write a function to delete student information given a name by the user [Consider all names are unique]
d) Write a function to modify contact number or address of a record given the ID number of a student.

Practice Problem (no need to submit)

1)Consider an array of 10 integers. Write a program in C to arrange the integers in ascending order.

2) Write a program in C to find the perfect numbers in an array of integers. Copy the perfect numbers in a second array and print the new array with the perfect numbers. Find the maximum perfect number in the second array.

[Try this problem using the function **int ckperfect(int num)**. The function will take individual array elements as input and return 1 if the array element is perfect]

3) Write a program in C that has the following functions

void squarearray (int arr[], int size)

void revarray (int arr[], int size)

The function **squarearray ()** will array square the elements of the array. The **revarray ()** function will reverse the element of the array after the elements are squared. Print the modified array from main().

4) Write a C program that has the following function which reverses a string (you cannot not use library function). Take the string as input in main(). Make function call from main(). Display modified string in main(). **void stringrev(char arr[]);**

5)

Write a function that shows the number of vowels and consonants in a string.

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void count(char arr[]);
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Sample Output 1:

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Enter string: Bangladesh
Vowels: 3
Consonants: 7
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Sample Output 2:

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Enter string: Programming
Vowels: 3
Consonants: 8
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6) Write a C program to count the total number of words in a string.

7)Write a C code to convert all alphabet characters in a string into lower case. 8) Write a C program that reads a string, create a new string containing all the characters the input string except the vowels in it, and then prints the new string. Sample input/output: Enter a string: Hello how are you? Output string: Hll hw r y? 9)Write a program that reads a string from user and then prints the number of times different letters appear in that string. Sample input/output: Enter a string: Hello how are you? Frequencies of letters in the input string: a/A: 1, e/E: 2, h/H: 2, l/L: 2, o/O: 3, r/R: 1, u/U: 1, w/W: 1, y/Y: 1,