

Homework 4, TCCS 333 Spring 2016

Due: Friday, May 27, 9:00 a.m.

OBJECTIVE

The objective of this assignment is to give you more practice with creating and using ADTs, multi-file program format, and file reading.

ASSIGNMENT SUBMISSION

To get credit for this assignment, you must

- ✓ write a multi-file program in C
- ✓ submit your project as a tar file through Canvas exactly as instructed (naming, compatibility, etc.)
- ✓ submit your assignment on time

PROBLEM STATEMENT

For this assignment, you need to implement a program that helps real estate agents match clients with the houses they may be interested in buying. All the necessary data is provided in txt and csv files and it is your job to put this information together and produce two output files.

Input Files

The first input file is called `clients.txt` and contains the following information about each client:

- id
- name
- street address
- city and state
- phone number

Sample file is provided so that you could see the file format. In order to store this information, you need to create address data type that is capable of storing this information, with each bullet above (other than id) constituting one field within the data type.

The second input file is called `preferences.txt` and contains the following information about each client's preferences:

- client id
- the minimum number of bedrooms
- the minimum number of bathrooms
- the minimum square footage
- the maximum price

Sample file is provided so that you could see the file format. In order to store this information, you need to create preferences data type that is capable of storing this information, with each bullet above (other than id) constituting one field within the data type.

The third input file is called `houses.csv` and contains the following information about each house available for sale at the moment:

- MLS (multiple listing service) number
- street address
- city
- zip
- number of bedrooms
- number of bathrooms
- square footage
- price

Sample file is provided so that you could see the file format. In order to store this information, you need to create houses data type that is capable of storing this information – you may decide what fields the data type should contain based on the needs of the application, but all information needs to be present in that data type one way or the other.

Output Files

Your program is to produce two output files.

The first output file is to help establish which clients should be shown which houses. The file should be called `clientsView.csv` and contain each original client followed by the houses to show them. It is possible that no match for a client was made, in which case "no matches found" should be shown by the client's information. Sample file is provided so that you could see the file format and the contents to be included.

The second output file is to be called `houseView.csv` and contain the houses for which client matches were found. Each line of that file should be the exact match to `houses.csv` file, where each row information is followed by rows containing potential client's information. Client information should include client's id, name, and phone number. Sample file is provided so that you could see the file format and the contents to be included.

Program Specs

- The program needs to follow object-oriented principles and use structures to define data types and their operations
 - one ADT for house objects
 - one ADT for client objects, where client data type consists of data types for client's address and client's preferences
 - completed generic array ADT implementation (include the operations needed by your program) (used to store houses information as one list and clients information as another list)
- The minimum number of files for your program is 7 files: 2 for generic list + 2 for client data type + 2 for house datatype + 1 for a driver
- The driver should make the use of functions
- **You need to create a makefile for your code – the code will not be graded otherwise as there are different linking possibilities**
- All program files must reside in one folder and the contents of the entire folder must be compressed using tar utility (check lab 1 directions to make sure you are compressing an entire folder and not individual files)
- Your tar file should be called `hw4.tar`
- Your program has to follow basic stylistic features, such as proper indentation (use whitespaces, not tabs), meaningful variable names, etc.
- You need to comment your code
- You are not allowed to use global variables
- **Your program must compile in gcc gnu 90 – programs that do not compile will receive a grade of 0**

Extra Credit (15%)

Open-ended – extend the program in some fashion – explain in comments at the top of your driver. Think about other useful information the real estate agent may be interested in collecting.

Program Submission

On or before the due date, use the link posted in Canvas next to Homework 4 to submit your tar file. Make sure you know how to do that before the due date since late assignments will not be accepted.