University of Glasgow

Wednesday 4 May 2016
9.30 am – 11.00 am
(Duration: 1 hour 30 minutes)

DEGREES of MSc

Software Project Management (M)

Answer All Questions

This examination paper is worth a total of 60 marks

The use of a calculator is not permitted in this examination

INSTRUCTIONS TO INVIGILATORS

Please collect all exam question papers and exam answer scripts and retain for school to collect. Candidates must not remove exam question papers.

1. The following problem description is for a system to sell financial products. Use it to answer this question.

Our system will enable contact centre (CC) operators to sell financial products to members of the public. Our system will provide a series of screens to guide them through the process. The main activity is to work through a list of people who have bought financial products from us before. They will be asked to provide useful information such as current salary, employment status, time in current job and so on. The program will then access whether they are valuable customers, in which case they will be offered our high profit products; thrifty customers who will be offered bargain products; or bad risks, who will be thanked politely. Customers who do not wish to give us any information will be assessed based on the last product they purchased, but the products offered will carry an additional risk premium. Some customers will not be able to give us a decision immediately, in which case their details will be noted and the operator will call them again later. Other customers will not have all the relevant details to hand, but will call us later to continue the transaction.

(a) One part of the system functionality is the 'initial call'. Identify two other functional requirements of the system and express them as a use case diagram. You should clearly describe each part of your use case diagram, explaining its purpose.

[6]

(b) Use the problem description above to describe two scenarios of the 'initial call' use case. Explain how scenarios can help the analysis process.

[7]

(c) Use the problem description and scenarios to write the full use case details for the 'initial call' use case. You should express the flow of events as an activity diagram. User interface details are not required.

[7]

2. **(a)** What is a user story? How is it different from a use case? How is the cost of a user story estimated and what units are they expressed in? How does this differ from the cost estimates of a use case? Explain the process of estimating the cost of both a user story and a use case. Are all the monetary costs of producing code for user stories and use cases found by these estimates?

[6]

(b) The following terms are used in Scrum, XP and DSDM: Timebox; Sprint; Epic; Iteration; Release; Standup; Velocity; Spike; Refactor; Pair Programming; Test Driven Development; Workshop. Explain what each term means and which approach they apply to. Use your answer to explain the similarities and differences between these approaches. Is it possible to use more than one of these approaches on the same project? Explain your answer.

[9]

(c) One possible epic in the problem of question 1 is "Follow up call". Describe all the stages it goes through using an agile process before it becomes code. You do not need to describe any of the stories that it could be broken in to.

[5]

3. **(a)** What is the role of the project manager in a software project that uses a Spiral process? What tasks do they undertake personally and which ones are delegated? Explain why your answer depends on the type of project. What is the most important thing the project manager does? Justify your answer.

[6]

(b) Describe four different ways of structuring a team, describing and justifying the different roles that team members play in each approach. What are the advantages and disadvantages of each approach. Explain how the available skills of each member of the team influences which approach is chosen. Describe three issues that the team leader will have to deal with, no matter what the official team structure is.

[4]

(c) Describe the different roles played by members of a Scrum team. In some cases they will be similar to a role in a Spiral approach. In these cases, explain the similarities and differences. In other cases there is no equivalent role in a Spiral approach, and some roles in a Spiral approach do not appear in Scrum. Describe these roles and explain how their presence or absence affects the success of the project.

[6]

(d) Scrum tends to be used with smaller projects that a Spiral approach. Describe one way of scaling up Scrum for larger projects. Describe any new roles created. Are the roles associated with larger scale Scrum projects more similar to the roles associated with a Spiral project?

[4]