ORDINAL REGRESSION WITH A TABULAR WINE QUALITY MODELS TEAM PROJECT

Name	ID
ALI AKBAR	21031263

MY Contribution

In my role as Ali Akbar, I played a crucial part in the project by conducting extensive research and identifying the most suitable ordinal regression model for the tabular wine quality dataset. Through a thorough evaluation of various algorithms, I determined that the logistic regression and Decision Tree models are the optimal choices based on the dataset's characteristics and the specific requirements of the problem at hand. These models offer the best potential for accurately predicting wine quality within the given dataset. Moving forward, I will take on the responsibility of implementing the selected model. This implementation will involve utilizing Python, a versatile programming language, which will provide the necessary tools and libraries for efficient development and experimentation. By implementing and fine-tuning the chosen model, I aim to contribute to the overall success of the project and enable the team to derive meaningful insights from the wine quality dataset.

Logistic Regression

Logistic Regression is a statistical modeling approach used for binary classification tasks, estimating the likelihood of an event by fitting a logistic function to the input features. With its interpretable nature and ability to model probabilities, Logistic Regression is widely applied across various domains, making it highly regarded in machine learning research. Fig 1: Shows the result of Logistic Regression

model: LogisticRegression()

	precision	recall	f1-score	support
3	1.00	0.00	0.00	2
4	1.00	0.00	0.00	18
5	0.68	0.78	0.73	271
6	0.53	0.65	0.58	242
7	0.53	0.17	0.25	96
8	1.00	0.00	0.00	11
accuracy			0.60	640
macro avg	0.79	0.27	0.26	640
weighted avg	0.61	0.60	0.56	640

Fig 1: Shows the result of Logistic Regression

Decision Tree

The Decision Tree Classifier is a machine learning algorithm used for classification tasks, creating a hierarchical tree structure by partitioning data based on distinguishing features. Its intuitive nature and ability to facilitate comprehensible decision-making processes make it a valuable tool in machine learning research. Fig 2: Shows the result of the Decision Tree

model: DecisionTreeClassifier()

	precision	recall	f1-score	support
3	0.00	0.00	0.00	2
4	0.05	0.06	0.05	18
5	0.64	0.61	0.62	271
6	0.50	0.50	0.50	242
7	0.41	0.46	0.43	96
8	0.17	0.18	0.17	11
accuracy			0.52	640
macro avg	0.30	0.30	0.30	640
weighted avg	0.53	0.52	0.52	640

Fig 2: Shows the result of the Decision Tree

Much Impress from Teamwork

The importance of teamwork lies in its ability to foster collaboration, enhance problem-solving abilities, promote knowledge sharing, and facilitate the pooling of resources and skills. By working together as a team, individuals can combine their unique perspectives and expertise, leading to more comprehensive and successful outcomes. Additionally, teamwork promotes a positive and supportive work environment, where members can learn from each other and contribute to a collective goal. The experience of working with a team can be fulfilling and rewarding, as it allows for personal growth and the accomplishment of shared objectives.