

Inf2C Software Engineering 2017-18

Tutorial 4 (Week 10)

Notes on answers

1 Answers to exam questions

1. XP or some other agile process. Positive reasons for an agile process include that the scientists vary as to what they want, the solution will need to evolve over time, the “easy and quick” requirement which is best approached iteratively, and the competitors mentioned (Wikis and Dropbox) which both change frequently. Negative reasons for not choosing another approach such as Waterfall, Spiral, UP, BDUF, etc, are that the requirements will be hard to pin down ahead of time because it is a diverse stakeholder group, there is no safety-critical aspect, the requirements are going to change over time.
2. (a) *Problem-solving.*
 - 3 marks for 3 reasonable points about the different advantages of unit testing and code reviews (e.g., unit testing is repeatable and automatable; actually running the code in a test may be better at spotting errors than humans reading it, especially if its complex algorithmically; but code review can see e.g. whether the code is maintainable, something to which unit testing is blind; and the whitebox view that a code review has may expose an error that happens not to show up in testing, because the reviewers may see something suspicious in the source.
 - 3 marks for 3 reasonable points about XP, e.g., pair programming, shared ownership of code, coding standards all contribute to ensuring quality of code even without code reviews.
 - 2 marks for making the argument coherently.
 - 2 marks for noting that testing finds bugs, not their absence.
- (b) *Problem-solving.*
 - 3 marks for reasonable suggestions for each option (unit test; code review; neither). E.g., unit test things which are likely to change often; code review any short unit which is not likely to change often, but whose correctness is crucial; trust the developers judgement to identify some units which are so simple that they can be untested, since were told we must do that.
3. *Application of knowledge.* 4 points. 1 for No, 1 for Unified or Spiral, 2 for good reason along the lines of safety critical system, team not colocated.

4. Several do. The Spiral model and any incremental model are well suited. They work because the process allows users to state their initial goals and requirements, all the developers to work ahead a bit (do an initial UI design, e.g.), and then give the users the opportunity to review and rethink what they want.

Grading: 1 mark for stating spiral or any incremental model.

2 marks for answering why.