

GREEN TEAM

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What does it take to grow the finest wine?



Why wine?

California, Washington, and New York are the crown jewels of American wine production, but with nearly 3 million square miles in the contiguous US, we believe there are untapped grape mines to be found all around us.



Questions we set out to answer

- What weather makes good wine?
 - What wine types like certain weathers?
- Where can we find that weather in the US?
- There are a myriad of factors to growing perfect grapes, but to the aspiring vintner a good place to start is with weather.

Average Temp

Avg Humidity
grouping)

Avg Precipitation

Avg Air Pressure

Longitude (location

Latitude (sunlight)





Data sources

- **Wine Enthusiast** wine review data
 - Score, country, vineyard, variety
- Weather data from **Open Weather's Statistical Weather Data API**
- Location data from **Google Maps Places API**

Our wines:

Riesling

Pinot Noir

Chardonnay

Cabernet Sauvignon

Sauvignon Blanc

Merlot

Syrah





Machine learning and data analysis

- Reduced weather data due to origin's scope
- Ratings from one source, skewed ratings based on tasters
- Data presents itself on a scale (80-100)
- Ideal output is a prospective score of wine
 - Score 80+ Good (100%)
 - Score 88< Great (50%)
 - Score 94+ Award-Winning (6%)



Building a model

- Start with Regressors
 - Complete loss of accuracy (12%-25%)
- Exploration of classification
 - Linear Regression (too accurate)
 - Training a model for each varietal means a reliance on boosting, but need accuracy for product viability
- Random Forest as a Classifier
 - Forced sample threshold
 - Less overfitting
 - Quick computation, ability to tweak on the fly



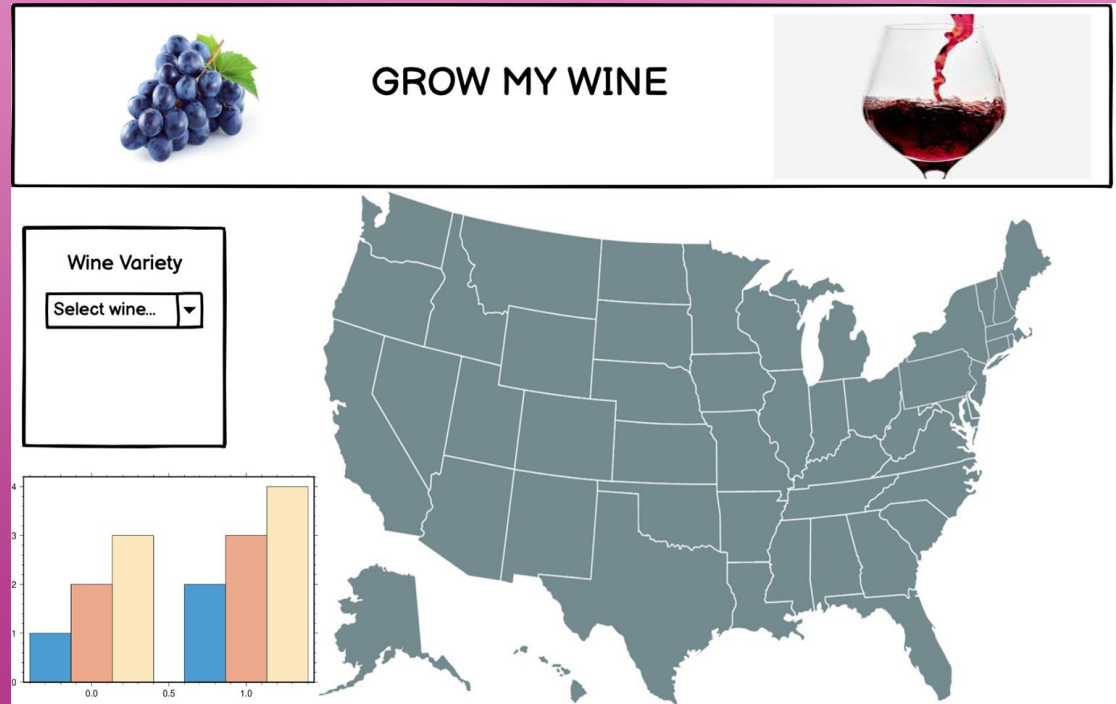
Training, Testing, Fitting, Shipping

- Each varietal's accuracy score (avg ~83%)
- Fit to World Ranking weather data
- Classify on US County weather data

Classifier	accscore
merlot	90.1
savyb	86.1
chard	82.7
cabsav	82.4
syrah	82.2
pinoir	79.8
riesling	79.7
AVG	83.28571

The Wine Tool

- Dynamic return of search data
- Scoreboards for each state and wine type
- Educational information on search terms



Tour of the Wine Tool



Looking forward, growing back

- Additional weather parameters
- Additional environmental factors
- Tool can be used in other websites

What Is The Best Area to Grow my Favorite Wine?



Country:	Weather:
Chile: 97	Long warm season
Germany: 96	Warm summer, cold winter
France: 96	Warm summer, cold winter
Spain: 96	Long warm season

Wine Variety Search

Pinot Noir	→	...grows best in
Cabernet Sauvignon	→	...grows best in
Reisling	→	...grows best in