



Wine Analysis

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Project Overview

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Explain what the project entails

02. Logistic Regression Red Wine

Logistic Regression based on Price & Ratings

03. Logistic Regression White Wine

Logistic Regression based on Price & Ratings

04. Red Wine Logistic Regression with Age Column

Looks at 4 different models based on Price

05. White Wine Logistic Regression with Age Column

Looks at 4 different models based on Price


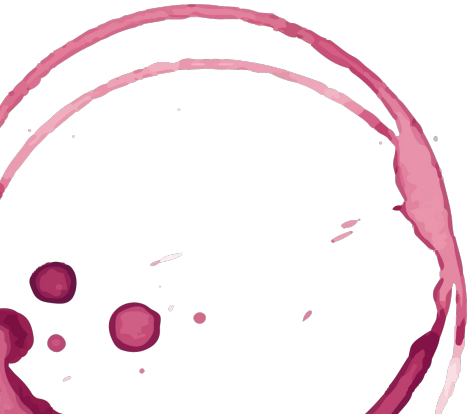
06. Conclusion

Final thoughts and evaluations on the different models



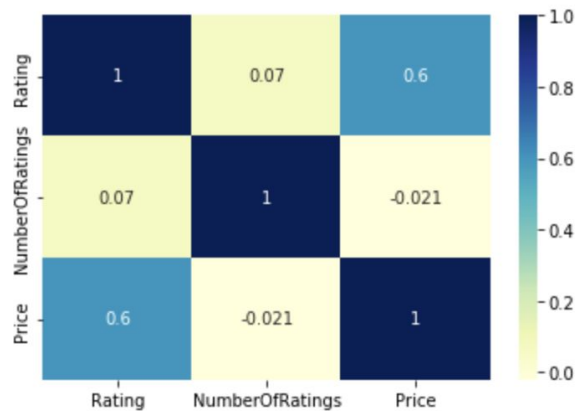
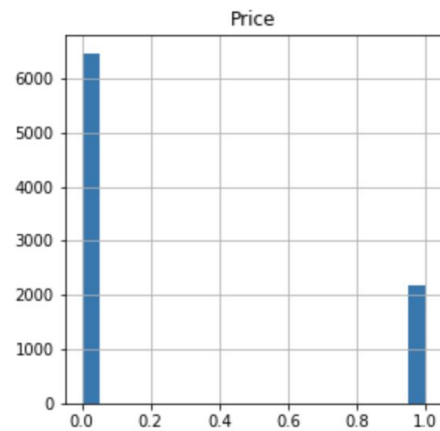
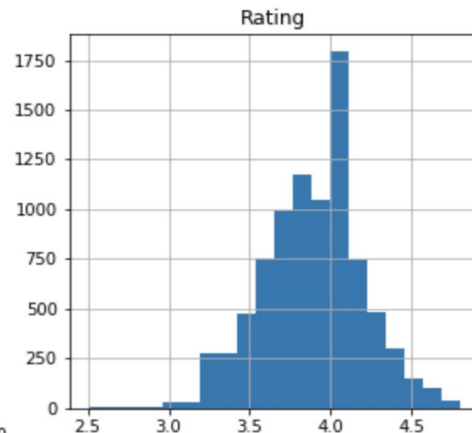
Goal of Analysis

The goal of our analysis is to create different machine learning models to see which one is the best at predicting the best wines. We ran multiple models with the dependent variable varying between Price, Ratings, and Age.



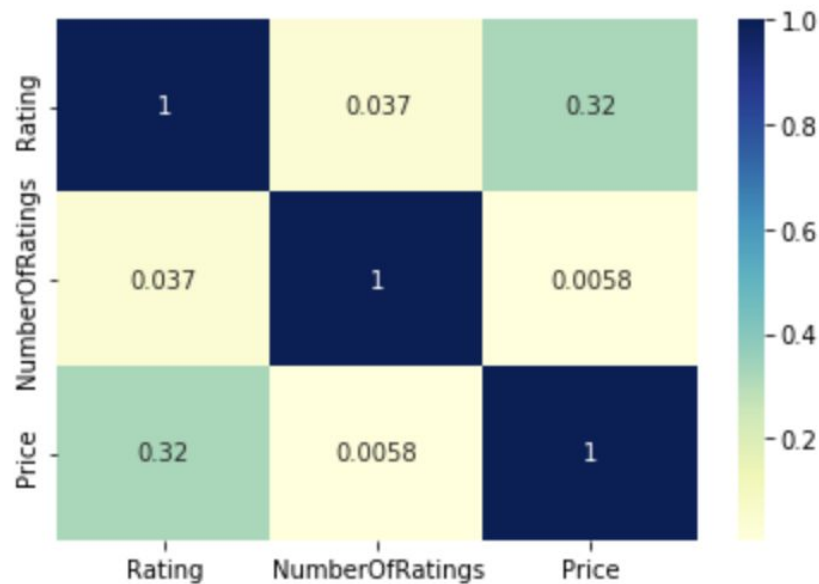
Logistic Regression Red Wine

- Y variable = Price
- X variables = Rating, Number of Ratings, and Year
- Balanced Accuracy Score: 76.09%
- Cheaper Wines:
 - Precision: 87%
 - Recall: 93%
- Expensive Wines:
 - Precision: 74%
 - Recall: 59%
- Accuracy: 84%



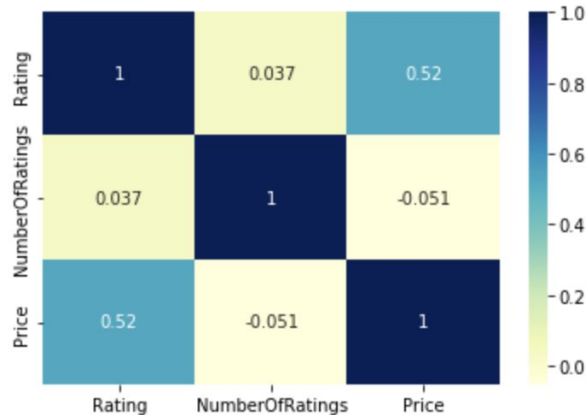
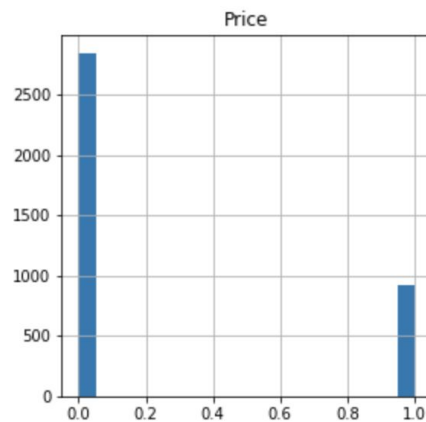
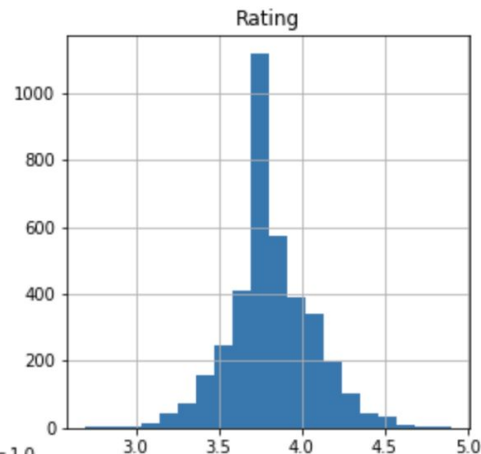
Logistic Regression Red Wine Cont.

- Y variable = Rating
- X variables = Number of Ratings, Price and Year
- Balanced Accuracy Score: 78.03%
- Higher Rated Wines:
 - Precision: 79%
 - Recall: 90%
- Lower Rated Wines:
 - Precision: 83%
 - Recall: 66%
- Accuracy: 80%



Logistic Regression White Wine

- Y variable = Price
- X variables = Rating, Number of Ratings, and Year
- Balanced Accuracy Score: 74.68%
- Cheaper Wines:
 - Precision: 87%
 - Recall: 95%
- Expensive Wines:
 - Precision: 78%
 - Recall: 54%
- Accuracy: 85%



Logistic Regression White Wine Cont.

- Y variable = Rating
- X variables = Number of Ratings, Price and Year
- Balanced Accuracy Score: 71.61%
- Higher Rated Wines:
 - Precision: 81%
 - Recall: 95%
- Lower Rated Wines:
 - Precision: 80%
 - Recall: 48%
- Accuracy: 81%



Red Wine Models w/ Age Column

- Logistic Regression Model
 - Balanced Accuracy: 77.90%
 - Cheaper Wines:
 - Precision: 88%
 - Recall: 95%
 - Expensive Wines:
 - Precision: 79%
 - Recall: 61%
 - Accuracy: 86%
- RandomOverSampler Model
 - Balance Accuracy: 84.03%
 - Cheaper Wines:
 - Precision: 94%
 - Recall: 84%
 - Expensive Wines:
 - Precision: 63%
 - Recall: 85%
 - Accuracy: 84%
- KNN Model
 - Accuracy Score: 77.51%
- SVC Model
 - Accuracy Score: 75.24%

White Wine Models w/ Age Column

- Logistic Regression Model
 - Balanced Accuracy: 80.45%
 - Cheaper Wines:
 - Precision: 90%
 - Recall: 94%
 - Expensive Wines:
 - Precision: 78%
 - Recall: 67%
 - Accuracy: 87%
- RandomOverSampler Model
 - Balanced Accuracy: 85.36%
 - Cheaper Wines:
 - Precision: 95%
 - Recall: 84%
 - Expensive Wines:
 - Precision: 64%
 - Recall: 86%
 - Accuracy: 85%
- KNN Model
 - Accuracy Score: 77.55%
- SVC Model
 - Accuracy Score: 75.64%

Conclusion

In conclusion the models calculated with the age column are the best because creating the age column allows for the machine to have another concrete item to take into account. We have determined that logistic regression model was the best when predicting the price of white and red wines.

The logistic regression model did a much better job at predicting the price over predicting the rating.

THANKS



Do you have any questions?

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The image is a composite graphic. It features a central black rectangular area containing the text "The End." in a bold, pink, sans-serif font. This central panel is flanked on both the left and right sides by a dense, overlapping arrangement of numerous wine corks. The corks are of various shades of tan and brown, showing natural textures and some signs of wear. Overlaid on the black central panel are two large, stylized splashes of pink liquid, resembling wine, which curve around the top and bottom edges of the text area.

**The
End.**