Foundation Year in Computing Sciences

Computing Project – G6064

Autumn term 2020 – Research and Report on Key Application Areas of Computing

Set:	Week 6
Due:	Week 9
Format:	Report
Learning Outcomes Assessed	1. Describe some key application areas of computing, such as artificial intelligence, digital media and web development 2. Conduct a project of individual research on a key area of computing 3. Identify appropriate software within a computing application area 4. Present work in a clear and well-structured way in writing

General instructions

- One or two key application areas of computing to research and report on, Web development and possibly one other to select from the list on the next page
- If you do not understand any of the requirements in this assignment, ask your tutor for help during the lab sessions
- Word count limit of 1500 must be shown on the title page and not exceeded
- If you select OPTION 2, report must include a relatively even coverage of the two key application areas
- Ensure timely completion, penalties will be applied for late submissions.

Key Application Areas of Computing

Task

This assessment is aimed at testing your ability to conduct independent research into key application area(s) of computing, web development and possibly one other area of computing, such as artificial intelligence, e-commerce and digital media. You will present your findings in a report (*word limit: 1500*). The report will be judged on the clarity of thought exhibited in your descriptions of the chosen topic(s) within the specified area(s), the variety of sources found and the breadth of their consideration, and finally presentation.

OPTION 1: Web Development

OPTION 2: Web Development and one other area of computing from the list below (if AI is chosen, only select **a** or **b** or **c** or **d**):

- Artificial Intelligence
  a. *Gaia* – Daisyworld, conceived by J. Lovelock (1960's)
  b. *Co-evolution***,** where one species evolves in parallel to another. Examples could be:
     i. Predator – prey environments
     ii. Different species competing for similar resources
     iii. A symbiotic relationship
  c. *Subsumption Architecture*. Introduced by R. Brooks (MIT) in the late eighties
  d. *Can computers be conscious / intelligent?* Based *initially* on the papers of A. Turing (1950's).
- E-commerce
- Digital media.

NOTE: Identify particular topics within the above areas, which you would like to focus on. Such as *co-evolution* within Artificial Intelligence area or *image compression* within Digital media, or any other, relevant topic within the computing areas listed above.

Assessment criteria

Structure [10 marks]

- title, contents page, header and footer
- introduction
- aim(s) and objective(s)
- section headings and conclusion
- references list, bibliography and appendices

Content [70 marks]

- introduction and aim, detail and clarity
- description of application area(s) of computing
  - demonstrate comprehension of topics
  - illustrations and examples where appropriate
  - discussion of merits and possible applications based on examples found
  - awareness of any recent developments
- conclusion
- word count

Research, presentation and style [20 marks]

- wide range of sources used for in-text referencing and quotations (Harvard style)
- reference list and bibliography (Harvard style)
- writing and style
  - grammar and spelling
  - formal style (third person, past tense)
- presentation
  - clear layout and margins
  - captions used for illustrative content