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ELEC 3225

Assignment 2

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Waterfall Model

Problem Statement

Design a scheduling system for a university like LeopardWeb. The system will allow students, faculty, and an admin to add courses, search for courses, print schedules, etc.

Requirements Engineering

1. Feasibility Study
   Does the technology exist needed to create the system? -Yes. Classes and objects, databases and a user interface will be needed.
   Does it fit the budget? -Yes.
2. Requirements elicitation
   - We have examined past systems such as LeopardWeb itself. From this, the requirements for such a website would be:
     Functionality- so it will not malfunction or keep logging the users out.
     Ease of use- the user can easily find what they are looking for.
     User can access their schedule/make changes to it, different users have different types of access.
     Admin will have more control over the website and has access to more options than the instructors or student.
   - Specifications from users/customers will be that each user will have a different username and password and based on their info, the portal will open up with specific options for that user based on their status.
3. Requirements Specification
   - All users will be able to view/make changes to their own schedules.
   - Students will be able to search courses, add/drop courses, and print their schedule.
   - Instructors will be able to print their schedule, print class list and search for courses.
   - The admin will be able to add courses to add/remove courses from system, add/remove users, add/remove students from courses, and search/print rosters and courses.
4. Requirements Validation
   - Group members will check the requirements.

Design and Implementation

1. Architectural Design- Classes and objects, methods/functions, database and UI.
2. Interface design- The above components will connect to one another using C++.
3. Component design- classes and objects for example the student, instructor and admin classes. The user interface will likely be text based.
4. Database Design-
    - User table- Status- Student, Instructor and Admin. Each user will have first name and last name, as well as a WIT ID.
    - Admin Table- First name, last name, WIT ID, students and instructors in the system.
    - Instructor Table- First name, last name, WIT ID, profession, courses.
    - Student Table- First name, last name, WIT ID, courses, instructors and major.
    - Course Table- CRN, course time, lecture/lab location, lecture/lab credits/hours, course title, as well as the instructor teaching the course.

Software Validation

1. Component testing- test the individual components along the process.
2. System testing- Test the system after integration.
3. Acceptance testing- Use real data to test the system.

Software Evolution

Make changes to the system as we go along depending on the changing user needs over time and update it as bugs come up.