Winos

The Team

How is Climate Change affecting wine?

Kyle Johnson

Square

First Segment: Square
Second Segment: Circle
Third Segment: Triangle
Fourth Segment: X

Marisa Shideler

Triangle

First Segment: Triangle
Second Segment: Triangle
Third Segment: X
Fourth Segment: Triangle

Brenya Skaggs

Circle

First Segment: Circle
Second Segment: X
Third Segment: Circle
Fourth Segment: Circle

Zackary Gheen

X

First Segment: X
Second Segment: Square
Third Segment: Square
Fourth Segment: Square

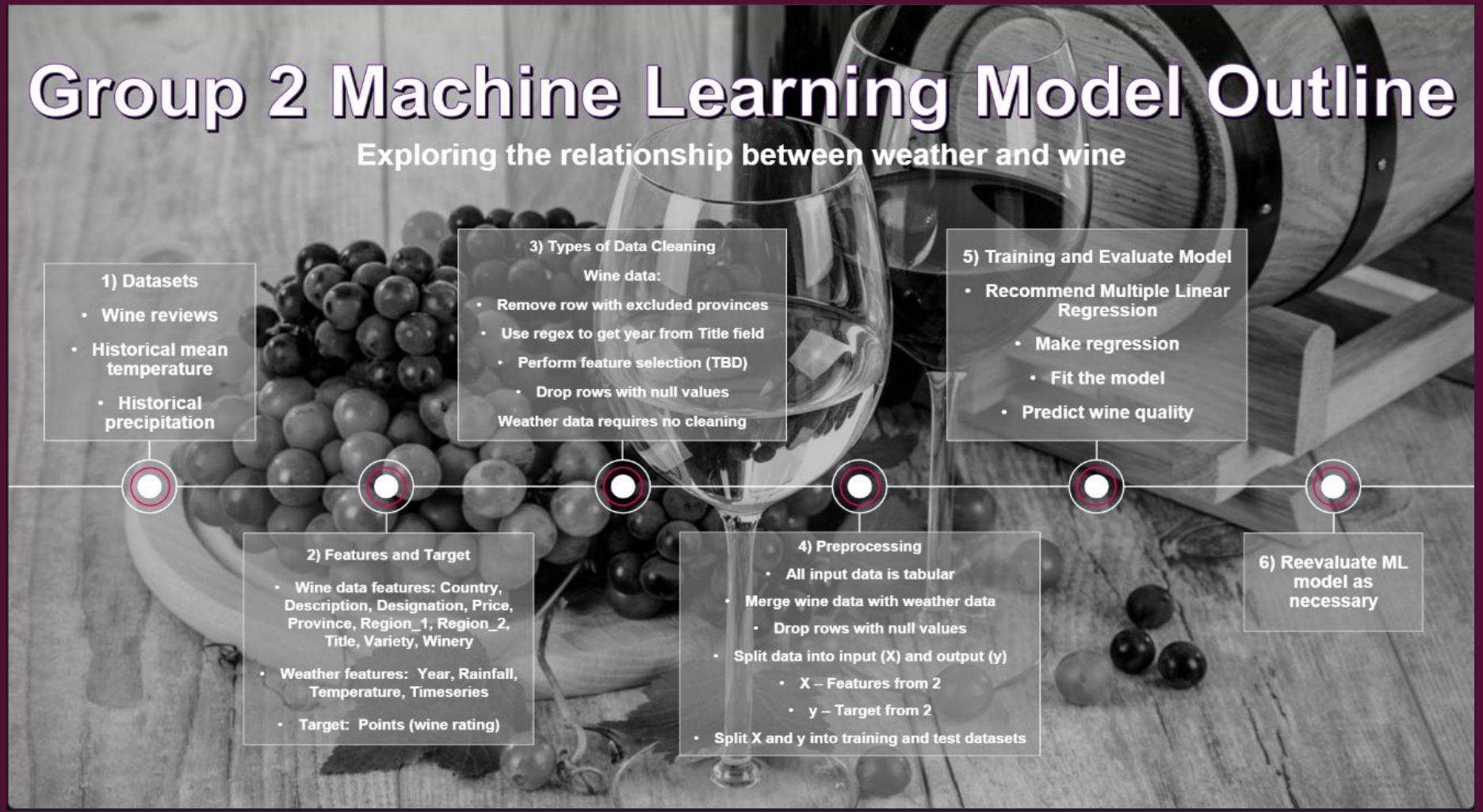
The topic of this project is predicting the quality of wine based on environmental factors such as geography, temperature and rainfall. Climate change is expected to have a dramatic impact on these variables in the future and as enthusiastic wine drinkers, we hope to learn if this will have an impact on our preferred wine growing regions.

Questions to Answer

- Do higher temperatures/rainfall correlate with higher or lower quality wine?
- What effect will future changes in rainfall and temperatures have on wine quality from various regions?
- Are new regions poised to emerge as premiere locations for growing grapes and producing wine?

Group 2 Machine Learning Model Outline

Exploring the relationship between weather and wine



1) Datasets

- Wine reviews
- Historical mean temperature
- Historical precipitation

2) Features and Target

- Wine data features: Country, Description, Designation, Price, Province, Region_1, Region_2, Title, Variety, Winery
- Weather features: Year, Rainfall, Temperature, Timeseries
- Target: Points (wine rating)

3) Types of Data Cleaning

Wine data:

- Remove row with excluded provinces
- Use regex to get year from Title field
- Perform feature selection (TBD)
- Drop rows with null values

Weather data requires no cleaning

4) Preprocessing

- All input data is tabular
- Merge wine data with weather data
- Drop rows with null values
- Split data into input (X) and output (y)
  - X – Features from 2
  - y – Target from 2
- Split X and y into training and test datasets

5) Training and Evaluate Model

- Recommend Multiple Linear Regression
- Make regression
- Fit the model
- Predict wine quality

6) Reevaluate ML model as necessary

Technologies

Language

Tools

Data Sources

Environment Dataset

- The world bank provides observed rainfall and temperature data by year for regions within individual countries from 1901-present.
- Future predictions of the weather with the same structure are provided from 2020-2100.
- Home | Climate Change Knowledge Portal (worldbank.org)

Wine Dataset

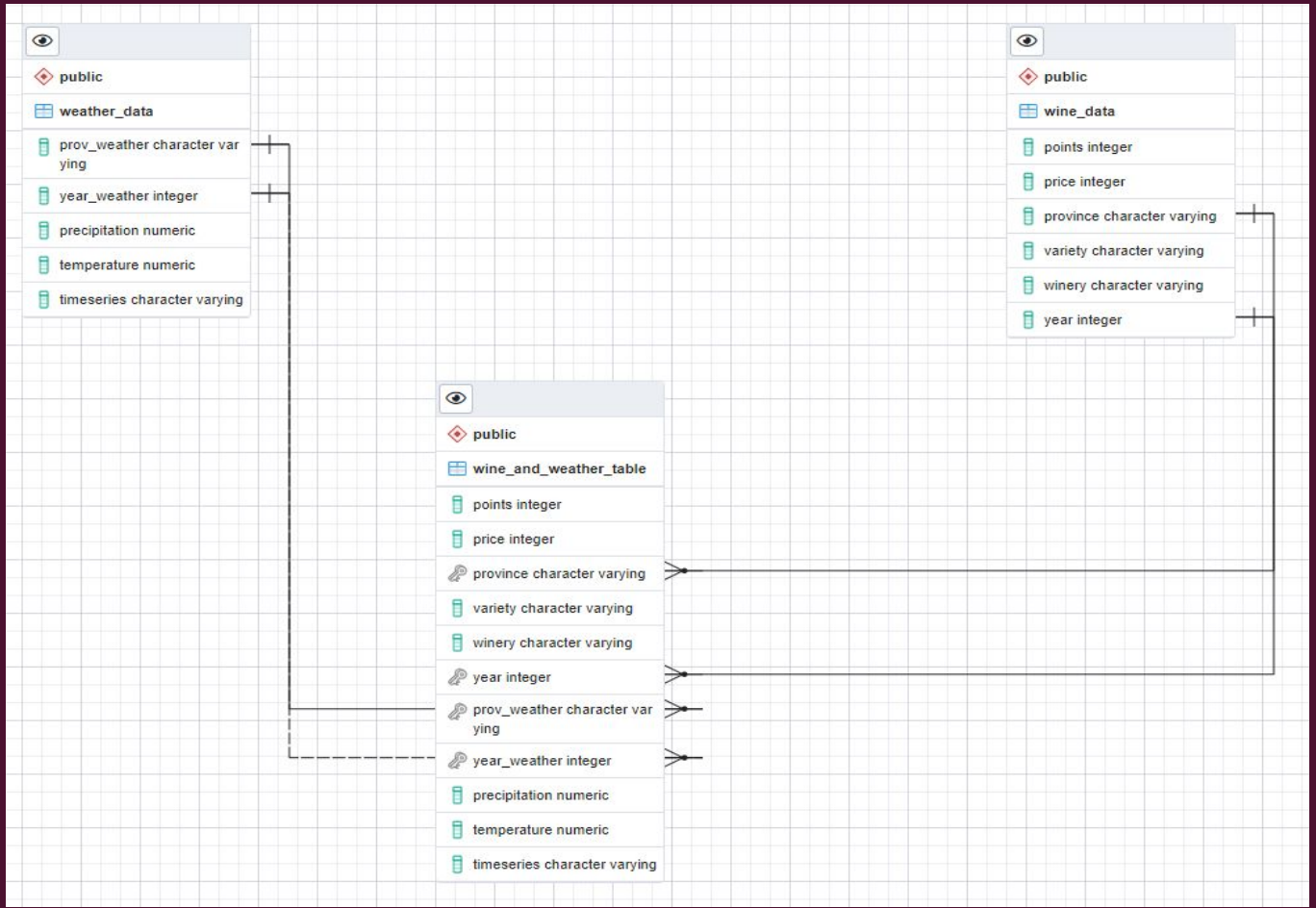
- This dataset includes 130,000 records of wine reviews from 2000-2017.
- Wine Reviews | Kaggle

Regions to be examined

- California, US
- Washington, US
- Bordeaux, France
- Tuscany, Italy
- Oregon, US
- Cantabria, Spain
- Piemonte,Italy
- Veneto, ITaly
- New York, Us
- Alsace, France
- Sicily, Italy
- Champagne, France

Dataset Analysis

weatherdata_winedata_ERD



Machine Learning

Results

Predictions

Recommendations