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ELEC3225 Professor Rawlins

Leopard Web Assignment 2 – Process Models

**Waterfall Model**

**Block diagram**

**2.1.Waterfall-model.eps**

**Requirements definition:**

This is the first step in the waterfall model, this is where many attributes of a system are defined such as overall goals as well as constraints for the software.

Goal: This program is modeled after a Leopard Web type service. Students, instructors, and admins will be able to perform operations to create and manipulate course schedules over not just one, but several semesters. This program will utilize object-oriented programming to create a hierarchy of classes and objects, as well as databases to store and access data. This program will also implement a simple and easy to use UI (User interface) as its front end for ease of use.

**System Software & Design:**

Second step in the waterfall model. This goes more in depth on the specific requirements of the system

Classes: We need a few classes in order to define the hierarchy of our system.

* User
  + This is the base class of the system, the user class defines attributes needed for all 3 user types
    - First name, last name, and ID number
  + Any user should be able to view their attributes at anytime
* Students
  + Students should be able to preform a myriad of operations such as being able to add/drop classes from a list of available courses, as well as see their own schedule
* Instructors
  + Instructors should be able to see available courses, view their own rosters, as well as search for courses
* Administrators
  + Admins should be able to have an overview of the whole system , admins can add/remove courses and users from the system, as well as add/remove students to a specific course. Admins should also be able to search and print rosters and courses

This system should be able to handle a database of 100 users, 10 instructors, and 1 administrator

* Testing of the software will be done with fewer users before it is ramped up to a full scale.

**Implementation and unit testing:**

Third step of the Waterfall model, this is the step where code is written, and the components of the code are tested(Unit testing)

There are 3 main components of our system that will be programmed before they are integrated

Classes: Initial coding of the classes will be primarily comprised of a skeleton of each classes methods needed for the final product, to be implemented in the next step.

Database: The coding of the database will be instrumental in the integration of the system. It is imperative that the database is in tip top shape in order to make integration go smoothly.

User Interface (UI) – Just a barebones iteration of the user interface will be required in this step, making sure any menus are laid out properly, buttons are the proper sizes, things of that sort.

**Integration and systems testing:**

Fourth step of the Waterfall model, this step pertains to the integration of the components into one central system to be tested for the final products

In this step, we can start filling in the skeletons of our class methods with meaningful code blocks that can now interact with the database to query the right information and then implement this into the user interface.

After each component is integrated into the single system, testing can begin. Testing every nook and cranny of the system making sure every function works properly and nothing breaks before the product can be deployed in the last step.

**Operation and maintenance:**

In the last step of the waterfall model, the software is finally deployed to the user. The software can now be installed and will need to be properly maintained as well. Over the course of the initial deployment, keep open eyes and ears for any bugs in order to fix them swiftly and update the software in a timely manner.