FIT5149 Assignment 2 - Marking Rubric

Marking Rubric - Assignment 2 contributes 25% to your final unit mark

Indicating the level the student is work at*:	**(N) Fail, (P) Pass, (C) Credit, (D) Distinction, (HD) High Distinction**

This assessment meets **Unit Learning Outcomes**:

1. Evaluate the limitations, appropriateness and benefits of Bayesian networks for real-world problems.
2. Develop and apply Conditional Random Fields (CRF) models to sequence labelling tasks, focusing on semantic role labelling.
3. Analyse and select features, evaluate model performance, and apply hyperparameter tuning techniques to optimize results.
4. Implement solutions for semantic analysis tasks by designing models and processing data effectively.
5. Interpret and explain the significance of key features influencing predictive outcomes.
6. Document and communicate the results and methodology clearly for both technical and non-technical audiences.

Criteria / Total: 25 marks	**Did not attempt**	**Poor**	**Limited**	**All**

Task 1 / Total: 10 marks				
Q1: Computation correctness	No attempt made.	Incorrect calculation or significant errors in both probabilities.	Correct for one probability, but the other is incorrect.	Correct for both probabilities
1 mark	**0**	**0.25**	**0.5**	**1**
Q1: Explanation of inference method used	No attempt made to explain the inference method.	Incorrect or irrelevant explanation of the chosen inference method.	Some explanation of the inference method, but lacking clarity or depth.	Thorough explanation with justification for the chosen inference method.
1 mark	**0**	**0.25**	**0.5**	**1**
Q2: Identification of d-separation or d-connection	No attempt made.	Incorrect identification of d-separation or d-connection for all or most questions.	Some correct identifications, but errors or omissions in others.	Correct identification of d-separation or d-connection for all sub-questions.
2 marks	**0**	**1**	**1.5**	**2**
Q2: Explanation of blocked and unblocked paths	No explanation provided.	Minimal or incorrect explanation of paths, missing key reasons for why paths are blocked/unblocked.	Some explanation provided but lacks depth or clarity in certain cases.	Thorough and clear explanation of all relevant blocked and unblocked paths with correct reasoning.
1 mark	**0**	**0.25**	**0.5**	**1**
Q3: Computation correctness	No attempt made.	Attempt made, but with incorrect computations or significant errors.	Partially correct computation but with errors or incomplete explanation.	Correct computation with full and clear explanation.
1 mark	**0**	**0.25**	**0.5**	**1**

Q3: Intermediate steps and explanation provided	No intermediate steps shown and no explanation.	Minimal steps shown, with significant errors or omissions. Little explanation is provided.	Some intermediate steps shown, but the justification of the inference method is unclear or incomplete.	All intermediate steps clearly shown and fully correct. The justification of the inference method is reasonable.
1 mark	**0**	**0.25**	**0.5**	**1**
Q4: Computation correctness	No attempt made.	Attempt made but with incorrect computations or significant errors in both methods.	Partially correct computation for one method, but errors in the other.	Correct computations for both methods with full explanations.
1 mark	**0**	**0.25**	**0.5**	**1**
Q4: Explanation and justification of inference methods	No attempt made to explain the methods.	Incorrect or irrelevant explanations for why the methods were chosen.	Some explanation provided for each method, but lacking depth or clarity.	Thorough and clear explanation of why both methods were chosen, including justifications.
1 mark	**0**	**0.25**	**0.5**	**1**
Q4: Comparison of Pros and Cons	No attempt made to compare the methods.	Inadequate or incorrect comparison of the two methods' Pros and Cons.	Comparison provided but lacking depth or missing key points.	Comprehensive comparison of the Pros and Cons of both methods, well-articulated and detailed.
1 mark	**0**	**0.25**	**0.5**	**1**
Task 2 / Total: 10 marks				
Exploration of the Datasets	No attempt made to explore and analyse the datasets.	Attempted, but dataset analysis is minimal or incorrect.	Some data analysis is performed but it lacks thoroughness.	Appropriate and thorough analysis of the provided features and the datasets.

1 mark	0	0.25	0.5	1
Feature Selection and Explanation	No attempt made to identify key features.	Features identified, but with little explanation or relevance to predictive outcomes.	Some key features identified and explained, but analysis lacks depth or clarity.	Key features identified and thoroughly explained, with clear connections to their impact on model predictions.
3 marks	**0**	**1**	**2**	**3**
Model Performance	Model developed but performs very poorly, achieving a Macro F1 score below **x<0.18**.	Model developed with minimal tuning, achieving a Macro F1 score between **0.18 ≤ x < 0.28**.	Model developed with tuning, achieving a Macro F1 score between **0.28 ≤ x < 0.34**.	Model developed with effective tuning, achieving a Macro F1 score of **0.34 or higher**.
3 marks	**0**	**1**	**2**	**3**
Result Analysis and Discussion	No discussion of experimental results, model performance, tuning, or errors.	Minimal discussion of experimental results, performance with few insights on tuning or features.	Some discussion on experimental results, model performance, feature impact, and hyperparameter tuning but lacking depth.	Comprehensive analysis of experimental results, model performance, hyperparameters, key feature impacts, error patterns, and generalization.
3 marks	**0**	**1**	**2**	**3**
Interview/Total: 5 marks				
In-class Interview	The student cannot explain how their models work, shows	The student shows some understanding of the models and code but	The student demonstrates a good understanding of the	The student shows a deep understanding of the code, model, and all design

	little to no understanding of the code, model design, or hyperparameter tuning. Unable to answer questions from the TA.	struggles to explain key elements. Explanations are basic or vague. Some ability to answer questions but lacks depth.	models, code, and design choices. Can explain how tuning and features impact performance but may lack detail in some areas. Answers most questions from the TA competently.	decisions. Provides clear, well-structured explanations of feature selection, tuning, and model performance. Confidently answers all questions with depth and insight.
5 marks	**0**	**2**	**3. 5**	**5**