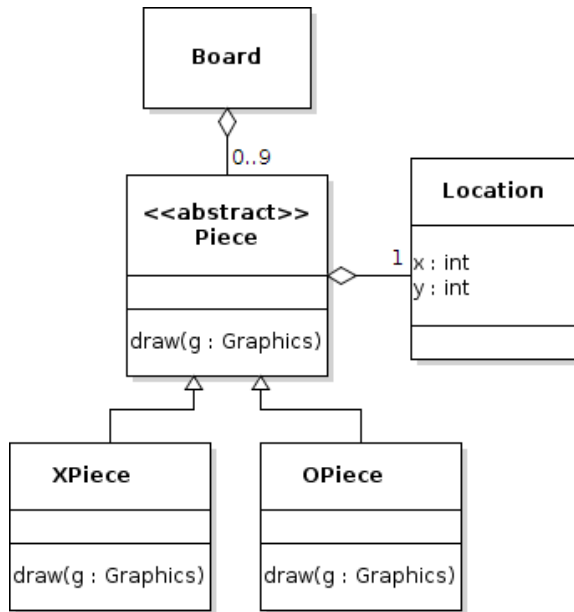


Question 1. [10 points] Briefly, in your own words, state some reasons why agile processes (such as Extreme Programming) use short increments, typically 1 or 2 weeks.

Question 2. [10 points] Consider two approaches to using version control: committing and pushing many small changes frequently, and committing and pushing larger changes more frequently. Briefly discuss some advantages and disadvantages of each approach.

Question 3. [10 points] Consider the following UML class diagram, showing part of a design model for a Tic Tac Toe program:



What design principle does this design violate? Explain briefly (hint: we discussed OCP and LSP and the various constraints that those principles impose on the design).

Circle one of the following ideas for software systems. The idea you circle will be the basis of your answers for Questions 4–8 below.

- An online system to sell tickets to events (sporting events, concerts, etc.)
- An online restaurant directory with user ratings (similar to Yelp)

Question 4. [10 points] List the *names* of at least 3 important use cases that will help document the requirements. Each name should indicate which actor is the initiator of the use case, and what goal is being accomplished.

Question 5. [15 points] Choose *one* of the use cases you named in Question 4 (preferably the most interesting one) and write it in the form suggested in Chapter 9 of UML Distilled. Indicate any prerequisites. Make sure the MSS ends with an important goal being accomplished. List alternate paths as necessary.

Question 6. [5 points] List *at least* 5 noun phrases and 5 verb phrases representing important problem domain concepts.

Question 7. [30 points] Sketch a UML class diagram showing an analysis model of the problem domain. The model must show important relationships between classes, and the data representation must be clear. The model should show at least one method. Recommendation: use pencil.

Question 8. [10 points] Briefly discuss the most important classes and the most important relationships between classes in your analysis model.