CS350 Intro. to SE Openbook Quiz

Dec 8th, 2025

Name:

Student ID:

I hereby declare that I do not conduct any action against academic honesty. I fully understand penalty for any kind of dishonest action and take full responsibility of it.

Signature

NOTE: Please do NOT write down your answer in handwriting style. Thank you for your cooperation.

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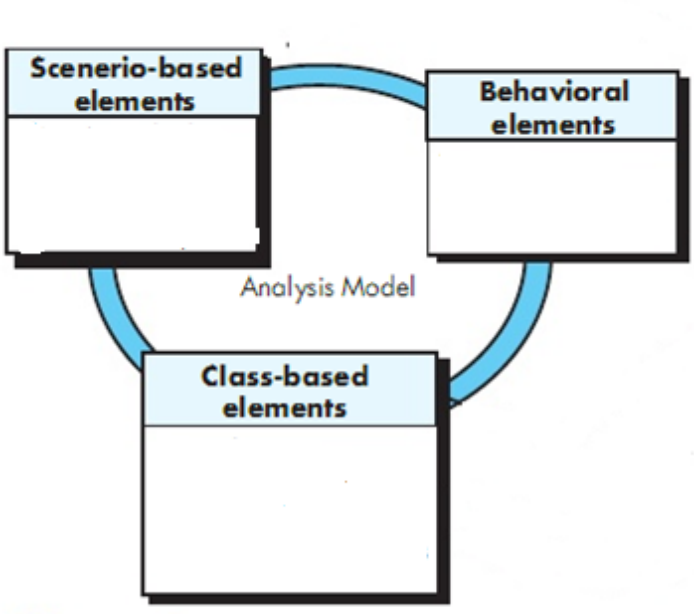
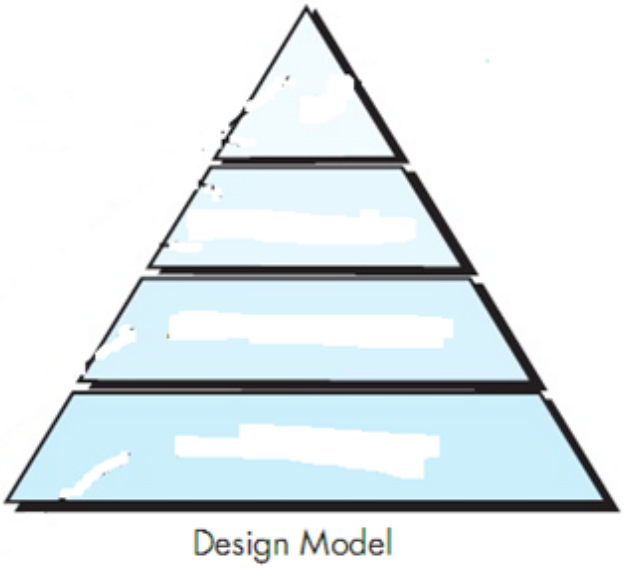
1. (10 pts) Please, read the following description on a leap year.

   The February of a leap year has 29th day (i.e., an extra day).
   Given year, print "Leap year" if the following conditions hold:
   a) if a year is divisible by 4, it is a leap year. Otherwise, it is not.
   b) if a year is divisible by both 4 and 100, it is not a leap year.
   c) if a year is divisible by 400, it is a leap year.

   A. Point out the problems of the above description in terms of ambiguity, inconsistency, and incompleteness.
   B. Rewrite the above description to improve understandability by reducing ambiguity, inconsistency, and incompleteness and including concrete examples

2. (15 pts) Fill out the elements of analysis model and the four elements of the design model. Then, draw lines representing relations between the elements of the analysis model to the elements of design model.





3. (15 pts) Explain the term "cohesion" and explain cohesion of any 5 different levels w/ concrete examples

4. (15 pts) Explain the term "coupling" and explain coupling of any 5 different levels w/ concrete examples

5. (10 pts) Describe and explain any 5 agile modeling principles

6. (5 pts) Describe and explain any 3 practitioner's myths

7. (10 pts) A system has 12 external inputs, 24 external outputs, 30 different external queries, manages 4 internal logical files, and interfaces with 6 different legacy systems. Assume that all weighting factors for the above factors are 4 and the sum of the value adjustment factors is $\sum(F_i) = 40$.
   A. (5 pts) Compute the function points (FP) for the system
   B. (5 pts) Assume that the past data indicates the following.
      i. one FP translates into 60 LOC
      ii. 12 FPs requires each person-month
      iii. 3 errors per FP

   Write down your estimation of the system's size (LOC), required man-month, and # errors.

8. (15 pts) Describe and explain fault, error, and failure. Also, write down a concrete code example and test scenarios to show the relation between them.

9. (5 pts) Describe the weak points of the Team 2's architecture in SDS