

Lab 11

Course: CSE 165

Section: 04L

Due: Thursday, December 9, at 11:59 pm

All the exercises below are selected from the textbook: Thinking in C++ (volume 2).

1. [Exercise 21 on Page 261] Create a template that implements a singly-linked list called SList. Provide a default constructor, begin() and end() functions (thus you must create the appropriate nested iterator), insert(), erase() and a destructor. [\[35 pts\]](#)
2. [Exercise 17 on Page 338] Fill a vector<double> with numbers representing angles in radians. Using function object composition, take the sine of all the elements in your vector (see <cmath>). [\[20 pts\]](#)
3. [Exercise 23 on Page 339] Create a Matrix class which is made from a vector<vector<int>>. Provide it with a friend ostream& operator<<(ostream&, const Matrix&) to display the matrix. Create the following using the STL algorithms where possible (you may need to look up the mathematical meanings of the matrix operations if you don't remember them): operator+(const Matrix&, const Matrix&) for Matrix addition, operator*(const Matrix&, const vector<int>&) for multiplying a matrix by a vector, and operator*(const Matrix&, const Matrix&) for matrix multiplication. Demonstrate each. [\[45 pts\]](#)

Requirements:

- * Usage of spaces, blank lines, indentation, and comments for readability.
- * Descriptive names of variables, functions, structs, classes, and objects (if any).
- * Appropriate usage of structs, classes, and objects (if any).

Penalties:

- * 10-point deduction per day late until zero.
- * Zero if you have possession of a copy of online solutions or work done by someone else.