ORDINAL REGRESSION WITH A TABULAR WINE QUALITY MODELS TEAM PROJECT

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MY Role in Team

In my role as Ahtsham Karim, my initial contribution to the project involves evaluating and contrasting the effectiveness of the ordinal regression model on our tabular wine quality dataset. To accomplish this, I will utilize appropriate evaluation metrics to assess the model's performance. This evaluation will encompass metrics such as accuracy, mean precision and recall, and F1 score, which will provide comprehensive insights into the model's predictive capabilities. By comparing the performance of the ordinal regression model against other models or iterations, we can determine the most suitable model that meets the specific requirements of the project. This evaluation process is crucial in ensuring that our chosen model performs optimally and delivers accurate predictions for the wine quality dataset. Through my contribution, I aim to contribute to the project's success by providing valuable insights and helping make informed decisions regarding the selection of the most effective model.

Accuracy

Accuracy is a commonly used metric to measure the performance of a classification model. It is calculated by dividing the number of correctly classified instances by the total number of instances in the dataset, expressed as a percentage. The mathematical formula for accuracy.

Formula = Accuracy = (Number of Correctly Classified Instances / Total Number of Instances) * 100

Recall

Recall, also known as true positive rate or sensitivity, is a metric used to assess the ability of a classification model to correctly identify positive instances. It is calculated by dividing the number of true positives (correctly identified positive instances) by the sum of true positives and false negatives. The mathematical formula for the recall is:

Formula = Recall = (True Positives / (True Positives + False Negatives))

Precision

Precision is a metric used to measure the accuracy of positive predictions made by a classification model. It is calculated by dividing the number of true positives (correctly predicted positive instances) by the sum of true positives and false positives. The mathematical formula for precision is:

Formula = Precision = (True Positives / (True Positives + False Positives))

F1 score

The F1 score is a metric that combines precision and recall to provide a balanced measure of a classification model's performance. It is calculated by taking the harmonic mean of precision and recall, providing a single value that represents the overall effectiveness of the model in terms of both precision and recall. The mathematical formula for the F1 score is:

Formula = F1 Score = 2 * (Precision * Recall) / (Precision + Recall)

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[ ]  model: RandomForestClassifier()
              precision    recall  f1-score   support

           3       1.00      0.00      0.00         2
           4       1.00      0.00      0.00        18
           5       0.72      0.77      0.74       271
           6       0.57      0.65      0.61       242
           7       0.51      0.38      0.43        96
           8       1.00      0.09      0.17        11

    accuracy                           0.63       640
   macro avg       0.80      0.31      0.33       640
weighted avg       0.64      0.63      0.61       640
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Fig 1: Shows the result evaluation metrics

Teamwork learning summary

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