

CS440: Introduction to Software Engineering

Basic Problem Definition, Rough Plan, and Rough Cost Estimate

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Basic Project Definition

We are going to develop a course-registration system for the students, which will also be used by teachers and other faculty members. The system will have different privileges for different people. The system will also present a calendar. The system will be developed using C++ and MySQL server.

The Students will have the following privileges:

- View courses that are being offered for a particular term or semester.
- Add and drop courses.
- View their results once they have been published by the teachers.
- They will have an option to put important dates on the calendar and the system will generate email notification reminders to the student.

The Administrative staff will have the following privileges:

- Schedule all the classes and put them on the system.
- Accommodate the rooms available and the Teachers' preferred timings. They will also have to look at the teachers' preference on the courses and make a schedule accordingly.

The Teachers will have the following privileges:

- Insert and view their students' grades.
- Publish the results of the assignments and exams as the semester progresses.
- Send mass emails in case of any announcement.

Based on the principal of Object-Oriented Paradigm we will start from preparing detailed requirements for this assignment. Looking at the cost estimate, we will decide how to divide work between group members and spread the work evenly.

We will set milestones for each phase of the Object Oriented Life-Cycle Model and aim to complete each project assignment in advance of the due dates (roughly 1 week before). In this case we can always have an additional week to address any inconsistencies.

Rough Project Plan

Requirements - due Feb 10th

We will have about 2 weeks to complete the requirements. The expected man hours will be 20 hours per person. We will schedule 3 meetings to discuss requirements and to figure out individual tasks for everyone. Outside the meetings, we will work on our tasks and remain in contact over e-mail to report on progress and any issues that may arise.

Design - due March 3rd

The design is expected to be the most time consuming part of this project. That's why our deadline is 2 weeks before the assignment due date. In the final 2 weeks before the deadline, we will polish our draft and produce a final version. During that time, we will also perform functional testing on the individual modules. Additionally, we will document features in the user's manual.

User's Manual and final cost estimate - due April 16th

The documentation of the user's manual is a continuous process throughout the project. It will be updated whenever new changes are introduced into the design or implementation. By this due date, manual should be completed.

Implementation and Testing - due April 19th

Final step, putting it all together. The implementation will be under a source version control repository. Testing will be performed continually and consists of unit testing, functional testing, and holistic testing. We will aim to do tests often and early to eliminate problems early in the life-cycle model. The bulk of the testing will take place during design and implementation.

Rough Cost Estimate

| <u>Phase</u> | <u>Cost Estimate</u> <i>(Days per person)</i> |
|---|---|
| Requirements | |
| ○ Functions/Features | 3 |
| ○ MySQL Database Set Up | |
| ○ Deciding Server vs Local | 0.3 |
| ○ Design Database | |
| - Tables (<i>per table</i>) | 0.25 |
| - Normalizing | 0.125 |
| - Test queries | 1 |
| - Relationships | 2 |
| ● C++ | |
| ○ Decide on Visual Library | |
| - QT Framework vs Any Other | 0.625 |
| ○ Client / Server Model | 4 |
| Analysis | |
| ● Algorithms used | 0.25 |
| ● Testing Queries | 0.375 |
| Design | |
| ● Modules | 5 |
| ● Database Design | 5 |
| ● User Interface | 5 |
| Implementation | |
| <i>(Based on doing iterations of final product)</i> | |
| ● Coding | 3 per iteration |
| ● Testing | 1.5 per iteration |

Total: 31.425 days/person

Annotation:

* Assuming that, 1 day / person = 8h. 1 week / person = 5 days = 40h

* 31.425 days/person / 5 days/week = 6.285 week(s)/person (about 1.5 months)

* It should be noted that this cost will increase per iteration of the project made