Informatics 221 Final Exam

You have 80 minutes to write your answer. The exam is closed book, closed notes. Don’t forget to write your name on the BlueBook!

Credible market research surveys indicate that there is an opening for a <<insert your chosen domain here>> product, or product line. You decide to pursue this opportunity and have been able to successfully line up funding sufficient to fund yourself plus three developers for 18 months. After that time additional funding will be available for marketing and sales. This additional money will also enable you to retain one developer for at least the following 3 years for further product development and support. (Note: do not choose “lunar lander” or any isomorph as your domain.)

Based upon your experience and your knowledge of software architecture, how would you technically approach this opportunity? Answer this question by responding to the following specific questions. Assume that you decide to adopt a “best practices” approach, as exemplified by techniques and discussion found in the textbook.

1. [2 pts] What is your chosen domain? What will the products be? Just give me enough information so that I will be able to understand how your answers to the following questions are grounded in this example domain. (This is only worth two points, so don’t waste time with a long answer here.)

2. [30 pts] Assume that one of your first decisions will be determining how to make and maintain a model of your product or product line.
   (a) What are the advantages and disadvantages of using UML for this purpose?
   (b) What modeling notation would you consider as the best alternative to UML for use in this project? Why?

3. [30 pts]
   (a) What will be your approach to implementation, and to the problem of keeping your implementation consistent with your architectural model?
   (b) What risks exist for your chosen approach? How will you manage those risks?
   (c) How does this chosen plan reflect what you learned from the homework assignment in the class?

4. [22 pts] What will your product-line architectural strategy be? Will you just have one product + plug-ins (for example)? A product line architecture complete with domain model and reference architecture as discussed in Chapter 15? (If so, how will your reconcile that choice with your limited development funds?) A Koala-style approach? For whatever choice you advocate, provide a rationale.

5. [16 pts] What do you believe to be the top three techniques, processes, notations, or tools to assist you in maintaining conceptual integrity? For each of the three explain how it assists in the task.