

# Practice Midterm Exam

CS 128 · League  
25 October 2004

You may not use any books or computers, and you may not talk with other students. Please write all your answers in the blue book, but turn in both the book and the exam paper when you are finished. You have 1 hour, 45 minutes.

- For each definition below, choose the one term to which it best applies. Your choices are:  
accuracy    cohesion    coupling    critical path    maintainability  
portability    post-condition    pre-condition    prototype    reliability  
scalability    security
  - \_\_\_\_\_ means that the system continues to work as demands on it increase.
  - \_\_\_\_\_ means the system produces the correct answer
  - \_\_\_\_\_ is a property of a module that its clients must guarantee is true before they may call on the module to perform some task.
  - \_\_\_\_\_ refers the strength of the connections between two components.
- Give an example of a system for which the *customer* and the *user* are different people.
- What is the difference between an *incremental* and an *iterative* development process?
- The Gantt chart in figure 1 shows an 18-week schedule for a small project. Suppose it is currently week 6. Is the project on schedule? If not, what could the project manager do to get it back on schedule?

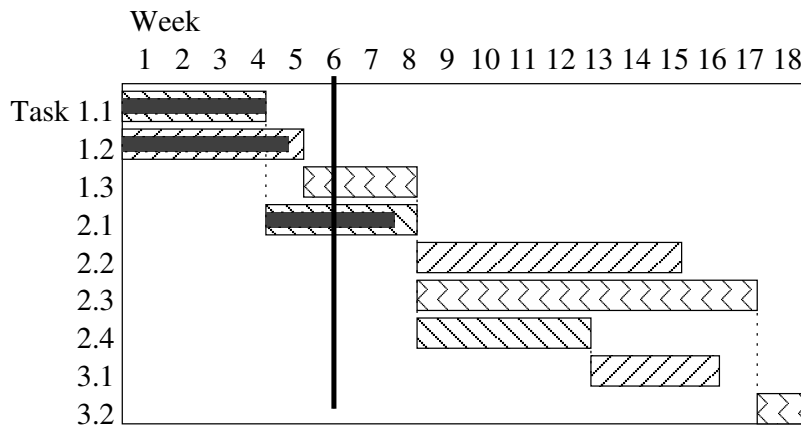


Figure 1: Gantt chart for question 4. Each bar represents the scheduled time span of a task. The inner black bar represents the approximate proportion of the task that has been completed.

- Improve each of the following requirements, by making them more specific, verifiable, or realistic. If you think the requirement is fine as it is, write *okay*.
  - The inventory system must produce a daily report.
  - The system must be operational 24/7.

(c) The web site must be user-friendly.

6. Examine the transition diagram in figure 2, and answer the following questions.

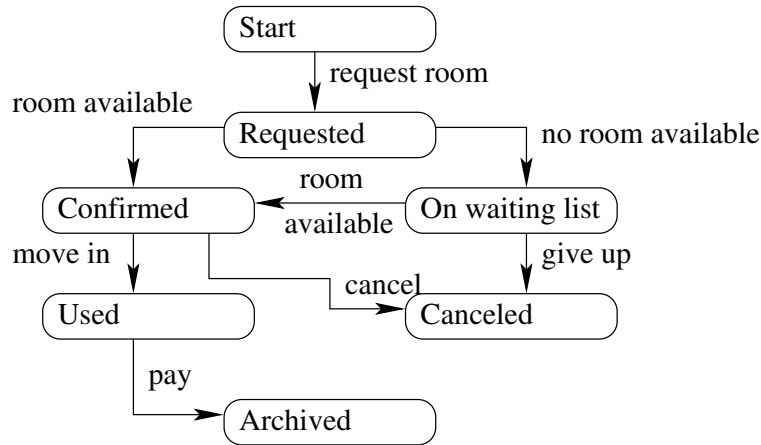


Figure 2: A state/transition diagram for hotel reservations. See question 6.

- (a) According to the diagram, is every confirmed hotel room eventually paid for? Explain.
  - (b) Is every request eventually confirmed? Explain.
  - (c) Suppose this is an expensive hotel that hosts presidents and other heads of state. Every guest must pass a background security check before they can move in; those that fail the security check are kept 'waiting' indefinitely. Change the state diagram to reflect this new policy.
7. Figure 3 contains a data flow diagram for a fast food ordering system. Find at least three errors in the diagram. Be specific in your answer; give process numbers if applicable and describe what rule or principle has been violated.

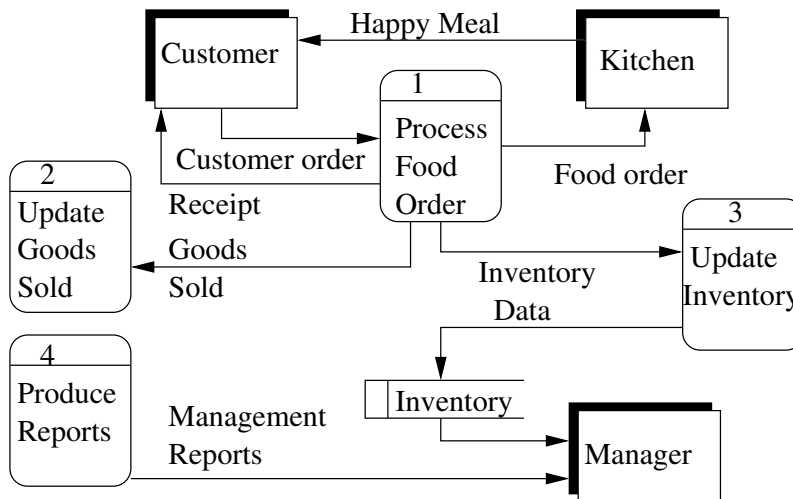


Figure 3: A data flow diagram of a fast food ordering system. See question 7.