ZAIO INSTITUTE OF TECHNOLOGY

Due Date: Sunday 2 November @ 23:59

Project: Machine Learning Analysis of Student Habits and Performance

Rubric

Section	Criteria	Marks
Data collection and understanding	Dataset correctly imported; summary statistics (head, shape, types) provided; missing values identified and explained	10
	Columns requiring cleaning/encoding clearly highlighted	5
	Total	**15**
Data preparation	Missing values handled with clear justification (drop, impute, replace)	5
	Categorical variables encoded correctly and consistently	5
	Numeric features standardised/normalised where needed; before/after cleaning comparisons shown	5
	Total	**15**
Data exploration (EDA)	Advanced 2D plots (scatter with trendline, stacked bar, box/violin) with insightful interpretations	10
	Multivariate insights via heatmap/pairplot and correlations clearly explained	5
	At least two 3D visualisations (scatter, surface/wireframe, bar chart) included and interpreted	5
	Total	**20**
Model development	Decision Tree and Logistic Regression implemented correctly	5

	Proper dataset split (train/test) and model parameters explained	5
	Accuracy and classification reports presented with reasoning	5
	Total	**15**
Model evaluation	Confusion matrices generated and interpreted clearly	5
	ROC curves for both models plotted	5
	AUC scores calculated, compared, and explained	5
	Total	**15**
Explainability (XAI)	SHAP applied for global feature importance	3
	LIME used for local explanations	2
	Insights on influential student habits discussed clearly	5
	Total	**10**
Presentation and communication	Clear, structured 5–10 minutes presentation covering problem, data, methods, results, and insights	5
	Slides well-organised and visuals used effectively to support arguments	5
	Confident delivery and ability to answer questions	5
	Total	**15**
Code quality and reproducibility	Notebook is clean, well-documented, and organised	5
	Code runs end-to-end without errors; outputs match explanations	5
	Total	**10**
Bonus	GitHub used to document and host project (readme, commits, versioning)	10
	Total	**10**

Grand Total: 100 Marks