ASSESSMENT 2 BRIEF

MODULE CODE	COM7003
MODULE TITLE	Artificial Intelligence
MODULE LEADER	Xin Lu
ASSESSMENT TITLE	Presentation
WEIGHTING	30%

ASSESSMENT LEARNING OUTCOMES

Upon successful completion of this assessment, you will be able to:

1. Demonstrate an understanding of a range of AI and machine learning algorithms and predictive problem-solving techniques.
2. Demonstrate detailed knowledge of the use of AI systems for data processing and analytics.
3. Evaluate and optimise the performances of various AI and machine learning methods for data analytics.
4. Critically apply AI in a real-world context to demonstrate an understanding of the applicability and limitations of AI technologies and tools.

INSTRUCTIONS

Prepare and record a presentation lasting no more than **20 minutes**, discussing the stages involved in developing a predictive model. Your presentation must be contextualised around the work you conducted for **Assessment 1** and address the following key elements:

1. **Stages of Predictive Model Development**
   - Discuss the end-to-end process, starting from raw data collection to the final predictive model.
   - Provide a clear explanation of each stage, including:
     - Dataset selection and justification.
     - Data exploration and preprocessing.
     - Model selection and training.
     - Performance evaluation and optimization.
     - Deployment considerations.
   - Highlight specific examples from your work in Assessment 1 to illustrate these stages.
2. **Advantages of Machine Learning**
   - Explain the benefits machine learning offers within the context of your chosen problem and dataset.
   - Discuss how machine learning enhances decision-making and provides actionable insights in the business domain.
3. **Challenges and Potential Issues**
   - Identify potential issues encountered during the development process, such as:
     - Handling missing or imbalanced data.
     - Avoiding data leakage.
     - Ensuring model interpretability and fairness.
   - Reflect on how you addressed these challenges in your implementation for Assessment 1.
   - Discuss broader ethical considerations, such as bias, fairness, and societal impacts.
4. **Explanation and Demonstration of Developed Machine Learning Code**
   - Code Walkthrough: Provide an overview of the key components of your machine learning code, highlighting how you implemented your project.
   - Demonstration: show outputs or results generated by your code to reinforce the discussion, ensuring clear explanations of their significance.

Presentation Format

- **Slide Deck:** Prepare a slideshow with a maximum of **20 slides**. Ensure the slides are clear, concise, and visually engaging. Use diagrams, charts, and visuals to support your discussion where appropriate.
- **Recording:** Record a presentation of up to **20 minutes** in length. Ensure your presentation is well-paced, clear, and covers all required topics in detail. You can use Panopto or any other video recording software of your choice to record your presentation.

SUBMISSION DETAILS

RELEASE DATE	4th of Feb 2025
SUBMISSION DATE	14 March 2025
DELIVERABLES	**1. Recorded Presentation** • You should record your screen which displays your slideshow. • Your presentation should last a maximum of 20 minutes. • You should use appropriate video recording software, such as Panopto or any other video recording software to capture both the slideshow and your narration. • You should share the video link publicly with your module leader for review. **2. Slideshow Presentation** • Your presentation should contain a **maximum of 20 slides**. • You should make the slides clear, visually engaging, and concise. You must submit your PPT slides along with the link to the video in your submission.
SUBMISSION DETAILS	Submit your assignment by uploading it to Moodle <u>before midday</u> on the submission date. This deadline will be automatically and strictly enforced. If your submission is late, your grade may be affected. If you have any issues submitting your work, you must email the assessment team and copy in the module leader <u>before the assessment due time</u>. Do not leave your submission until the last minute to avoid any penalties due to problems with the submission portal. Assessment Team: <u>assessment@leedstrinity.ac.uk</u> Module Leader: <u>x.lu@leedstrinity.ac.uk</u> We may ask for a demonstration of your work following the submission. If needed, this will be communicated to you individually via email. Please check your emails regularly.

Your feedback / feedforward and mark for this assessment will be provided within 15 working days.

MARKING CRITERIA

Marks are awarded based on the following criteria. Within each part, aim to complete the work for each section before moving on to the next. The following banded marking scheme is used:

Exceptional	100/95/92		*Pass*	58/55/52
Distinction	88/85/82		*Bare Fail*	48/45/42
Distinction	78/75/72		*Fail*	38/35/32
Merit	68/65/62			

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If you have completed all the preparatory exercises and attended your classes, the estimated additional time required to PASS this assessment is approximately 20 hours.

To obtain a PASS mark (50%), you must have:	o Delivered a recorded presentation lasting a maximum of 20 minutes. o Produced a slideshow containing a maximum of 20 slides and include the link to the recorded presentation in the slides. o Provided a clear and appropriate discussion of the machine learning development process, identifying and explaining each of the key stages involved in model development. o Identified a relevant case study and used it to illustrate the discussion throughout the presentation. o Discussed the relevant advantages and disadvantages of using machine learning in context of the chosen example. o Demonstrated the developed machine learning code within the presentation, showing the implementation process and key features.
To obtain a MERIT mark (60%), you must have (in addition to the above):	o Demonstrate a good understanding of the machine learning development process, clearly and thoroughly covering all key stages. o Provided a more detailed discussion of the advantages and disadvantages of using machine learning, particularly within the context of the chosen example. o Included an expanded discussion on the real-world performance of the model and how it was tested. Discuss the metrics selected for evaluating model performance, ensuring that they align with real-world use cases. o Ensured that the slides are of high quality, visually appealing, and not overly text heavy. Use diagrams, charts, or visuals to support the points made, making the presentation more engaging.
To obtain a DISCTINCTION mark (70%), you must have (in addition to the above):	o Demonstrated an excellent and detailed understanding of the entire machine learning development process, providing a clear rationale for decisions made at each stage (e.g., data preprocessing, model selection, evaluation). o Provided a thorough discussion of the advantages and disadvantages of using machine learning in the context of the chosen example. o Discussed broader issues such as social, legal, and ethical considerations (e.g., data privacy, model fairness, bias, transparency, and societal impact). o Cited a minimum of Seven separate academic sources to support your discussion, including references to existing research, methodologies, and industry practices. o Provided an in-depth explanation of the real-world performance of your model, showcasing advanced evaluation techniques (e.g., cross-validation, handling class imbalance, overfitting). o Ensured that appropriate performance metrics are discussed and explained in detail, including their relevance to the problem at hand. o Ensured that the presentation slides are well-organised and professional, with a clear narrative throughout. The slides should be visually engaging, with a balance of text and visual aids, and not overly text heavy.

To obtain an EXCEPTIONAL DISTINCTION mark (80%), you must have (in addition to the above):	o Synthesized and applied the use of advanced machine learning techniques such as deep learning, convolutional neural networks (CNN), or transfer learning where appropriate. o Exemplified exceptional coding standards, including modular design, reusable functions, and a well-organized structure. o Provided a comprehensive comparison of different models used, including statistical analysis of performance metrics to validate and justify your results. o Justified the reasoning behind the selection of the final model with a through explanation of its performance metrics and suitability for the problem, demonstrating critical evaluation and alignment with the project objectives. o Included an in-depth discussion of ethical considerations, covering topics such as bias, fairness, privacy, and the potential societal impacts of the predictive model.

USE OF GENERATIVE ARTIFICIAL INTELLIGENCE IN THIS MODULE

You may use generative AI such as ChatGPT to assist you in the process of undertaking the assessment in the following ways: brainstorming, research, planning, feedback, editing.

All use of generative AI must be explicitly acknowledged, and any artificially generated content (e.g. images, code) explicitly labelled, with the source of the AI tool referenced using current APA referencing conventions You can find further guidance on the library website on their AI webpage).

In submitting your assignment, you agree to disclose the extent to which you have used generative AI in preparing this work and include evidence of your AI use in your appendices (e.g. dated screen shots of your use of this tool or copy and paste your AI chat into Word).

Failure to disclose your generative AI use may result in a 0 for your assignment and a referral for academic misconduct (see the Student Academic Misconduct Policy under Essential Info in the MyLTU app).

Include one of the following statements on your assignments
Either:
This assignment used generative AI in the following ways for the purposes of completing the assignment (choose 1 to 7 of the following): brainstorming, research, planning, feedback, editing, generating generic code, assisting in debugging, suggesting optimisations for code written by you.
Or:
This assignment did not use generative AI for the purposes of completing the assignment.
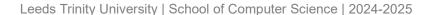
ACADEMIC MISCONDUCT

Academic Misconduct includes all forms of academic dishonesty, whether intentional or accidental, that compromise the integrity of the University's assessment processes. It is essential that you review our Student Academic Misconduct Policy to understand the guidelines and the serious consequences that may arise if they are not followed.

HELP AND SUPPORT

o Please use the module handbook and the School of Computer Science Community Teams site as a source of information. Do try and find the answer out yourself before reaching out for help.
o Support will be provided via Microsoft Teams and email during office working hours. You can also ask questions during your timetabled sessions. You may request a one-to-one meeting with a tutor during their published office hours.

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- o The Student Support team are available seven days a week to support you in all aspects of student life. This could be for support relating to your course, your accommodation or for more general advice such as relationships or your wellbeing. Log in to the LTU app to access support services.
- o The full set of university guidelines on assessments, deadlines, and extensions is available on the LTU app, please familiarise yourself with the documentation.

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