ANKARA UNIVERSITY - DEPARTMENT OF COMPUTER ENGINEERING

COM 3068 - Final Examination - 09 June 2021 - Duration 180 minutes

Student Name	
Student Number	

Methodology %15

1. Compare the team roles in of Scrum and Extreme Programming agile methodologies?

Analysis and Design %35

2. Consider a tennis game. There are two players. A player can serve and hit back the ball. A player has strength and experience which effect the hit angle and speed accuracy of the ball. During gameplay, the referee checks the ball if the ball remains in the tennis field or hit the net. Scoreboard displays the game info and also there exist a history table for every player showing their past game results.

a) Specify two non functional requirements that would be important for such an application. Why?

b) Find relations between objects and draw a class diagram showing relations, dependencies, compositions, multiplicities (cardinalities) etc.

c) Draw a sequence diagram for the "game play" scenario.

Design. %30

3. Give two of high level design architectures covered in the lecture/book and provide a brief description of each architecture. %15

4. Draw two class diagrams illustrating two object oriented design patterns you know. For each, explain with an example how the original problem is solved by using the pattern. %15

Testing. %20

5. a) Define *black box* and *white box* testing. What are the advantages of each approach? Why are both necessary?

b) Consider a program component Binary_Search (list, searched_string) which search a string in an array of maximum 100000 elements.

i) What are test cases you would like to test this procedure based on equivalence classes?

ii) What would be additional test cases based on boundary values.

c) *Path coverage testing* requires that every possible path through the code be tested at least once. *Decision point coverage* testing requires that each outcome of each decision point be tested at least once. Why does decision *point coverage* usually require fewer test cases than *full path coverage*? What kinds of errors might this testing miss?