Coursework

CI6120 Dependable Systems – Synoptic coursework 2019/2020

Deadlines:

Individual report to be submitted via Canvas by 13th December 2019, 11:59 pm.

Individual Technical Essay (4000 Words)

Description

Prototyping is a method for gathering information that could be useful for early product development. In situations where system requirements are inadequate and ambiguous prototypes could be used for recognising acceptable system functions, and also to increase the user knowledge about the proposed product. Prototyping could also be utilised for testing product performance, user response, to perform task analysis or as a proof of concept. Testing is another activity crucial to software quality. A number of testing strategies exist. The appropriate testing strategy needs to be chosen and designed based on the objectives; whether it's for quality assurance, reliability estimation or for validation and verification.

Requirements

1. Explain what is meant by software product metrics. Your definition should include at least three references. Then describe how prototyping could improve the performance of socio-technical systems.
(20 Marks)

2. Describe four commonly used product metrics. Explain the features and the associated purposes for each type.
(20 Marks)

3. Testing strategies could be aimed at evaluating the capability of the full system or its components, and to determine that the proposed system meets its required functionality, and improves dependable properties. Describe commonly used testing strategies and how they can be incorporated to your final year project.
(20 Marks)

4. Explain how Extreme Programming enables developers to integrate prototyping and testing into the system development life cycle. Justify your answer by using references where appropriate.
(30 Marks)

Presentation and correct use of referencing:

- Headers and footers;
- List of references (Harvard style);
- Use of citations (Harvard style);
- Appropriate introduction and conclusion.

(10 Marks)

Level of Work Expected

This is a major piece of work and it is expected that you will need to do some very thorough research and that ideally your research will be as up to date as possible given that this is a very rapidly moving field. It is also expected that requirements 1 to 4 will be answered fully and with a high level of detail. Diagrams should be used where appropriate. Work containing vague descriptions or unsupported assertions will be penalised.

Guidelines

You will be expected to work on your own and should submit deliverables arrived at independently using your own knowledge and effort.

Plagiarism is presenting somebody else's work as your own. It includes: submitting joint coursework as an individual effort; copying another student's coursework; stealing coursework from another student and submitting it as your own work. Suspected plagiarism will be investigated and if found to have occurred will be dealt with according to the procedures set down by the University. Please see your student handbook for further details of what is/isn't plagiarism.

You must meet all deadlines set. Failure to do so will result in a penalty. The usual deadline time is 10 am on the stated day –ALL work received after this time will be stamped LATE by Student Office staff.

Work submitted late but within a week of the deadline will be capped at 40% and receive a grade of LP (Late Pass) unless it is not of a passing standard in which case it will receive a grade of LF (Late Fail). Work submitted beyond a week of the deadline without approval will get 0% with a grade of F0.

If, however, you have a serious problem which prevents you from meeting the deadline you may be able to negotiate an extension in advance. In the first instance you should contact the Student Liaison Officer in the Student Office for advice. However any extension will need to be formally agreed by your Module Leader who will liaise with Student Liaison Officer to confirm and agree a new hand in date. Your work will then be marked without penalty.