Dublin Business School Assessment Brief

Assessment Details

Unit Title	Reinforcement Learning
Unit Code	B9AI105
Unit Leader	Amit Sharma
Level:	9
Assessment Title	RL Application
Assessment Number	1
Assessment Type:	Group (2) / Individual Reports
Assessment Weighting	60%
Issue Date:	Week of 13th June 2022
Hand in Date:	Sunday 12th August 2022 (23:55)
Mode of Submission:	On-line Moodle and presentations (8th August 2022)

Assessment Task   [100 Marks]

Exercise 1 (Group)

Build a Complete Reinforcement Learning System.

You can pick your own projects and send to the Unit Leader for approval.

The project should have the following parts and you will be assessed on how well you complete each of these:
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1. Formalize your problem as Markov Decision Processes. Explain the state and action space. Explain the implementation of your reward function.
2. Choose a RL algorithm and explain your choice. Explain why it is more suitable than other RL algorithms for your particular problem.
3. Explain parameter choices needed to implement the agent. How will you do the exploration?
4. Implement agent using a tool of your choice (Open AI Gym etc.)
5. Identify a parameter to study. How does this parameter affects the agent's performance? You can also compare multiple RL algorithms.

(**50**)

Exercise 2 (Group)

Prepare and deliver a 10-15-minute formal presentation of your case study during the final lecture of the module on 8th August 2022.

(**20**)

Exercise 3 (Individual)

Your quantitative and visual insights should be presented in your CA01 Report.

(30)

The grade assessment will be based on the DBS CA grading scheme which has been included at the end of this document. Include a cover page on your report and cite all references. <u>Three</u> files should be loaded to Moodle on or before Sunday 12th August 2022 (23:55).

1. A SINGLE pdf file named CA01_Surname_First Name_Student-ID for individual report.
2. A zipped file including your project code
3. Presentation file.

Some project suggestions: -
1. Stocks trading using RL.
2. Training chatbots with RL.
3. Implementing RL for text-based games. (TextWorld)
4. Implementing RL for board games etc.
5. Work on simple problems in Gym library.

DBS Grade Assessment Policy (B9AI105)

Module Descriptor	Mark Band	Criteria	Determinator within grade band
A (Outstanding)	80-100	- Displays a thorough and systematic knowledge of module content through choice of scenario, solution and handover process and documentation. - Clear grasp of the issues involved, with evidence of innovative and original use of learning resources. - Knowledge beyond module content. - Clear evidence of independence of thought and originality - Methodological rigour - High critical judgement and confident grasp of complex issues	Originality and depth of insight and analysis.
A (Clear)	70-79	- Methodological rigour - Originality - Critical judgement - Use of additional learning resources	Methodological rigour, insight
B	60-69	- Very good knowledge and understanding of the module content. - Well-argued answer - Some evidence of originality and critical judgement - Sound methodology - Critical judgement and some grasp of complex issues.	Extent of use of additional or non-core learning resources
C	50-59	- Good knowledge and understanding of the module content. - Reasonably well-argued answer - Largely descriptive or narrative in focus - Methodological application is not consistent or thorough	Displaying an understanding of the main issues, sound approach
D	40-49	- Lacking methodological application - Adequately argued - Basic understanding and knowledge - Gaps or inaccuracies but not damaging	Requirements met.
E (Fail)	0-39		Weakness of approach

General Requirements for Students:

PLEASE READ CAREFULLY

1. It is your responsibility to ensure your file is uploaded correctly.
2. Students are required to retain a copy of each assignment.
3. When an assignment is submitted, it is the student's responsibility to ensure that the file is in the correct format and opens correctly.
4. Students should refer to the assessment regulations in their Course Guide.
5. DBS penalises students who engage in academic impropriety (i.e. plagiarism,
6. Collusion and / or copying). Please refer to the referencing guidelines on Moodle for information on correct referencing.
7. All relevant provisions of the Assessment Regulations must be complied with.
8. Penalties for late submission of assignments are as follows:
   a. 25% penalty for assignments submitted within 5 working days of the deadline.
   b. No marks for assignments submitted more than 5 working days after the deadline.
9. Extensions to assignment submission deadlines will be granted in exceptional circumstances only. The appropriate "Application for Extension" form must be used and supporting documentation (e.g. medical certificate) must be attached. Applications for extensions should be made directly to the Head of Year or Programme Leader in advance of the deadline date.