IS3313: Continuous Assessment

Essay 1

(a) Describe with a diagram the components of a Central Processing Unit (CPU, e.g. registers, decode unit, control and execution units, i.e. the ALU-arithmetic and logic unit). For each component, provide an example of the data it uses and what it does to the data.

(Diagram in slide 10, Lecture 2. To have a more complete coverage of this diagram, please reference external material [not just lecture notes] to support the points you will make for this section.

When describing data, use the 16 bit binary representation. For each component, just provide 2-3 sentences explaining what happens to the data when it interacts with each component. The video we reviewed in lecture is useful to see what happens to the data i.e. www.youtube.com/watch?v=xfJbpCJSpd8).

(40 Marks)

(b) Explain (with the aid of a diagram) how the major components of a CPU operate and interact to complete a typical instruction cycle. Number each of the steps in your diagram.

(Diagram in slide 18, Lecture 2. To have a more complete coverage of this diagram, please reference external material [not just lecture notes] to support the points you will make for this section of the essay.

This state diagram is ideal when explaining the various steps of a fetch and execute cycle as this will highlight how the components interact with each other. When explaining how this functions, you can reference the components you have identified in part a above.

(60 Marks)

Submit a 1,800 word (at maximum) essay as part of your answer. All essays must be submitted on Blackboard by midnight on the 30th of October 2018.

Required Format:

- Maximum of 1,800 words (excluding references and cover page).
- All external sources of information must be referenced (Harvard referencing style).
- Font - Times New Roman size 12.
- Spacing - 1.5.

Cover page to include the following:

- Student Name
- Student Number
- Class
- Course Code
- Lecturer Name