CS1013 Programming Project 2017

1. Goal

The goal of the project is to construct an application to explore data on property transactions in processing. The data set we will use is from the UK Land Registry.

The application will read in data from a file "pricepaid.csv", render it, and allow the user to interact with it. The data will take the following format (comma separated values):

Price, DateOfSale, Postcode, PropertyType, Old/New, NumName, Street, Locality, Town, District, County

For example:

"126500","2007-05-23 00:00","TS5 5ET","T","Y","94","CLOUGH CLOSE","","MIDDLESBROUGH","MIDDLESBROUGH","MIDDLESBROUGH"

"182500","2007-03-05 00:00","CW9 8AP","S","N","24","BROCKHURST WAY","","NORTHWICH","CHESHIRE WEST AND CHESTER","CHESHIRE WEST AND CHESTER"

"390000","2007-11-13 00:00","EX6 8JG","D","N","APPLEJACK COTTAGE","SOUTHTOWN","KENTON","EXETER","TEIGNBRIDGE","DEVON"

"89950","2007-11-09 00:00","FY4 3HW","T","N","62","HARCOURT ROAD","","BLACKPOOL","BLACKPOOL","BLACKPOOL"

"115000","2007-08-17 00:00","LN4 4RU","D","N","F","JASPERS, 32","","LANGRICK ROAD","CONINGSBY","LINCOLN","EAST LINDSEY","LINCOLNSHIRE",

Each entry appears on a new line. Full datasets are available from links on Module webpage, but will need to be processed to fit into above format. You may add additional fields from the original data if you wish. You may also pull in other data (e.g. mapping postcodes to GPS co-ordinates).

Price – the price paid for the property.
Date – in YYYY-MM-DD HH:MM format. The hours and minutes are not significant and can be ignored.
Postcode is a six-digit alphanumeric identifier denoting a particular location.
PropertyType: D = Detached, S = Semi-Detached, T = Terraced, F = Flats/Maisonettes, O = Other
Old/New: Y = Newly built property, N = an established property

A full explanation of the data is available from https://www.gov.uk/guidance/about-the-price-paid-data

None of the fields will contain comma characters. Some fields may be empty ("" in the examples above).

2. Structure

The program will contain the following components:

- code to read in the data from a file and place it in classes.
  - Processing provides both loadBytes and loadStrings commands
  - A simple (although not particularly efficient) solution would be to define a datapoint class which represents a single price entry. There would be one instance of the class for each entry in the input file.
- code to select a subset of this data.
  - Not all the data will be shown on the screen at one time, and so a set of queries must be defined in your code. At a minimum, the following queries should be implemented:
    - View the data for a particular property, or the properties which match a search query (e.g. the same street).
    - Average prices by geographic area (county, town, etc.).
    - Changes in average prices for geographic areas over time.
- code to draw the data to the screen.
  - The results of each query will need to drawn on the screen.

    - You are encouraged to use graphical representations where appropriate (eg. the data could be on a map or barchart).
- code to handle user commands.
    - Selecting what data is to be displayed (the query), the address, date range, time of day, etc.
- code to put everything together
    - You are advised to have an outline of this as early as possible (first week of project).

3. Assessment

The project marks will be allocated according to both your individual effort and the effort you put into the group. This is a group project, and part of the project is to manage the group effort. Each individual will receive a mark will be based on their own contribution to both the individual and group components**. If you make no contribution to individual or group tasks, you will receive no marks**.

You will be required to submit and demonstrate the current status of your project **every week** until the end of the semester. **Half** of the project marks will be allocated for the **weekly submissions**.

Hence it is not possible to leave the project until the end of the semester.

Code is to be submitted via the subversion revision control system. All code must be commented, and the authors indicated. You **must** use comments to indicate revisions to the code (eg. " M. Jones, Added Graph class for displaying results, 8pm, 10/3/2017". "J. Smith, Updated to show the dates on the chart, 7pm 14/3/2017", "L. White, Fixed bug which stopped user from going back to homepage, 9pm, 15/3/2017". etc.). It is in your own best interest to get credit for the code you have written!

Attendance at the labs is **mandatory** and you will be expected to work in pairs at the labs. You should take turns "driving". The project will take more time than is available at the labs. Remember that CS1013 is marked **only on coursework**. You will need to schedule time in your groups outside of lab time to work on your assignment / divide up workload.

The assessment will focus on the demonstration of working code; a check on code authorship; a check on quality of code and documentation, progress towards the overall goal of the project, and the features implemented. Your code is to be accompanied by a short report of **maximum 5 pages** outlining your design and any ways in which your solution goes beyond the original project brief.

You will present your project at the lecture in the last week of term. The best team, as judged by the panel, will win a prize for Best JF Programming Project.

4. Assessment Schedule

The following is the schedule for demonstration:

Week 6	Project Handout	Plan project. Start thinking about it. Outline main program.
Week 8	File reading and code outline	Demonstrate reading of data from file and give outline of main program, including major classes, sketch of screens.
Week 9	Initial rendering of data	Graph and textual output of data.
Week 10	Data selection and rendering	Apply user queries to data set and present results on screen.
Week 11	User Interaction	Select different options and change screens
Week 12	(6th April) Demo of project (7th April) Final Submission	Full demo to panel and submission of report – **5 pages MAXIMUM**.

The project demo will be in Regent House from 16:00 to 19:00 on 6th of April. Report due on Friday 7th.

5. Other queries.

- You may use multiple tables.

- You may not use an alternative development environment (IDE) without permission. Such permission will only be granted if all team members indicate they are happy to do so, and I am convinced that all team members are fully engaged with the project.
- Please use Subversion rather than any other revision control system. It is used to track individual contributions.