CS162 – Programming Techniques

Lab 09
Review

Cảm ơn thầy Trần Duy Quang đã cung cấp template cho môn học

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Notes

Create a single solution/folder to store your source code in a week.

Then, create a project/sub-folder to store your source code of each assignment.

The source code in an assignment should have at least 3 files:

- A header file (.h): struct definition, function prototypes/definition.
- A source file (.cpp): function implementation.
- Another source file (.cpp): named YourID_Ex01.cpp, main function. Replace 01 by id of an assignment.

Make sure your source code was built correctly. Use many test cases to check your code before submitting to Moodle.

Name of your submission, for example: **21167001_W01_07.zip**

2
Content

3
Assignments

Inclass assignment: assignment 1.

Homework: 3 assignments.

3.1 Assignment 1

Write a program to load a Linked List of Date (struct must be declared). Sort the Linked List in ascending order and save the results in another text file.

input.txt
2022 02 28 2022 08 15 2020 12 02 2021 05 10

3.2 Assignment 2

Student {ID, Name, GPA};

input.txt
21267001 Tran Van A 8.76 21267126 Nguyen thi B 6.35 21267214 Le VaN C 7.20

Write a program to load a Linked List of Student (struct must be declared).

    a. Find the student with max gpa, if there are more than 1 answer, choose id-less-than student.

    b. Remove students with invalid names (e.g. "TraN VAn A", "nguyen Thi B" and "Pham" are invalid) and save the final result to a text file.

3.3 Assignment 3

Use a recursive algorithm and not recursion to solve the following problem.

Hanoi Tower Games

There are 3 stakes marked as A, B, C and n plates respectively. The discs have different sizes, and each disc has a hole in the middle to plug into the pile. Initially, the plates are all located on pile A, where the small disk is always on the larger plate.

It is required to convert n disks from pile A to target pile C with the following conditions:

- Only 1 disc can be transferred at a time
- During the transfer, the small disc must always be on the larger plate.
- Allows the use of piles B as intermediate piles.