CSE 4304: Data Structures Lab

Lab 02 Group 1B

Task 1:

Create a Dynamic Array Class containing the following methods:

- **Get(i):** returns the element at location i
- **Set(i, val):** Sets element i to val
- **PushBack(val):** Adds val to the end
- **Size():** returns the number of elements in the array
- **Capacity():** returns the current highest number of elements the array can store
- **Reverse():** reverses the order of the elements of the original array.

Note: Some of the methods are completed for your convenience. You can look up the pseudo-code of the methods while implementing them.

Task 2:

Given an integer array **nums** and an integer **val,** Remove all occurrences of **val** from the array **nums** and store the remaining elements in the first part of the array keeping the relative order unchanged. If there are **k** elements after removing all the occurrences of **val**, the first **k** elements of nums should hold the final result, it does not matter what is stored after the first **k** elements.

[*Your solution should contain a method that takes the **nums** array as an input parameter and returns the resulting array. You should use objects from your custom-made Dynamic Array class*.]

Example 1:

Input: nums = [3,2,2,3], val = 3
Output: [2,2,_, _]
Explanation: After removing all occurrences of 3, the array looks like [_ ,2,2,_]. But we have to store the remaining elements in the first part of the array so the final resulting array will look like this [2,2, _, _].

Example 2:

Input: digits = [0,1,2,2,3,0,4,2], val = 2
Output: [0,1,3,0,4,_,_,_]

Task 3 (Bonus):

Complete the Task 2 by only modifying the original array i.e. without using any additional temporary array.