

Assignment 3 – Detailed Marking Rubric (Total = 30 marks)

(Tasks 1–6, each 5 marks)

Task 1 – Data Preparation & Pre-processing (5 marks)

Level	Description	Marks
Excellent	Correctly imports all required libraries; correctly loads image dataset; clearly separates input vs target; correct train-test split; applies appropriate scaling/pre-processing (e.g., normalization); code is clean, organised, and reproducible.	5
Proficient	Minor issues in loading or splitting but overall correct; scaling/pre-processing applied but not fully justified; code runs with minimal adjustment.	4
Satisfactory	Basic loading and splitting done; some missing steps OR inconsistent scaling; code requires fixes but structure is understandable.	3
Weak	Incorrect or incomplete dataset loading; train-test split flawed; missing scaling when required; unclear or disorganised code.	1–2
Poor / No submission	Minimal or no attempt.	0

Task 2 – Model Training, Comparison & Evaluation (5 marks)

Level	Description	Marks
Excellent	Trains three ML/DL models correctly; clearly compares them; uses F1-score appropriately; provides evaluation tables/plots; explanation is technically sound.	5
Proficient	Three models trained but comparison lacks depth OR minor mistakes in F1-score use; evaluation is present but not well explained.	4
Satisfactory	At least two models trained properly; F1-score computed but misinterpreted; limited comparison.	3

Level	Description	Marks
Weak	One model only OR major errors in training or metric computation; no meaningful comparison.	1–2
Poor / No submission	No valid model training.	0

Task 3 – XAI Method Implementation (GradCAM / RISE / LIME) (5 marks)

Level	Description	Marks
Excellent	Correctly applies a suitable XAI method; provides clear, high-quality visual explanations (e.g., GradCAM heatmaps); implementation is correct and linked to the chosen model.	5
Proficient	Method used correctly but visuals or code explanation could be clearer; minor technical inaccuracies.	4
Satisfactory	XAI method implemented but visuals weak OR incomplete; interpretation limited.	3
Weak	Incorrect XAI method use OR output not meaningful.	1–2
Poor / No submission	No XAI attempt.	0

Task 4 – Written XAI Explanation for Task 3 (5 marks)

Level	Description	Marks
Excellent	Insightful explanation of how the model made decisions; links heatmaps/features to pneumonia pathology; critical reflection on model reliability; excellent clarity.	5
Proficient	Good explanation but lacks depth OR minor clinical or technical misunderstandings.	4
Satisfactory	Describes results but not the underlying reasoning; limited critical evaluation.	3
Weak	Very general explanation; misinterprets the visuals.	1–2

Level	Description	Marks
Poor / No submission	No explanation.	0

Task 5 – Second XAI Method Implementation (Different from Task 3) (5 marks)

Level	Description	Marks
Excellent	Chooses and implements a different XAI method correctly; produces clear visual or textual outputs; compares suitability relative to Task 3.	5
Proficient	Correct method applied but comparison or visuals could be improved.	4
Satisfactory	Method implemented but limited quality or weak explanation.	3
Weak	Incorrect method, poor implementation, or low-quality outputs.	1–2
Poor / No submission	No second XAI implementation.	0

Task 6 – Written Explanation for Second XAI Method (5 marks)

Level	Description	Marks
Excellent	Clear interpretation of second XAI output; meaningful comparison with Task 3 results; identifies strengths/weaknesses; shows critical thinking about model trustworthiness.	5
Proficient	Good explanation but missing deeper comparison or critique.	4
Satisfactory	Basic interpretation; lacks depth or analytical insight.	3
Weak	Misinterprets results OR gives minimal explanation.	1–2
Poor / No submission	No explanation.	0

Total Marks = 30 (Convert to 20%)

You can scale:

Final Score (%) = (Total Marks / 30) × 20