Assigment 1

Analysis and Design Document

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1. Requirements Analysis

# Assignment Specification

The application is designed to manage the students, their grades, personal information at Technical University of Cluj-Napoca in JAVA.

# Functional Requirements

The functional requirements are divided between the 2 existing users: students and teachers/admin.

The students can:

* update/view/add their personal information
* create/update/delete/view their student profile
* process class enrolment

The teachers or admins can:

* create/read/update/delete the students’ information
* generate reports for a particular period containing the activities performed by a student

# Non-functional Requirements

Some of the non-functional requirements refer to not allowing students to enter invalid data the moment they try to perform an action.

Also, using an MVC in order to protect the integrity of the data stored in the application and the possible extensibility of the application.

2. Use-Case Model

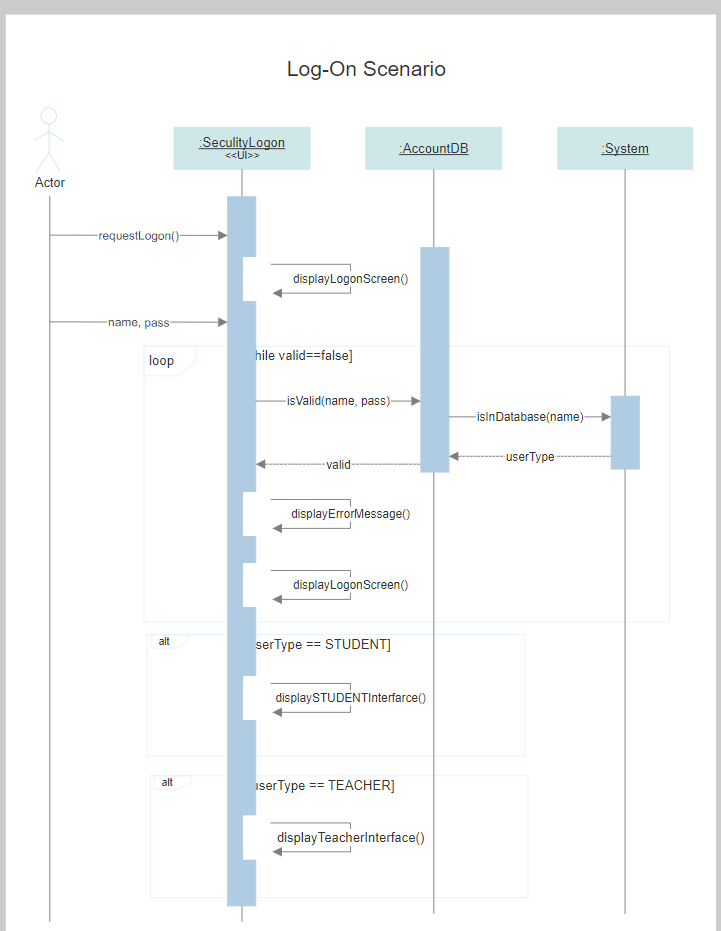
Use case: Interface interaction(log in)

Level: user and admin

Primary actor: Students and Teachers

Main success scenario: Successful into acquiring the data or do the modification they wish to do

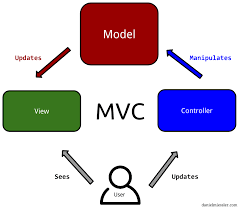
Extensions: Detailing each action with the subclasses they use in order to fulfill their role.



3. System Architectural Design

**3.1 Architectural Pattern Description**

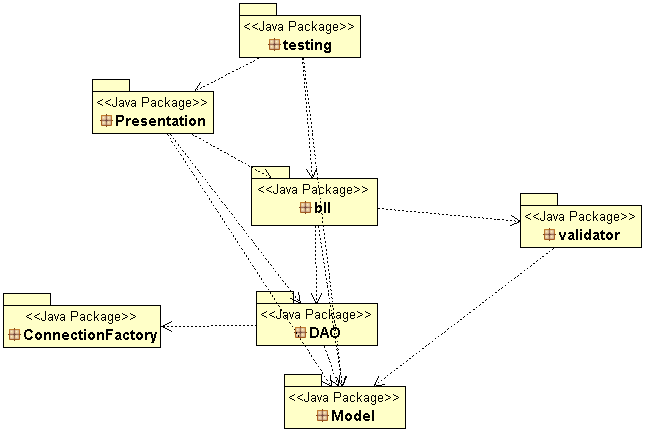
The layers pattern was used, which is grouping functionalities on layers   organized into horizontal layers, each layer performing a specific role within the application . The top level layers depend on lower level layers.

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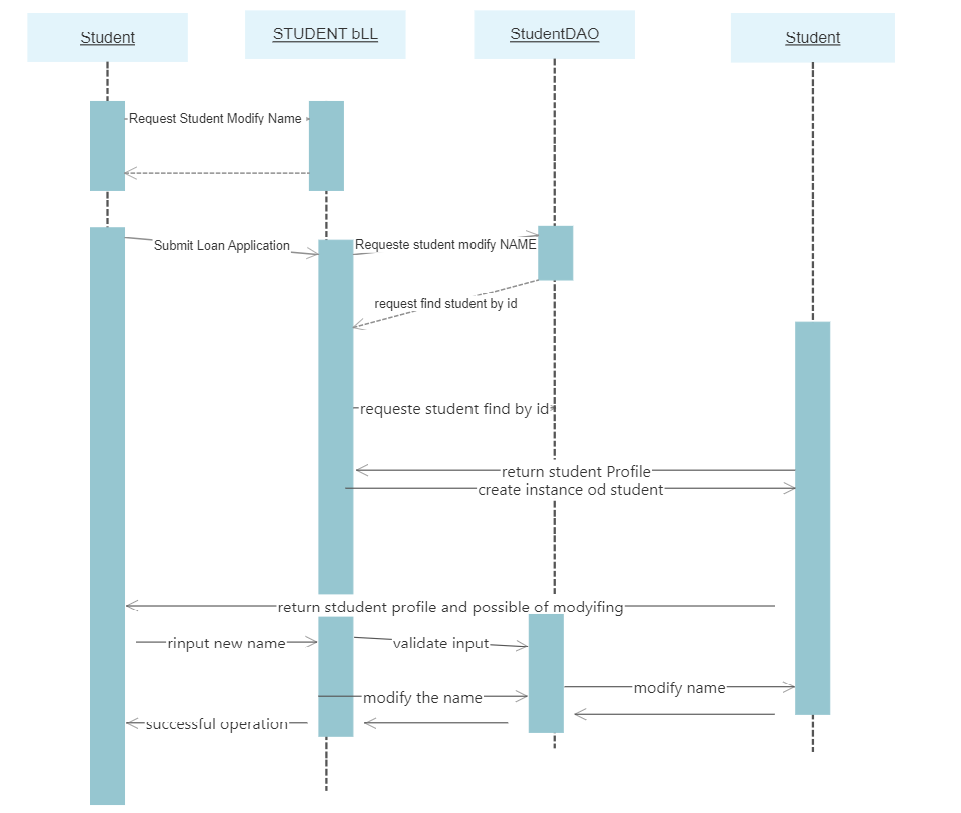
**3.2 Diagrams**

The application will be divided in packages, each package will be significant of a layer.

There will be 3 layer(Presentation, Business, Data).



4. UML Sequence Diagrams

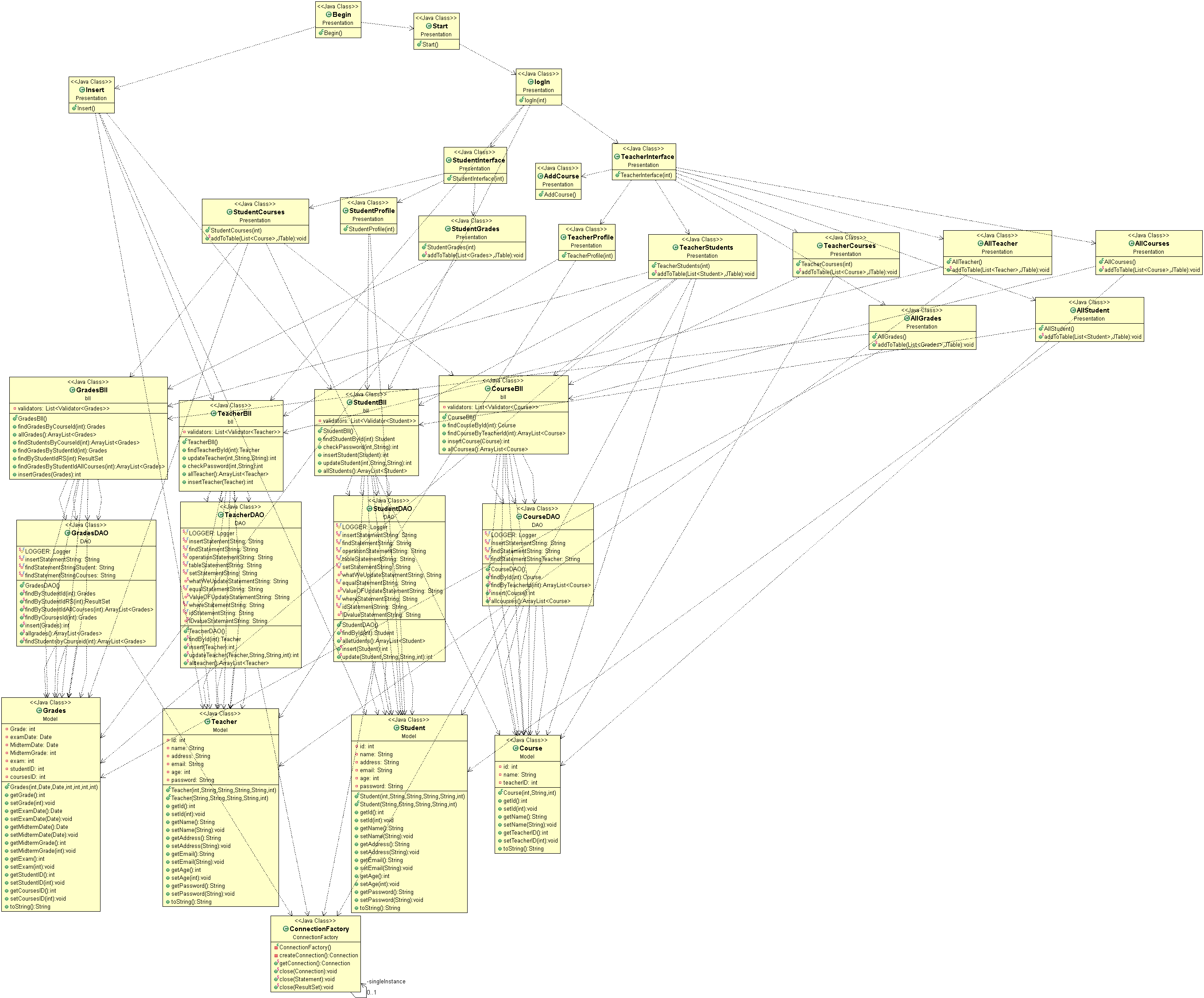
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5. Class Design

**5.1 Design Patterns Description**

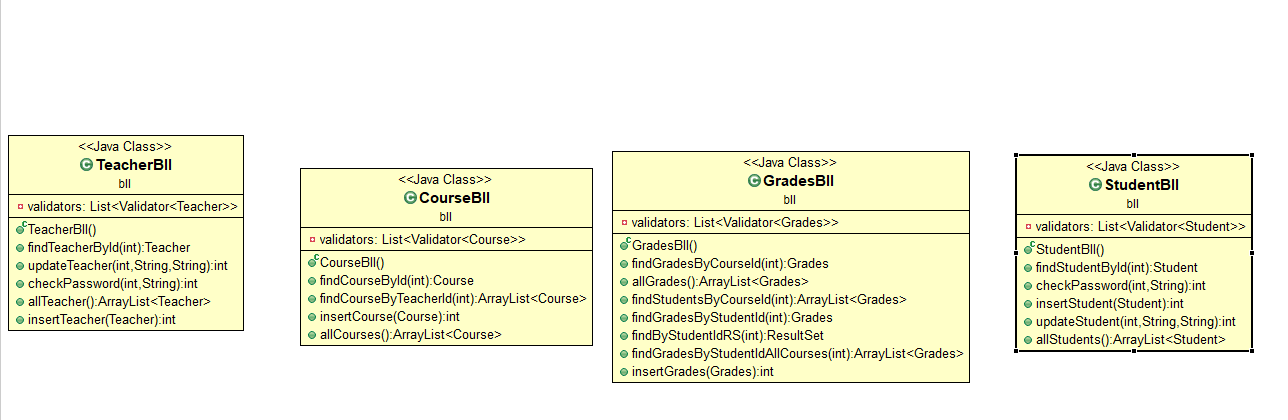
Model–View–Controller (usually known as MVC) is an [architectural pattern](https://en.wikipedia.org/wiki/Architectural_pattern) commonly used for developing [user interfaces](https://en.wikipedia.org/wiki/User_interface) that divides an application into three interconnected parts. This is done to separate internal representations of information from the ways information is presented to and accepted from the user.

**5.2 UML Class Diagram**

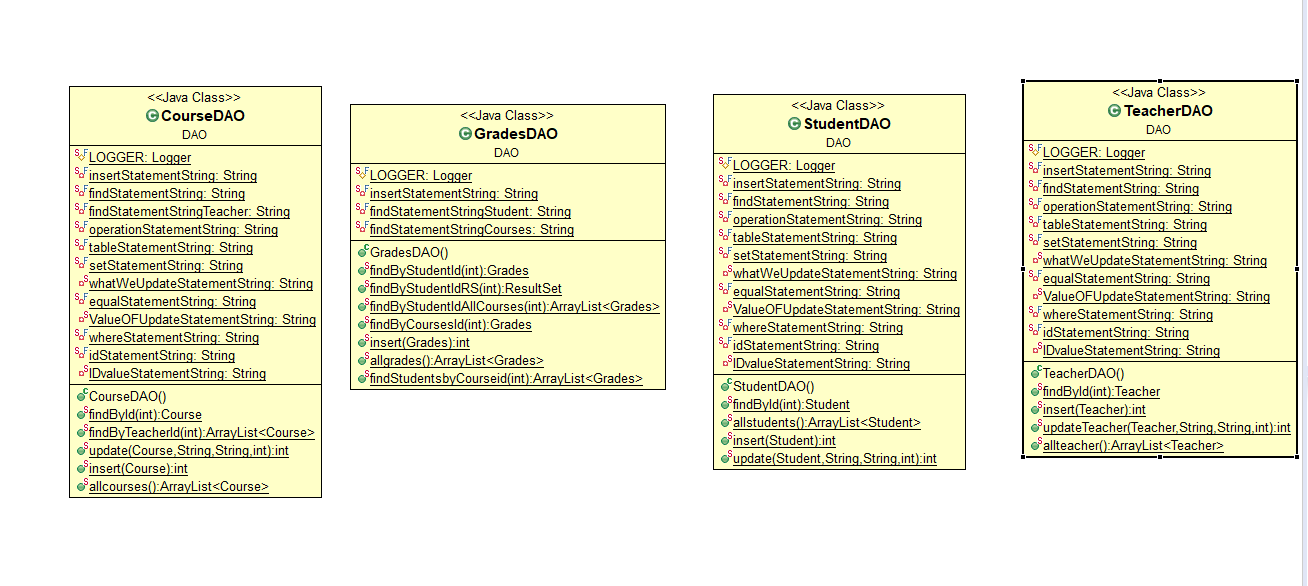
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6. Data Model

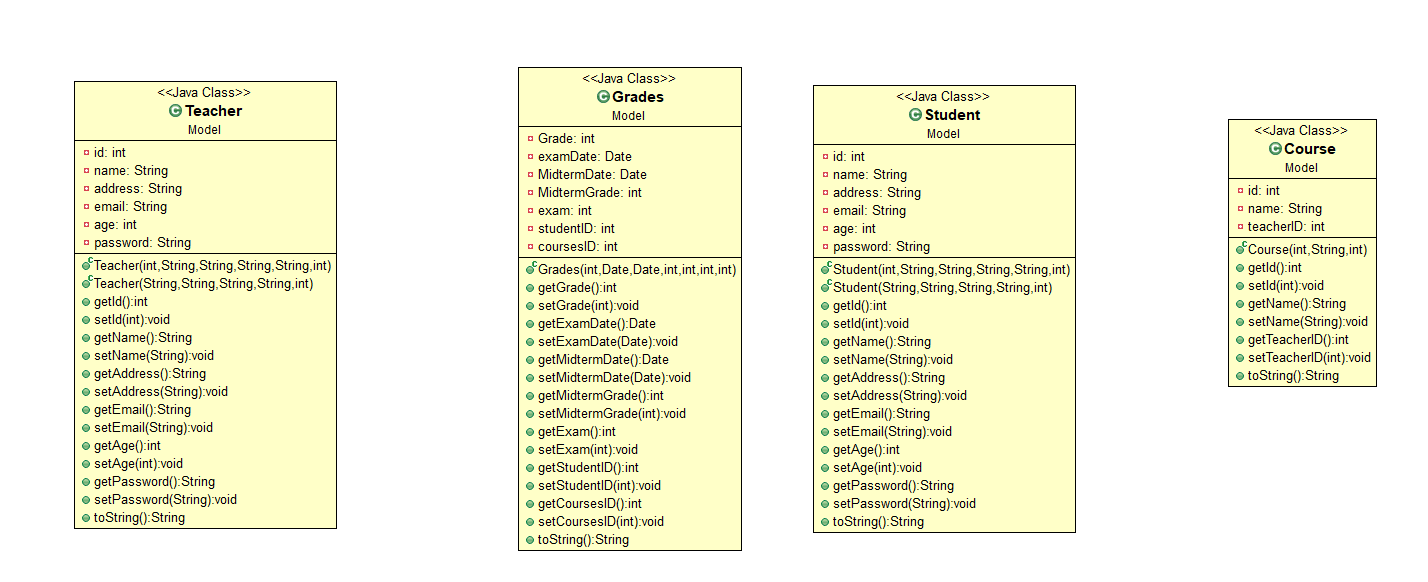
Bll package

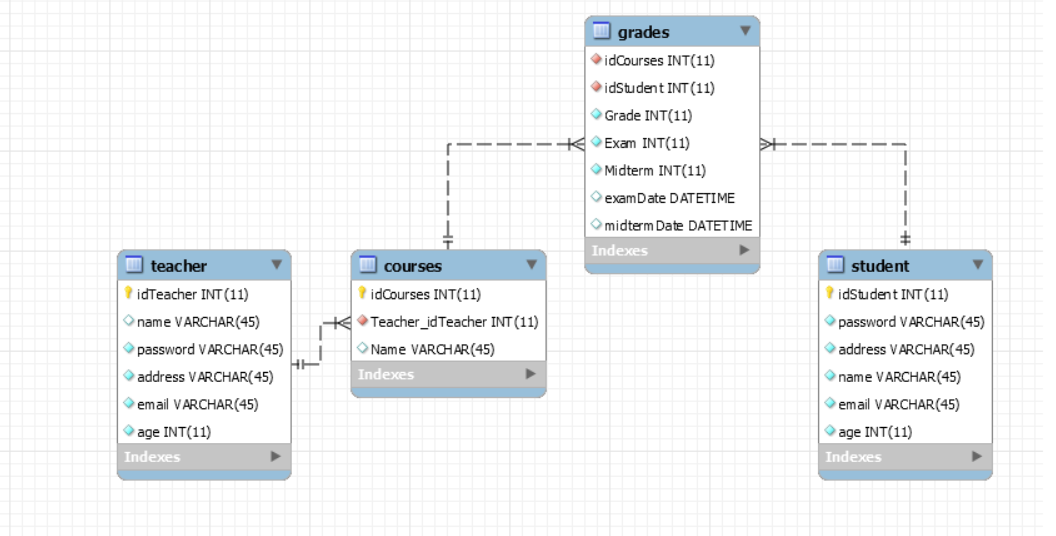


Dao package



Model package

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7. System Testing

The testing will be done with a JUNIT testing unit which will create new students/ modify some students’ information and will also use the admins rights to update grades or student info.

Every data that is inserted is tested with the isEmpty() in orider to assure that there is input. No empty field is allowed.

8. Bibliography