

Homework 01, CPSC-4175

Chapter 01, Object-Oriented and Classical Software Engineering

July 28, 2017

1. With respect to the term *software crisis*, the textbook list four concerns or components. List the four perceived components of this software crisis.
2. Assume that the terms *software life-cycle* and *software development cycle* refer to two completely different kinds of things. How would you describe the differences between the two? This should require research beyond the discussion in the text.
3. Give a detailed account of the practice of perfective maintenance. Give a detailed account of the practice of adaptive maintenance. “Detailed account” requires a narrative in sufficient detail to illustrate the differences between these two types of maintenance. You may use hypothetical accounts, accounts from the text, or accounts based on your experience.
4. Explain: “The difference between hardware and software is that, as hardware ages it breaks more and more and eventually has to be thrown away, while software as it ages gets better and better and eventually achieves correctness.”
5. According to the text, the cost of correcting software faults prior to implementation is a fraction of the cost of correcting software faults subsequent to implementation. Also according to the text, the number of faults detected subsequent to implementation is a fraction of the number of faults detected prior to implementation. What does this say to you?
6. The book notes that, in software engineering, there are no separate planning, testing, or documentation phases. This tells you something very significant about the practice of software engineering. What does this tell you? Don’t be quick to answer this question. In one important sense, this entire course depends on your answer to this question.
7. Defend this statement: structured programming techniques form an essential part of object oriented programming techniques. Note that the text does *not* argue that object oriented programming has completely replaced structured programming.
8. In designing a piece of software, is it more important for the developer to frequently interact with the *client* or with the *users*? Why or why not?
9. Point 8 of the Software Code of Ethics cited in the text states in part: “Software engineers shall participate in lifelong learning regarding the practice of their profession ...”. Identify one activity that you could engage in on a weekly, monthly, quarterly, or yearly basis, for the remainder of your life, that would promote this kind of learning.
10. Read “The Cathedral and the Bazaar” by Eric Steven Raymond in the **pdf** directory. Write a one paragraph appreciation of this essay. (A paragraph consists of multiple sentences, perhaps between five and ten.)