

Data Structures and Algorithms

Assignment # 1

Start Date: 28-10-2023

Section: V16

Marks: 30

Due Date: 05-11-2023

Read this before solving your assignment

1. This is not group assignment.
2. Sharing of assignment ideas, content, solutions is **not permissible** with your class fellows.
3. Your performance during viva sessions will play a lead role to determine your grades.
4. Please submit the assignment as per given deadline. Late submitters will be not accepted
5. Upload .cpp file.
6. The name of file should be like yourName_ yourRollNumber.
7. Mention your Name and Roll number on top of .cpp file

Evaluation of Assignment

Following is the evaluation criteria of your assignment.

Feature	Assessment Criteria	Marks
Present ability	Code is clean, properly formatted, proper user menu, handle all the exceptions and follow the instructions	08
Assignment Content	Question solved correctly.	22

Implement the following functions

CLO-1

You are hired to developing a dynamic array for a simple data management application. Users can input data, manipulate the array, and view its contents. The array should also have a mechanism to check if it's full, and it must prevent the addition of duplicate elements. For this data management application, make user manual to perform following tasks:

1. **When a user presses 1**, he/she can enter data into the array.
2. **When a user presses 2**, he/she can insert data at the zero index.
3. **When a user presses 3**, he/she can insert data at a specific address while retaining the existing elements' order.
4. **When a user presses 4**, he/she can remove the element at the zero index.
5. **When a user presses 5**, he/she can remove the element at the last index.
6. **When a user presses 6**, he/she can remove an element at any given index.
7. **When a user presses 7**, he/she expect to see the current state of the array.
8. **When a user presses 8**, he/she can increase the size of array.
9. Program must not be terminated, until **user presses 9**.

Note:

All the above functionalities must be performed in the function, in main(), you just make the user manual, and call the related functions.