

This system is designed by eclipse. The system consists of six classes, which are course, User, Student, Admin, stuInterface, adminInterface. Among them, User class is inherited from course class, and Student and Admin classes are inherited from User class. Besides, stuInterface is an interface class for student class, which has the methods' signatures that will be used by students. AdminInterface is an interface class for Admin class, which has the methods' signatures that will be used by administrators. In User class, there are constructors and some getters and setters about username, password, firstname and lastname that will be inherited by Student and Admin. In Student class, there are five methods that will be called in course class, and they are designed for the course management of students. In Admin Class, there are also 11 methods for course management and reports of administrators that will be called in course class. Therefore, course class is the main menu of the system. First of all, the method readFromCVS turns and stores the information from MyUniveristyCourses.csv into an arraylist. There are several print functions for different methods such as display(), adView() and studentView(). There's also a serialization method, and a deserialization method for course arraylists and another deserialization for student arraylists.

When you run the course class, you have entered the main menu. You need to first choose your identity as a student or an administrator. If you want to log in as an administrator, you need to enter username and password "Admin" and "Admin001", and then choose to manage course or view reports. If you want to log in as a student, you need to first ask the administrator to add you into a student list called adminRegister, and this needs the administrator to log in and choose to register a student by entering their first names and last names (option 5 in course management ). Then, you need to first create an account by entering the username and password. If you have already done the steps above and created an account once, you only need

to enter the username and password to log in as a student later. Then you can choose to manage courses as a student.

Then, here are concepts that I use in the system:

1. Inheritance : User class is inherited from course class; Student and Admin classes inherit from User.
2. Polymorphism : (An object of subtype is used wherever its super value is required)I use subclaIn course class, a variable named a of Admin type is invoked; There is also an arraylist of student type in course class.
3. ADT: In stuInterface and adminInterface, there are abstract methods that will be implemented by Student class and Admin class accordingly.
4. Overload: there are two methods called deserialization in course class, but one does not have a parameter, one has a string type parameter. They are used for deserialization of student arraylists and course arraylists separately.