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COMP1216. Software Modelling and Design (2019-20)

Coursework 1: Requirements Analysis, Specification, and Design

Issue date:	28 February 2020
Submission deadline:	4pm, 20 March 2020

This coursework, to be undertaken in groups of *four**, will contribute 15% towards the total for the unit (15% will be contributed by your second coursework). The assignment concerns aspects of the requirements analysis, specification, and design of an interactive quiz system. It is intended to develop your skills analysing requirements and designing a software solution using UML tools. It is intended to prepare you for your 2nd year group software engineering project.

Please bear in mind the University Academic Integrity regulations: http://www.calendar.soton.ac.uk/sectionIV/academic-integrity-regs.html

1 System Outline: An Interactive Quiz System

The University decides to build a new interactive quiz system (think Kahoot, Quizizz, Vevox, and similar systems). The system allows registered users to create quizes. Each quiz can contain several questions. Each question is a multiple choice with 2, 3, or 4 answers, with exactly one correct answer. Each question also has a predefined timeout. The quizes can be shared by the creator with other registered users. Only the creator of the quiz can edit the quiz, but any user who has access to the quiz (including the creator) can start the quiz.

Once a quiz is initiated by a host, a unique number is generated. The players can join the quiz via their own device using the number associated with the quiz. The host can begin the initiated quiz at any point, which will go through the predefined questions for the quiz. For each question, it is either finished when all participating players have answered the question, or

the time for the question is up, or the host terminates the question early. After each question, a summary of the answers is displayed, before the host starts the next question. At the end of the quiz, a report is produced, displayed, and stored in the host account.

2 Tasks (50 marks)

You need to write a report contains the following elements (take into account the *page limit*)

1. *Brief title/introduction/comments.* These should include a brief description of each member's contribution (*max 1 page*).

2. (*estimated* 4 marks) *Scope of the system.* Define the scope of the system, including *Need*, *Goals*, *Business Case*, *Stakeholders*, *High-level operational concepts*, etc. (*max 1 page*)

3. (*estimated* 6 marks) Two full scenarios, each covering one of:

   a) A user signs in and creates a new quiz containing several multiple choice questions. After finishing the quiz, the user shares it with another registered user and logs out (*max 1 page*).

   b) A host signs in and starts an existing quiz. The players join in and answers the questions (*max 1 page*).

4. (*estimated* 8 marks) Two full use case descriptions (*max 1 page each*)

5. (*estimated* 8 marks) A use case diagram (*max 1 page*)

6. (*estimated* 8 marks) A class diagram including attributes, operations, associations, multiplicities, inheritance (*max 1 page*)

7. (*estimated* 10 marks) Two sequence diagrams corresponding to the two scenarios above (*max 1 page each*).

8. (*estimated* 6 marks) An activitiy diagram for running a quiz (*max 1 page*).

Total: *max 11 pages*

3 Presentation

Credit will be given for

- covering all specified functionality in use case analysis, all required structure in class analysis, all required behavior in dynamic analysis

- correct and appropriate use of style and notation; simple and maintainable models

- neat and readable presentation; diagrams preferably drawn with a suitable tool

4 Submission Instructions

Each group should submit a written report (PDF format, *one report per group*) giving your answer to each of the tasks above. Clearly indicate your group number, member names and email IDs on the front page. Your diagrams should be produced with a drawing tool; Visual Paradigm is recommended. Your report should be submitted **electronically** using the automated hand-in facilities found on the ECS webpage at: https://handin.ecs.soton.ac.uk/.

The group allocations are on the course Noteswiki page.

If you feel there are any ambiguities in the requirements feel free to make your own interpretation, but make sure any interpretations you make are *clearly indicated in the report*. You should work *together as a group* to accomplish these tasks. It is the responsibility of each group to make initial contact and arrange their own group meetings. Please inform me of any problems contacting your group members. You should avoid discussing your solutions with other groups.

NB: Group size is *four*. It may be necessary to run one or two groups of three depending on the size of the class, or any students dropping out. In these cases the workload will be reduced accordingly.

- Group of 3: 1 sequence diagram only, other components as above
- Group of 2: 1 scenario, 1 use case, 1 sequence diagram only, other components as above