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Object Oriented Modeling and Design 3rd Assignment

Question:

Assume that you have to design a part of a student administration software system.
There is a Student software class that represents students in a school.
Information about the courses taken by the students and their grades are kept in a database system (for example SQL server) and objects of the Student class read data from this database. This database system may be replaced with another system in the future (for example Oracle). We are sure that, there will be always only one database in our system.
The responsibility for calculating the average of the grades of a student is assigned to the Student class (getAVG() method). The average can be calculated in different ways; for example weighted average, simple average without weights. In the future new calculation methods can be added to the system and all these calculation methods can exist together.
The Student class has a method (setAvgMethod(methodNumber)) that is used to set and change the calculation method used by a Student object. Different objects of the same class can use different calculation methods.

- Design this part of the system (Student, database, average calculation methods) by considering object oriented design principles and patterns. It is important to protect the Student class from possible changes in the system. For example, getAVG() method will not be changed if new calculation methods are added to the system.
- Construct and draw the proper UML design class diagram.
- Assume that when the getAVG() method is called, a Student object first reads the necessary information from the database. Draw the sequential interaction UML diagram of the getAVG() method.

o You don't need to create use cases or domain models.

SUBMISSION:

- Prepare your solution as a file in the pdf format.
- Upload the file (pdf) to Ninova until 23.00 on 29 March 2015, Sunday. Late submitted assignments are not accepted.
- **Cheating** will not be tolerated. If cheating is discovered, all responsible students will be punished. Punishment for cheating is the highest possible **negative** score plus to be subject to the University disciplinary proceedings.
  It is allowed to discuss how to solve a problem with your classmates; however, **this assignment is not group homework. The actual solution should be an independent effort**.