Software Design Patterns Term Project Guideline

Fall 2022

General Guideline

▸ You must write the first 4 problem solving steps in detail, plus the working source code (step 5).

▸ The overall structure of the entire program in terms of functions is very important.

▸ This is a team project.

▸ After defining the overall structure of the program, the team should assign different functions to different members of the team.

▸ Each team member should test and document his/her own functions.

▸ The team should put the pieces together, and do the testing of the entire program together, and update the documentation together.

▸ When submitting the project, each team member must sign off on percentage contribution and the work done.

▸ The submission should include the problem solving step writeup, source code, result screen capture, and the individual contributions signoff – all in a single WORD file. The output file should be separate, and the WORD file and the output file should be zipped into a single zip file. (The zip file name should be the list of team member names.)

Team Mebmer

- One Leader and 3 team member
  - The leader can compose the rest of the team members.

Term Project Specification: (1) Setup

- **** practice file I/O, struct array, basic data structures**
- Read a text file provided (conference registrations data).
- Store the data in a struct array.
- Store the data in a linked list.

Registration Data
(30 records -- including some "Choi", and some "Gachon University")

▸ tag# (registration number – unique integer)

▸ date registered (yyyy-mm-dd)

▸ fee-paid ("yes" or "no")

▸ name (char[25])

▸ age (integer)

▸ organization (company or university; char[30])

▸ job (student, professor, staff, executive, engineer, marketer; char[15])

Term Project Specification: (2) Search, Reorganize

▸ Search for "Choi" (if found, print all information about the persons)
  ▸ in the array
  ▸ In the linked list
▸ Search for all from Gachon University (if found, print all information about the persons).
  ▸ in the array
  ▸ in the linked list
▸ Sort the data in the array in tag# order
▸ Create a linked list using the sorted data.
▸ Sort the data in the array in age group order (using selection sort – self-study)
  ▸ ** "age group" means 10, 20, 30,….
▸ Write the sorted data to a text file.

Term Project Specification:(2) Update

- All "Choi"'s canceled registration. Remove the data from
  - the array (fill the memory)
  - the linked list
- One "Paik" registered late. Add the data to
  - the array (in the sorted order; shift all affected data)
  - the linked list (in the right sorted order)
- Copy the most recent data in the array for transmission to a remote computer.
  - Compute the checksum of the original data (using bitwise ExclusiveOR) and attach it to the copy.
  - Compute the checksum in the copied data, and compare it against the checksum in the original data.
  - Confirm that the two data are the same.