

CSC 340.02 - Spring 2022 - Assignment 3

Due: 04/15 11:55pm

Grade: 75pt - 15%

**Guidelines for the assignment submissions:**

What to submit?

- One zip/tar.gz file:
  - Name: <First Name><Last Name>-Assignment-#.zip
  - 1 directory for Stack implementation and 1 implementation file for 2nd question
  - Source code should include only files that we create and edit (\*.cpp and/or \*.h)

How to submit?

iLearn, Assignment Submission section

1. Stack (50pt)

Write an implementation of the ADT stack that uses a resizable array to represent the stack items. Anytime the stack becomes full, double the size of the array. Maintain the stack's bottom entry at the beginning of the array. (25pt)

- DEFAULT\_SIZE for stack is 6

Test your stack implementation: take a string input and output the result of the following: (20pt)

1. Reverse the words in a sentence using your stack.
  - Example: "this is fun"  $\Rightarrow$  "fun is this"
2. Check if a string is palindrome using stack
  - Example: as question 1

Readme file and code style (5pt)

You must use the included stack interface for this exercise.

## 2. AddTwoNumber: (25pt)

Given two linked lists that represent numbers starting with the most significant digit, add the two numbers together and return a list that represents the sum of the two numbers. You may assume the numbers are non-negative and have no leading zeros.

Example 1:

```
321 + 432 = 753
  3 -> 2 -> 1 -> null
+ 4 -> 3 -> 2 -> null
= 7 -> 5 -> 3 -> null
```

Example 2:

```
999 + 99 = 1098
  9 -> 9 -> 9 -> null
    + 9 -> 9 -> null
= 1 -> 0 -> 9 -> 8 -> null
```

Add your implementation to the included AddTwoNumber.cpp file.

Grading:

- 50% If only test case 1 is passing
- 100% If both test case 1 and test case 2 are passing