CL-210

Objectives:

- Stacks
- Array based stacks
- Linked list based stacks

Data Structures Lab

Note: Carefully read the following instructions (*Each instruction contains a weightage*)

1. There must be a block of comments at start of every question's code by students; the block should contain brief description about functionality of code.
2. Comment on every function and about its functionality.
3. Mention comments where necessary such as comments with variables, loop, classes etc to increase code understandability.
4. Use understandable name of variables. 5. Proper indentation of code is essential.
6. Write a code in C++ language.
7. Make a Microsoft Word file and paste all of your C++ code with all possible screenshots of every task **outputs in Microsoft Word and submit word file. Do not submit .cpp file.**
8. First think about statement problems and then write/draw your logic on copy.
9. After copy pencil work, code the problem statement on MS Studio C++ compiler.
10. At the end when you done your tasks, attached C++ created files in MS word file and make your submission on Google Classroom. (Make sure your submission is completed).
11. Please submit your file in this format **19F1234_L4**.
12. Do not submit your assignment after deadline. Late and email submission is not accepted.
13. Do not copy code from any source otherwise you will be penalized with negative marks.

Problem: 1 |

Implement the stack array with size 10. It should have the following virtual functions:

1. initializeStack: Initializes the stack to an empty state.
2. isEmptyStack: Determines whether the stack is empty.
3. isFullStack: Determines whether the stack is full.
4. push: Adds a new element to the top of the stack.
5. top: Returns the top element of the stack.
6. pop: Removes the top element of the stack.

Problem: 2 |

Write a C++ program to reverse the content of an array-based stack.

Problem: 3 |

Write a C++ program to implement stack using Linked List.
The program should use the following functions.

1: Push(element)

2: Pop()

3: Display_stack() // Display the stack using recursion

Problem: 4 |

Write a C++ program to implement stack using Linked List.

1. Reverse stack()
2. isEmpty()
3. Display()

Best of luck