**Cardiff Metropolitan University**

**Assignment Cover Sheet**

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| **Student Details ( Student should fill the content)** | | | | | | | | | | |
| Name | | |  | | | | | | | |
| Student ID | | |  | | | | | | | |
| **Scheduled unit details** | | | | | | | | | | |
| Unit code | | |  | | | | | | | |
| Unit title | | |  | | | | | | | |
| Unit enrolment details | | | Year | | 3 | | | | | |
| Study period | | 2018 | | | | | |
| Lecturer | | |  | | | | | | | |
| Mode of delivery | | | Full Time | | | | | | | |
| **Assignment Details** | | | | | | | | | | |
| Nature of the Assessment | | | Project and Report | | | | | | | |
| Topic of the Case Study | | | **AI based software application – CW 1** | | | | | | | |
| Learning Outcomes covered | | |  | | | | | | | |
| Word count | | |  | | | | | | | |
| Due date / Time | | | 02nd June 2019 | | | | | | | |
| Extension granted? | | | Yes | No | Extension Date | | | |  | |
| Is this a resubmission? | | | Yes | No | Resubmission Date | | | |  | |
| **Declaration** | | | | | | | | | | |
| I certify that the attached material is my original work. No other person’s work or ideas have been used without acknowledgement. Except where I have clearly stated that I have used some of this material elsewhere, I have not presented it for examination / assessment in any other course or unit at this or any other institution | | | | | | | | | | |
| Name/Signature | | |  | | | | Date | |  | |
| **Submission** | | | | | | | | | | |
| Return to: | | |  | | | | | | | |
| **Result** | | | | | | | | | | |
| Marks by 1st Assessor |  | Signature of the 1st Assessor | | | | | |  | | **Agreed Mark** |
| Marks by2nd Assessor |  | Signature of the 2nd Assessor | | | | | |  | |
| **Comments on the Agreed Mark.** | | | | | | | | | | |
| **For Office use only (hard copy assignments)** | | | | | | | | | | |
| Receipt date |  | | Received by | | |  | | | | |

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| **STUDENT NAME:** | | | | | | | | | | **STUDENT NUMBER:** | | |
| **Module Number & Title**: | | | | | | | | | | **Semester:** | | |
| **Assignment Type & Title:** | | | | | | | | | | | | |
| **For student use: *Critical feedback on the individual progression towards achieving the assignment outcomes*** | | | | | | | | | | | | |
|  | | | | | | | | | | | | |
| **For the Assessors’ feedback**  **Indicate the Task number strength and Weaknesses and the marks for each task** | | | | | | | | | | | | |
| **Task No/Question No**  **CMU B.Sc. (HONS) SE- ASSIGNMENT FEEDBACK SHEET –ICBT CAMPUS** | **Strengths (1st Assessor)** | | | | | | **Strengths (2nd Assessor)** | | | | | |
| **Task No / Question No** | **Weaknesses (1st Assessor)** | | | | | | **Weaknesses (2nd Assessor)** | | | | | |
| **Areas for future improvement** | | | | | | | | | | | | |
| **Comments by 1st Assessor** | | | | | | **Comments by 2nd Assessor** | | | | | | |
| **Marks** | | | | | | | | | | | | |
| **Task /Question No** | | **Marks by 1st Assessor** | **Marks by 2nd Assessor** | | **Marks by IV (if any)** | | | **IV comments (If Any)** | | | | |
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| **Total Marks** | |  |  | |  | | |
| **Name and the Signature of the 1st Assessor** | | | |  | | | | | **Date:** | |  | |
| **Name & Signature of the 2ndAssessor :** | | | |  | | | | | **Date :** | |  | |
| **Name & Signature of the IV: (If any)** | | | |  | | | | | **Date :** | | |  |

**Assignment 1**

This assignment is worth 50% of the overall assessment for this module.

The learning outcomes assessed are:

LO1 - Design and develop computational intelligence software artefacts.

LO2 - Critically appraise a comprehensive/detailed understanding of the computational intelligence domain.

**Mini Project (LO1, LO2)**

AI techniques have been mostly associated in implementing modern software applications. Following are the most commonly used AI techniques.

1. Neural Networks
2. Decision Trees
3. Genetic Algorithms

Some revealing project ideas are Use of Neural Networks in Medical Diagnosis, Financial Forecasting, Hand Written Character Recognition, Facial image-based gender recognition, Optimization Problems (Traffic and Shipment Routing).

Think of an instance where AI can be used to solve a given problem or where it can improve the performance of the existing approaches. Design and develop an **AI based classification application** of your choice based on any language of your choice in which **one or more of the above AI techniques** are utilized. **The interested problem domain should be discussed with the lecturer**.

You will be assessed on the following criteria.

1. A comprehensive report of no more than 3000 words explaining the following aspects of your project.

* 1. A literature review or similar applications
  2. System architecture and how your application differs from other existing applications
  3. AI technique used (e.g. ANNs, DTs and RFs etc.)
  4. Theory behind the AI technique that you used

2. A demonstration of your project which should be focused on explaining and demonstrating how the software you built work including clarify the system implementation details and theory.

At the submission of the assignment, you should deliver a CD or a DVD that contains,

* The report.
* Source code of the project.
* An executable file with a readme file on how to run the software.

**Mark Criteria**

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| --- | --- |
| Application – usefulness and novelty (10%) | |
| Excellent application useful for real world applications that could potentially be used as a product for a start-up business | 7-10% |
| Generic application with some extensions and value additions | 4-6% |
| Common application that is already implemented numerous times an readily available online with no value addition | 0-3% |
| Understanding and the ability to explain clearly the theory behind the AI technique that you used – 40% | |
| Excellent grasp of technical concepts and ability to explain, compare and contrast the advantages and disadvantages of the AI technique used. Able to clearly explain why the technique works and how it is applied to the specific problem at hand with coherency | 32-40 % |
| Able to explain how the AI technique works with some flaws but only a generic understanding of the technique without comprehensive knowledge on how and why the AI technique work. Limited capacity to compare and contrast different AI techniques. | 20-32 % |
| Understands the inputs and outputs to the system and able to explain how the system is used but doesn’t demonstrate sufficient understanding on how the AI technique works. Not able to compare and contrast different AI techniques. | 10-20 % |
| Poor grasp on AI techniques and the AI system implemented. | 0-10 % |
| Demonstration – 30% | |
| Well thought out presentation with a clear set up. Ability to pinpoint which code segment is supposed to host the AI and how inputs and outputs are processed. Able to know which function invocations are being called during system functioning, navigate through the function flow in code and the ability to demonstrate the knowledge of libraries used during the viva. | 24-30 % |
| Explanation of how the code works is not exceptional. Occasional wrong information provided and although libraries have been used not sufficient understanding on how exactly it could be used. Answers to the questions raised during the viva are only marginally satisfactory. | 15-24 % |
| Only a limited understanding on how the system works and fails or makes continuous errors in providing satisfactory answers to the questions raised during the viva. Only provides limited information and fails to navigate the code flow. | 10-15 % |
| Poor understanding on how the system works and although the system works fails to explain how and why it works and the questions are not answered up to a satisfactory level. | 5-10 % |
| AI system doesn’t work and viva questions are not answered to a satisfactory level. Poor implementation overall. | 0-5 % |
| Implementations details – 20% | |
| Excellent implementation details on report | 14-20 % |
| Good implementation details on report | 6-13 % |
| Poor implementation details on report | 0 – 5 % |

**Final Grading criteria for the coursework**

|  |  |
| --- | --- |
| Marks | Final Grade |
| >=70 | 1 |
| 69-60 | 2:1 |
| 59-50 | 2:2 |
| 49-40 | 3 |
| <40 | fail |