COMPSCI 2S03, Principles of Programming
Assignment 4, Fall 2019

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Due date: Tuesday, Nov 12, 11:59pm

- You should write your codes in Java. The input/output of the programs are all from/to standard-input/standard-output (i.e., reading from the keyboard, and writing to the text terminal).

- DOMJudge is used to automatically test your code against a number of testcases. To submit to DOMJudge, login with your username and password on http://130.113.70.122/domjudge/team from the campus (or via VPN) and then submit your source files for each question.

- In addition to DOMJudge, submit your source codes on Avenue. Upload a single zip file named `macID_assignment4.zip` (e.g., `adtdb12_assignment4.zip`). The zip file should include only one folder, called `adtdb12_assignment4`, and this folder should include all your .java source files (and nothing else). This makes marking much faster for the TAs, so **any violations from this will be penalized**.

- Your source codes will be graded by the TAs; so follow the style conventions for coding from the class (naming, indentation, spacing, comments) and good coding practise to get full marks.

- Use Piazza for discussions and clarifications about the assignment.

In this assignment you are given a set of Java source files (a project) that is supposed to process a set of insurance-related commands. Take a look at sample_input.txt and sample_output.txt, where you see an example of a set of commands, and the expected output. Furthermore, you can run the main() function (use the content of sample_input.txt as the program's input, e.g., by just copy-pasting the content to the terminal) to see the result. As you will see, the output is very similar to the content of sample_output.txt, but some of the functionality has not implemented.

The input is composed of a set of commands:

- BEGIN_CUSTOMER ... END_CUSTOMER which defines a new customer. The name of the customer is assumed to be unique.

- BEGIN_HOME ... END_HOME which defines a new home. You can assume each customer owns at most one home.

- BEGIN_CAR ... END_CAR which defines a new car. You can assume each customer owns at most one car.

- BEGIN_HOME_PLAN ... END_HOME_PLAN which defines a new home plan, which includes its details and some criteria.

- BEGIN_CAR_PLAN ... END_CAR_PLAN which defines a new car plan, which includes its details and some criteria.

- BEGIN_CONTRACT ... END_CONTRACT which defines a contract for a customer under a given plan. Note that the eligibility of the customer/insured-item/etc. is not checked here (it will be checked later at the time of claim).

- BEGIN_CLAIM ... END_CLAIM which defines a claim made by a customer under a given contract. The claim may or may not be successful (based on the plan criteria). In both cases, the program should output a line in a certain format indicating whether the claim was successful. Look at the sample output to find out about the format.

- Note that all the above "blocks" have various fields that are demonstrated in the given sample input.

- A PRINT command is a single liner. There are two general types of PRINT commands: CUSTOMER and PLAN. All the uses of these commands are demonstrated in the given input/output samples.

- The PRINT PLAN functionality is not implemented in the given source codes. We will talk about it later.

- A FINISH command indicates the end of the input.

1. [**35 points: comment style (10 points), contents of the comments (25 points)**]

   Look at the given code and try to familiarize yourself with its different parts. Add comments to different sections based on your understanding of the code. Note that you will use the same code in the next assignment, so this would help there as well.

   You do not need to add too many comments for every single line of the code. Think of comments as information that really helps in understanding the code. You can use the following reference regarding the style of comments.

   https://www.oracle.com/technetwork/java/codeconventions-141999.html#385

   The given code has been developed quickly and is therefore not necessarily bug-free. If you happened to find a bug in the given code, you can post it on Piazza! (I will consider some bonus marks for the first person that finds each bug). This does not mean that I have intentionally written a buggy code (it might be bug-free after all).

2. [**65 points: DOMJUDGE tests (30 points), code (35 points)**]

   Implement the PRINT PLAN functionality.

   - PRINT PLAN NUM_CUSTOMERS ... is supposed to print the number of customers that are in a contract under the given plan.
   - PRINT TOTAL_PAYED_TO_CUSTOMERS ... is supposed to print the total amount that was payed for claims within a given plan.

   Take a look at the given sample_input.txt and sample_output.txt for concrete examples.