Anthony Meng-Lim

ELEC-3225-01

Professor Rawlins

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**Incremental Model**

**Initial Version:**

**Specification:**

Using C++, the program should contain the attributes and set/print methods for the user. Additionally, the derived classes, additional attributes, set and get functions for student, instructor, and admin.

**Development:**

Create the base user class and the derived student, instructor, and admin classes. Then inside of these classes, create the required functions and include the different attributes. The user attributes should be first name, last name, and ID. The user class will have functions that set each attribute and print all info for the object. The student, instructor, and admin will not have any additional attributes to begin with. The functions that are inside of the derived classes will be empty initially.

**Validation:**

Run the program written in C++ to make sure that the correct information/data is printed on the user interface. There will not be any user inputs for the initial version. The only thing that is expected is empty constructors.

**Expected Time:**

The expected time to create the initial version is approximately 2 weeks.

**Intermediate Version:**

**Specification:**

Continuing with the initial version, add any additional attributes to the derived classes, create and fill in the functions needed for the different types of users, and create databases for users and courses.

**Development:**

In the derived classes, new attributes can be defined inside of the student, instructor, and admin classes. Additionally, these attributes can be used in the empty functions used from the intermediate version. The student class will have functions that allow them to search courses, add/drop courses, print their schedule. The instructor class will have functions that allow them to print their schedule, print their class list, and search for courses. The admin class will have functions that allow them to add courses to the system, remove courses from the system, add/remove users, add/remove student from a course, search and print rosters and courses.

**Validation:**

Run the program and make sure that these different functions for student, instructor, and admin are properly working. The functions should ask for user inputs to search, remove, etc.

**Expected Time:**

The expected time to create the intermediate version is approximately 10 weeks.

**Final Version:**

**Specification:**

After the functions are properly working, test to make sure that there are no bugs in the program.

**Development:**

Running the program and testing multiple cases of user inputs will help to see if there are any bugs found. If there is something not expected, then edit the C++ code and run the program again to see if the problem is fixed.

**Validation:**

After all of the bugs are found, the functions for each class properly work, and the attributes are set correctly, the system is now ready to be released.

**Expected Time:**

The expected time to create the final version is approximately 2 weeks.

**Total Time:**

The total time to create the system is approximately 14 weeks.