

COSC 3100 – Data Structures II

Assignment 10

Deadline November 20, 2023

Develop a template class called 'SortedList' to store an array of values of some type, and provide the following public functions:

SortedList(int size)

Constructor in which the initial size of the array is specified and dynamically allocated. *Pass the value 10 for the purpose of this assignment.*

~SortedList()

Destructor to destroy the array of values.

void insert(const T& item);

Insert a value into the list. If the list is already full then an additional 10 elements should be added. *Make sure that this update of size is executed at least once.*

void randomise()

Randomise the order of the values in the array.

void selectionSortA()

Perform the 'selection sort' algorithm to sort the array of values into ascending order.

void selectionSortD()

Perform the 'selection sort' algorithm to sort the array of values into descending order.

void quickSortA()

Perform the 'quick sort' algorithm to sort the array of values into ascending order.

void quickSortD()

Perform the 'quick sort' algorithm to sort the array of values into descending order.

void display() const

Display the list of values.

Write a main() function to create an object of type SortedList. The object should be able to store values of type Stock. Populate the list with values by reading from a file and display the original list. Call the 'randomise()' function and re-display the list. Proceed by invoking one of the sorting functions, displaying the resulting list of values, and then calling 'randomise()'. Repeat these steps for the other sorting functions.

THE DEPARTMENT STANDARDS FOR “STYLE GUIDELINES” SHOULD BE FOLLOWED IN ALL CODE.