Homework 1 (HW1) - Domain Modelling (8 points)

Due on 07.10.2019 at 23:59

complete the homework in groups of 2 students.

Create a domain model for the system described below. Create a report including the domain model and all the assumptions that you make explaining why you made them. This will make your solution clearer in case of under-specifications. Note that the text may contain irrelevant information. The exercise requires you to select the information that is really relevant for building the domain model.

Submission format: pdf

Suggestion: I suggest you to use MagicDraw for this first assignment because having a MagicDraw project for this assignment can be useful for the second assignment.

Grading criteria:

- Classes correctly identified
- Relations correctly identified
- Multiplicities correct
- Attributes correctly identified
- Correct use of other elements of a class model
- Simplicity of the overall model

Bank Information System

A bank plans to develop an Information System to manage its customers. This system will keep track of all the operations of each customer. The system should maintain the personal data of the customers (tax code, name, surname, date of birth, age, medical insurance code). Each customer is univocally identified by her tax code. The system maintains a list of consultants characterized by name, surname, date of birth, age, professional-ID, type of consultant (Generic or Loan Specialist) and level of career (Junior or Senior). Each consultant is univocally identified by her professional-ID. The age of customers and consultants is continuously updated as the difference between the current date and the date of birth. The system keeps a catalogue of all the financial items available in the bank. A name and a type (which can be stock or bond) characterize a financial item. Any Junior consultant can enter a consultant and a financial item in the system.

When a new customer wants to be registered into the bank, a customer folder is opened by a Junior consultant, and the personal data of the customer (tax code, name, surname, date of birth, medical insurance code) and the Junior Consultant opening the folder are specified in the folder. At the same time, a Senior Generic consultant is assigned to the customer who will follow the customer. The Junior consultant specifies the Senior Generic Consultant assigned to the customer in the customer folder. A
customer can contact Junior consultants who can book an appointment with her Senior Generic consultant.

During an appointment with the Senior Generic consultant, the customer: (i) can ask for a loan and/or (ii) can buy financial items.

(i) The customer needs a loan. In this case, the consultant books an appointment specifying a date and an available Senior Loan Specialist consultant. A Senior Loan Specialist consultant can open a loan. A loan specifies the Loan Specialist consultant who opened it, the customer, has a duration and can be of different types (Unsecured personal loan, Secured personal loan, Fixed-rate loan, Variable-rate loan, Debt consolidation loan, Co-sign loan, Personal line of credit). The loan keeps track of the Career Check and the Medical History Check conducted on the customer. These checks are managed outside the system but the system keeps track about the status of these checks that could be “under review”, “passed” or “failed”. Only when the first two checks are assigned to the status “passed” an assessment team can conduct the Overall Assessment. The Overall Assessment is assigned to 3 reviewers (taken from the list of all Senior Loan Specialist consultants in the bank). Each reviewer gives a score from 1 to 5 characterizing the risk of the operation for the bank, from low risk (1) to high risk (5). The Overall Assessment can be in the status “under review” if at least one reviewer did not provide her score, or “passed” if all the reviewers provided their score and the average is lower than 3, or “failed” if all the reviewers provided their score and the average is higher than or equal to 3. The Senior Loan Specialist consultant opening the loan takes care of updating the status of the checks (initially all set to “under review”) and of assigning the reviewers (the reviewers are assigned only when both the Career Check and the Medical History Check are assigned to the status “passed”).

(ii) The customer decides to buy financial items. Each financial item in a customer folder should specify an amount. The same financial item cannot appear in the same folder with different amounts. The Senior Generic consultant of a customer can add financial items to the customer folder.

Any consultant can have 5 appointments per day. An appointment has a duration of 1 hour and the appointments are scheduled at the hour between 9:00 and 14:00. The customer folder contains all information about financial items with amounts bought by the customer and also the loans with the status of checks and assessments. Each consultant can see the list of consultants, and the list of financial items available in the bank, and, by providing the tax code of the customer, the entire content of each customer folder in one single view.