Derek Huang

Professor Rawlins

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**Assignment 2: Process Models and Version Control**

**Waterfall:**

Requirement Specification:

* System will allow all students, faculty, and administrators to add courses, search for courses, print schedules, etc...
  + Display the student’s schedules to Admin and Faculty
  + Display to Faculty their class list of students
  + Display all courses offered
* Faculty and Admins can view and update course information
  + Admins can add and remove courses offered
  + Admins can add and remove CRNs
  + Faculty/Admin can access the database of student schedules
  + Admin can view rosters
* Admin can change Student enrollment status
  + Admin can add additional students
  + Admin can remove students

System and Software Design:

Architecture Design:

* Student
  + Functions to search course, add course to schedule, drop course from schedule, withdraw course and display schedule
* Faculty
  + Functions to print schedule, display their class list, update class time and search classes
* Admin
  + Functions to add available courses, remove courses, add and remove students, view student schedule, adjust student schedule, search a roster, and display all courses

Interface Design:

Students will only be able to control what courses they are registered for and display their schedule. Faculty can view roster schedules and their own. Admin can add and remove courses as well as update students’ enrollment status. Each class will be derived from the parent class User which will have all the common attributes and functions.

Component Design:

Each class has similar methods that we can reuse such as search courses and display schedules.

Database Design

* Student table:
  + First name, last name, ID, courses registered, CRN, schedule
* Faculty table:
  + First name, last name, ID, roster, schedule, courses taught

Next Step:

Implement – write your code, create your database, etc.

Unit testing – test the components individually; usually automated

Next Step:

Integrate all components both front and back end into a functional website and test the website as a user.

Next Step:

Let an actual user use the website and if any bugs occur, retest and make any changes.

**Incremental:**

**1st Version**

Website should display all available courses for the semester

* The website should allow all users to display the different offered courses, CRN, and time
  + Display courses offered
  + Display CRN attached to each course
  + Display time attached to each class
  + Display professor teaching the course
* Allow create course functionality
  + Allow Administrators to create the different courses that are offered at the university
  + Allow professors to choose the courses that they want to teach
  + Allow professors to choose the times for their classes

Implement and test the above requirements.

Development time: ~3 weeks

**Next Version**

Add in course searching functionality

* Allow students, faculty, and administrators to search courses
  + Search by CRN
  + Search by subject
  + Search by keyword

Implement and test the above requirements.

Development time: ~2 weeks

**Next Version**

Add in updating capabilities

* Administrator can alter the registration status of students
  + Add or remove enrollment status of students
* Faculty can update course information
  + Add or remove courses they’re teaching
  + Update class time
* Administrator can edit courses offered at the university
  + Remove courses
  + Update CRN

Implement and test the above requirements.

Development time: ~2 weeks

**Next Version**

Add in weekly scheduling capabilities

* Students can register for the courses they’d like for the semester
  + Add/drop courses
  + Withdraw from course if past add/drop deadline
  + Select time slots
  + Require lab duality
* Faculty can register for the courses that they’d like to teach
  + Add/drop courses
  + Select time slots
* Time conflict check between courses

Implement and test the above requirements.

Development time: ~3.5 weeks

**Final Version**

Schedule viewing

* Students can view schedule
  + Week at a glance
  + Course information:
    - Course name
    - Professor
    - CRN
    - Time slot
* Professor can view schedule
  + Week at a glance
  + Course information:
    - Course name
    - Time slot
* Adminstrator can view student and faculty schedules

Implement and test the above requirements.

Development time: ~0.5 weeks