SIM GLOBAL EDUCATION

UNIVERSITY OF WOLLONGONG AUSTRALIA

School of Computing and Information Technology

CSIT314
Software Development Methodologies
Singapore Institute of Management

Final Examination Paper
Session 4 2020

Exam duration	2 hours + 15 minutes for scanning and uploading answers
Weighting	50 % of the subject assessment
Marks available	50 marks
Directions to students	Clearly mark the question numbers. Answer each question on a new page. This paper includes 3 questions. Submit your work in **one single file** (PDF or Word) to the Final Exam submission site provided on Moodle. To draw diagrams, you can use any tool of your choice (or draw by hand and take pictures – make sure the pictures are all clear). However, you need to insert the diagrams back into the submission file. Submission must be made by the exam end time. Late submission is **not** accepted. The submission site will automatically be closed after the exam end time. **The exam must be completed independently**. You must do it on your own and must **not** discuss and collude nor share you work with anyone else. When you submit, you acknowledge it is your own work. Plagiarism and other academic misconduct may result in a Fail grade and will be subject to university Academic Misconduct Procedures

Question 1 **(20 marks)**

Using the **b-c-e framework** to develop the design of a simple Word Editor (e.g. a simplified version of Microsoft Word). Your answer should include the following:

- A list of at least 5 user stories for this system.
- A UML use case diagram for this system.
- A use case description for one selected use case
- A class diagram to represent your design
- A communication diagram depicting the selected use case above.
- A UML state diagram to model the behaviour of an **object** in this system. You need to clearly specify which object you model and your state diagram needs to have at least 5 states.

Question 2 **(15 marks)**

Assume that you develop the software in Question 1 using test-driven development. Sketch one unit test case for this software.

Describe how you would develop this software using Continuous Integration and Delivery (CI/CD).

*Your discussion must be **specific** to this case study. Generic answers copied from the lecture slides will be given 0 mark.*

Question 3 **(15 marks)**

Assume that you are asked to develop a COVID-19 contact tracing software application. The software aims to facilitate the process of finding people who have been in close contact with COVID-19 cases.

Propose (and explain your reasons) a feature or functionality of this software that can be developed using the data-driven approach discussed in the subject. Describe how this feature can be developed using the data-driven development approach.

What are the ethical considerations specific to this feature? Discuss how you would address them during the development and operation of the system

*Your discussion must be **specific** to this case study. Generic answers copied from the lecture slides will be given 0 mark.*

End of Examination