San José State University
Department of Computer Engineering

CMPE 180-92

Data Structures and Algorithms in C++

Fall 2016
Instructor: Ron Mak

Assignment #7B

Assigned: Saturday, October 8
Due: Friday, October 14 at 11:59 PM
URL: http://codecheck.it/codecheck/files/16100806284aw0zmi1by9nf8kf6l358m6k
Canvas: Assignment 7.b. Class Templates
Points: 100

Class templates

In this assignment, you will practice converting classes to class templates that will support multiple types.

Classes `Node` and `SortedLinkedList`

You are provided classes **`Node`** and **`SortedLinkedList`** in source files **Node.h** and **SortedLinkedList.h**, respectively, that together implement a sorted linked list of integer values, and a test program in source file **SortedLinkedListTests.cpp**. Convert the classes to class templates so that the C++ compiler can generate sorted linked list code for different types. Modify the test program to test sorted linked lists for both integers and strings.

Rubrics

Criteria	Maximum points

Correct program output (by CodeCheck)
• Correct output from **`test_integer`**:
  ○ insertion
  ○ search
  ○ removal
• Correct output from **`test_string`**:
  ○ insertion
  ○ search
  ○ removal
	30
	• **`test_integer`**:
	  ○ 5
	  ○ 5
	  ○ 5
	• **`test_string`**:
	  ○ 5
	  ○ 5
	  ○ 5

Class templates • **`Node`** • **`SortedLinkedList`**	**10** • 5 • 5
`Node` member function templates • constructor • destructor	**10** • 5 • 5
`SortedLinkedList` member function templates • constructor • destructor • **`get_head`** • **`find`** • **`insert`** • **`remove`** • **`clear`**	**50** • 5 • 5 • 5 • 5 • 10 • 10 • 10

You can submit as many times as necessary to get satisfactory results, and the number of submissions will not affect your score. When you're done with your program, click the "Download" link at the very bottom of the Report screen to download the signed zip file of your solution.

Submit the signed zip file into **Canvas: Assignment 7.b. Class templates**.