Homework 1 - coding exercise

# Email from Client:

Hi!

My name is Addison Turner, and I’m a manager for Accelerated Software, Inc. We’re a large software consulting firm, and over the past several years we’ve been building up a large software internship program. The first few years building the internship teams was relatively easy, but lately things are getting a bit out of hand.

For example, we’ve found that placing 3rd year interns on a team with 1st year interns can result in the 3rd year interns doing most of the work while the 1st years don’t get much out of the process. Additionally, the start of the summer and the school year varies by schools, which can make it difficult if one intern starts several weeks before another on a team. Not to mention, the process of putting intern teams together takes forever. We have nearly 100 interns across the program and putting together teams can take me a few days to a week to double check all of the requirements. I’m hoping that with an application instead of myself doing this, it’s not only faster, but that we can make fewer exceptions to our rules.

We’re looking for an application that can help us build up intern teams and avoid some of these pitfalls. We’d like to start with a rough version that creates teams based on the following criteria:

* Each intern on a team should start within two weeks of the other interns
* Team sizes are flexible depending on the needs of different managers
* No team should contain both 1st and 3rd year interns
* The input to the system is a CSV file containing intern names and their year as an intern
* The application should use a 2D array t o store the intern teams
* No team should consist only of 1st year interns
* The output should consist of intern names with their assigned team number
* The application is a Java console application.
* The team building process should not take more than 5 minutes to execute for 100 interns.
* No exceptions can be made to the above rules

I am excited about this project, especially that it will be completed by a college team and that’s who it’s going to be helping.

My email address was provided to your professor. They said it would be available to you on your Noodle? Moodle? page. Something like that. If there any questions, please let me know!

-Addison Turner

# Initial and Final Revisions

There are **two** **dropboxes** for this homework:

* Initial Revision see Moodle for due date.
* Final Revision, see Moodle for due date.

Students sometimes make significant mistakes on their first attempt at this assignment. That’s OK and all part of the learning process. You will receive feedback on work turned into the Initial Revision box and will have a chance to correct any mistakes in time to submit the Final Revision.

You must submit your work to both boxes at the given times to receive credit for the assignment.

# Implementation

You are required to implement this application and submit your code with your question responses.

# Questions

Submit a PDF document with answers to the following questions on Moodle:

NOTE: If the PDF does not contain your name, you will not receive credit for this assignment.

1. In your own words, describe the overall problem the client is attempting to solve.
2. Categorize quoted statements from the original client statement above into the following categories from the reading:  
   1. Needs
   2. Features
   3. Software Requirements
3. What was the most frustrating part of this homework assignment? Provide a professional (not ranting), detailed explanation of the difficulties you faced.
4. What was your approach to this assignment? How did you proceed? What were the steps you took?
5. What do you feel worked well about your approach to the assignment? Provide a detailed explanation of the benefits of your approach.
6. If you had it to do over again, what would you change about your approach to this assignment? Provide a detailed explanation about the detriments of your original approach and how your new approach might fix these problems. If you wouldn’t change anything, justify your answer.
7. Many of the Needs, Features, and Software Requirements from problem 2 are not in the format we’ve discussed in class. Provide the final list of Needs and Features (NOT Software Requirements) that you followed to implement your application. Ensure the Needs and Features use the format from class.
8. As this class is about Software Requirements Engineering (SRE), why do you think we asked you to implement this software? How did implementing the application help you learn about SRE?

# Submission instructions

## Initial revision:

Upload the following to the Moodle Dropbox (it should allow 2 separate file submissions):

1. A PDF of your Question Responses
2. A zip of your code for your implementation of the requested project

## Final Submission

Upload the following to the Moodle Dropbox (it should allow 2 separate file submissions):

1. A PDF of your Question Responses
2. A zip of your code for your implementation of the requested project

# Grading

The questions on this assignment are arranged in increasing order of difficulty. The chart below shows how they will be graded.

**NOTE: Failure to submit an initial revision will result in a letter grade deduction on the final submission.**

**For an A:**

* Implementation meets client needs
* Complete all 8 questions
* Answers for all 8 questions are thorough
* Answers for all 8 questions reflect understanding of the course material to this date

**For a B:**

* Implementation mostly meets client needs
* Answers for first 6 questions are thorough
* Answers for first 6 questions reflect understanding of the course material to this date

**For a C:**

* Implementation somewhat meets client needs
* Complete questions 1, 2, 3, 4 above
* Answers for questions 1, 2, 3, 4 are thorough
* Answers for questions 1, 2, 3, 4 reflect understanding of the course material to this date

**For a D:**

* Complete questions 1, 2 above
* Answers for questions 1 and 2 are thorough
* Answers for questions 1 and 2 reflect understanding of the course material to this date

All other completion levels will result in an F for the assignment.