

## Report of Design 1

Group: Not at all

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Our design is about a university system which operated for measuring the quality of the education and the impact of education to the growth of the graduates. The departments, teachers and courses will be ranked according to students' grades in the system.

The University class contains UserList class and Department class. In UserList class, the users will be separated into three classes: administrator (Admin class), teacher (Teacher class) and student (Student class). Each of these three classes is an instance of *User* which is an abstract class. For each user, he/she will have private attributes like username, user ID, user role and password. The datatype of all of the attributes should be string datatype.

For administrator, there is no attributes in the Admin class. However, when a user log in the system as the role of an administrator, he will be given the authority to operate the whole system. Administrator can add and delete the departments and courses.

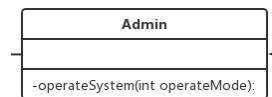


Figure 1: Admin Class

A student has attributes such as username and ID inherited from the *User* class. Meanwhile, it has private attributes such as courses attended and graduate information. The graduate information (GradInfo) is one of criteria of course evaluation. When attributes in the graduate information such as salaries, working and position updated, accordingly the course grade will be updated.

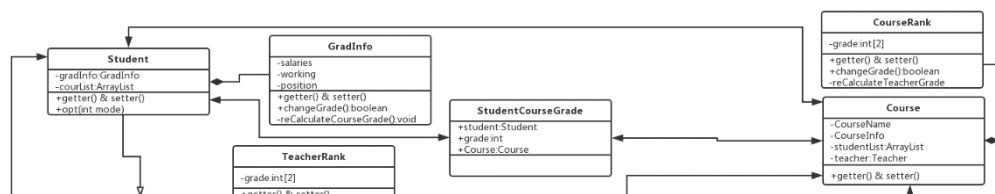


Figure 2: Relationship between Student class and Course class

A teacher has attributes such as username and ID inherited from the *User* class. Meanwhile, it has courses (CourseList) and grade. Teachers belong to different departments (Department class). Grade is used to evaluate the teacher's performance and impacted by the courses they teach. When the grade of course taught by the teacher updated, teacher's grade will be updated accordingly. TeacherRank class is to evaluate the performance of teacher.

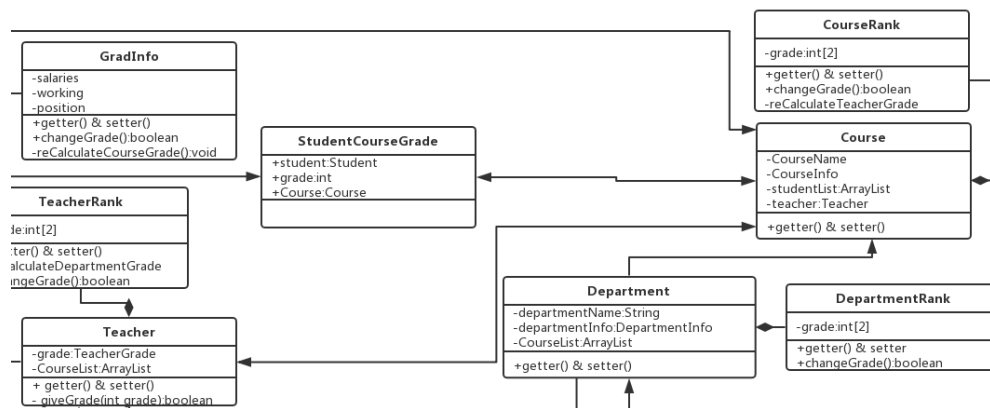


Figure 3: Relationship between Teacher class and Course class

Course has student list to list all student attend the class. Meanwhile, it has a teacher who teach the class. It also has course name and course information. The rank of course is used to evaluate the course, which depends on the students' graduation information. Meanwhile, the rank of course has an impact on the evaluation of teacher.

Departments belong to the university and possess teachers and courses. A department has its private attributes such as department name and department information. The rank of department is used to evaluate the department, which depends on the rank of teachers in the departments.

To achieve the target of measuring the quality of education, we can summarize how does the users evaluate the quality of education. First of all, the weighted mean of graduation information and the student course grade will impact the rank of the courses they take. Furthermore, the course rank will influence the teacher who teach the course. Finally, the rank of department which the teacher works in will be impacted by the teacher's rank. Like what we showed in figure 4.

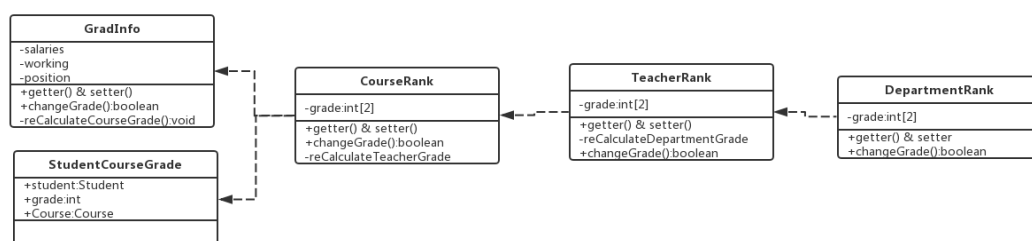


Figure 4: Evaluation chain

When change of graduate information or student course grade happens, another information will be inquired then the course rank will be changed. Afterwards the teacher rank and department rank will be changed. Like the sequence diagram in Figure 5.

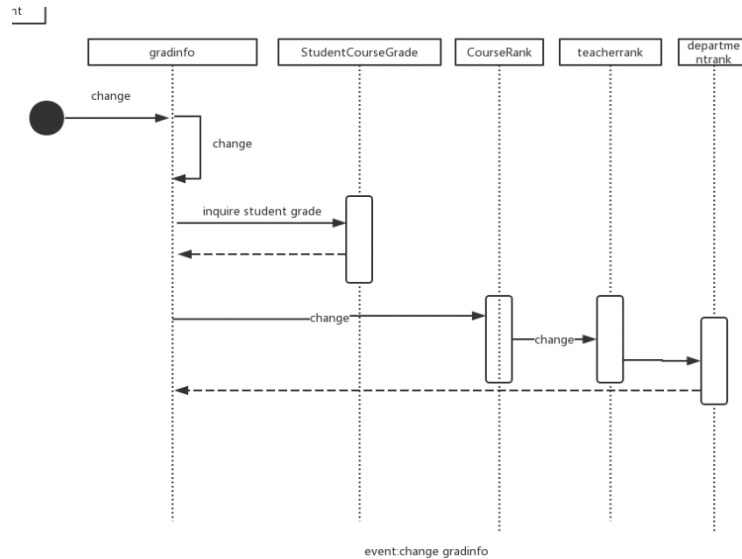


Figure 5: Change grade information event

When a new user wants to register into the system, the administrator should send new user request to the server, then the user can send register request to the server. When checked, the user can input his information to let the register server to fill in the User class and return to user.

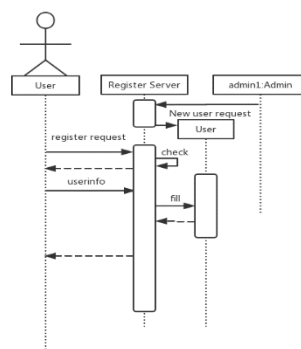


Figure 6: Register into the system

For users who want to login the system, they should input their username and password to let the login server check match or not. For example, Figure 7 shows how a user as a teacher login the system.

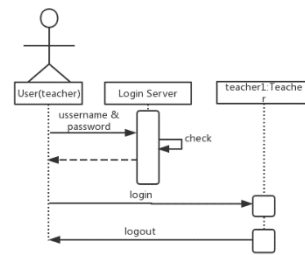


Figure 7: User as a teacher login

To summarize, the students' grade and information after graduation will finally impact the evaluation of the education in the university by several layers. Meanwhile, the system is flexible to manage the users and the information such as course and departments. More details will be added in after the implementation of this system.

## Appendix: Object Model and Sequence Diagrams

