

Wine Quality Prediction System through a Data Mining Approach

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on **May 28, 2021**

» Initials

Wine

- * an **alcoholic drink** typically made from fermented grapes
- * **once** viewed as a luxury good
- * nowadays wine is increasingly enjoyed by a **wider range** of consumers

Idea Overview

- * Build an **interface to predict** the **quality** of the **red wine**. (Through data mining approach)
- * **Result** of the system: Quality of wine, given **chemical information** and **machine learning model**.

» Motivations

Wine Itself!

- * **Lowers** bad cholesterol
- * **Keeps** heart healthy
- * **Regulates** blood sugar
- * **Reduces** the risk of cancer and many more!

Wine Industry

To **support its growth**, wine industry is investing in new technologies for both **wine making and selling** processes.

» Motivations (cont.)

Wine Certification

- * prevents the illegal adulteration of wines (to safeguard human health)
- * assures quality for the wine market

Quality Assessment

- * often part of the certification process
- * used to improve wine making (by identifying the most influential factors)
- * used to stratify wines such as premium brands (useful for setting prices)

» Existing Approach Limitations

Limitations

Decisions on wine quality prediction are mostly done **scarce** and considers **small datasets**.

- * **1991's** the "Wine" dataset includes **178 examples** with measurements of 13 chemical constituents
- * **1997's** the "Wine" dataset includes **170 samples** from Germany but **predict 100% accurately**
- * **2001's** wine dataset includes **only 36 examples** were used and 6% error achieved

» Contributions

We

- * **Proposed** a data mining approach to predict human wine taste preferences that is based on easily available analytical tests
- * Compared to other domain, a **large dataset** is considered with **white and red vinho verde** samples from northwest Portugal have **increased by 36%** from 1997 to 2007

Why Portugal's Dataset?

- * **top ten** wine exporting country, with **3.17%** of the market share in 2005
- * Exports of its vinho verde wine (from the northwest region) have increased by 36

» Advantages

- * Such model is **useful to support the oenologist** wine tasting evaluations and improve wine production.
- * similar techniques **can help in target marketing** by modeling consumer tastes from niche markets.

» Project Demonstration

Important Files

Actual paper link is given **here**

Actual dataset link **here**

Project

Project *Github* link is given **here**

Thanks for your attention!
Good Day