CP Assignment 04

Create Class Templates for the following two classes and test the program for two different primitive types say (integer or double) for both ADTs (Abstract Data Types).

1. A **Queue** is a data structure that can be logically thought as linear structure represented by a real line of persons or row, a structure where insertion and deletion of items takes place at different end called rear and front of the queue. The element added first in the queue will be the one to be removed first. Elements are always added to the back or rear and removed from the front.
    Your task is to define a class queue that has default size of 6 elements. Initialize the queue with default constructor, also provide following operations.
    *   Check_Empty() : used to check if the queue is empty
    *   Check_Full() : used to check if the queue is full.
    *   Enqueue(): Adds an element to the back of the queue if the queue is not full otherwise it will print "OverFlow"
    *   Dequeue(): Removes the element from the front of the queue if the queue is not empty otherwise it will print "UnderFlow".
    *   Display() : Display the elements of queue.
    Write a program that provides a menu to test the class queue and its functions.

2. A **Stack** is a data structure that can be logically thought as linear structure represented by a real physical stack or pile, a structure where insertion and deletion of items takes place at one end called top of the stack. Every time an element is added, it goes on the top of the stack and the only element that can be removed is the element that is at the top of the stack.
    Your task is to define a class stack that has default size of 6 elements. Initialize the stack with default construct, also provide following operations.
    *   Check_Empty() : used to check if the stack is empty
    *   Check_Full() : used to check if the stack is full.
    *   push(): used to insert new elements into the stack. You cannot perform push operation if the stack is full.
    *   pop(): used to remove an element from the stack. You cannot perform pop operation if the stack is empty.
    *   Display() : used to display stack items.
    Write a program that provides a menu to test the class stack and its functions.

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