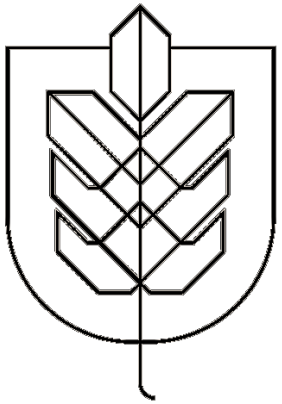
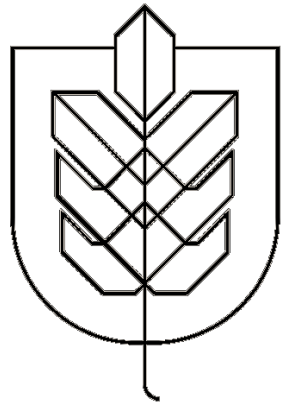


Assignment Descriptions

Projects to prepare you for the real world.

Assignments



Individual Portfolio

25% Regression Modeling Case Study

25% Classification Modeling Case Study

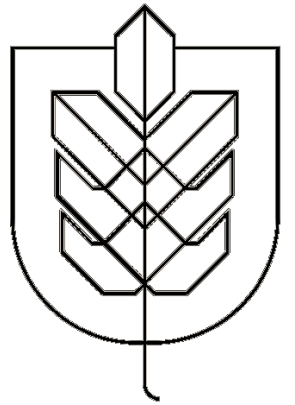
Team Project

25% Classification Modeling Case Study

DataCamp, Participation, and Readiness Exam

25% Classification Modeling Case Study

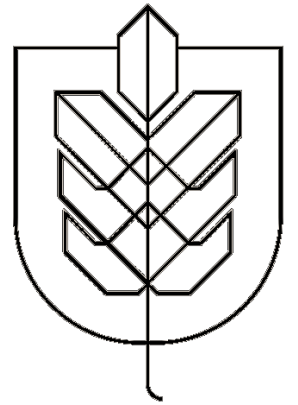
Modeling Techniques Covered



Preprocessing and Model Development Techniques

- ✓ Dummy Variable Encoding
- ✓ Training and Test Set Building
- ✓ Model Instantiation, Fitting, Predicting, and Scoring
- ✓ Hyperparameter Tuning
- ✓ Automated Hyperparameter Selection

Modeling Techniques Covered

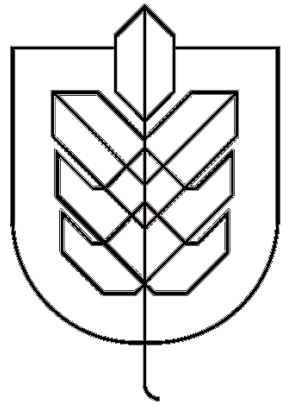


Supervised Techniques

- ✓ OLS Linear Regression
- ✓ Logistic Regression
- ✓ K-Nearest Neighbors
- ✓ CART Models
- ✓ Random Forest
- ✓ Gradient Boosted Machines

Unsupervised Techniques

- ✓ Variable Scaling
- ✓ Principal Component Analysis
- ✓ K-Means Clustering

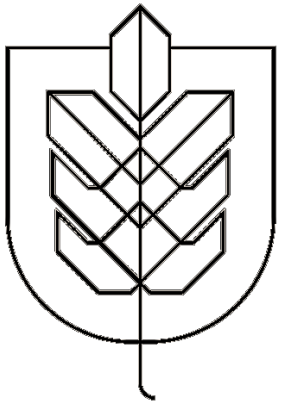


There is a lot of content in this course.

If you master nothing else in this course, master these:

- ✓ Train/Test Split
- ✓ Model Instantiation, Fitting, Predicting and Scoring

If you master these, you can build virtually any machine learning model.



Course Case

Regression and Classification Projects

Course Case

Some people are really good at cooking.

https://www.yourfreecareertest.com/chef/

Course Case

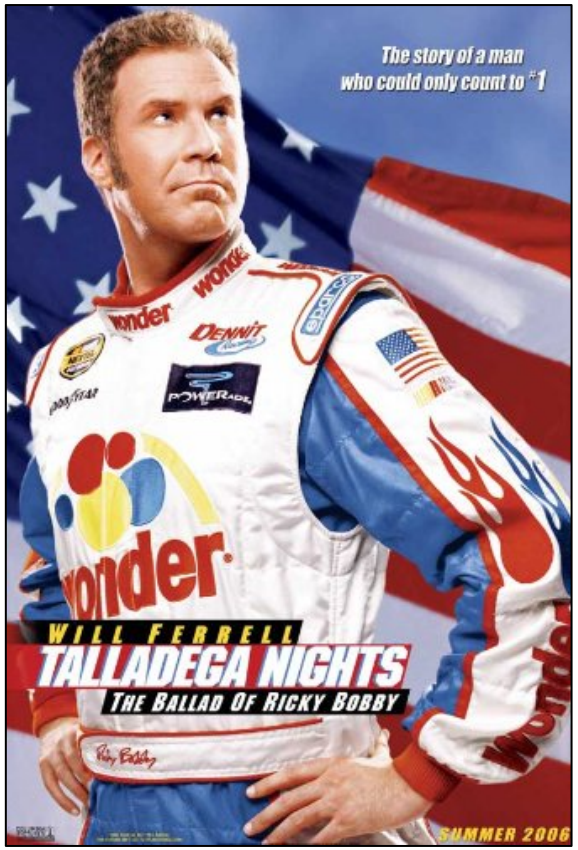
Others need more practice.

https://www.tasteofhome.com/article/holiday-cooking-mistakes-and-how-to-fix-them/

Course Case

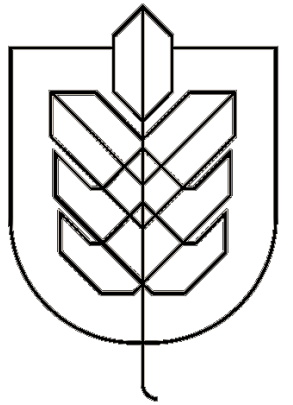
Some avoid cooking all together.

https://www.youtube.com/watch?v=EysX75P6Hr0



https://www.amazon.com/TALLADEGA-NIGHTS-ORIGINAL-Advance-FERRELL/dp/B009ALOB8W

Course Case



Apprentice Chef, Inc.

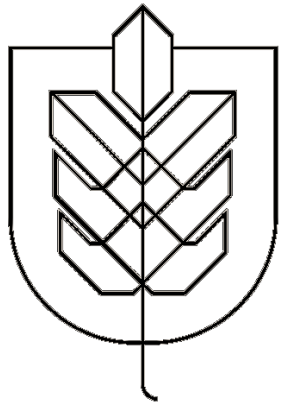
Developed for the busy professional that has little to no skills in the kitchen

Offers a wide selection of daily-prepared gourmet meals delivered directly to your door

Unique spin on cooking at home:

- meals take at most 30 minutes to finish cooking
- award-winning disposable cookware (i.e. pots, pans, etc.)

Course Case - Assignment 1 (Individual)



Apprentice Chef, Inc.

The executives have come to realize that over 90% of revenue comes from customers that have been ordering for 12 months or less

Want to understand how much revenue to expect from each customer within their first year of orders

Have tasked you with:

- analyzing data
- developing your top insights
- building a machine learning model to predict revenue

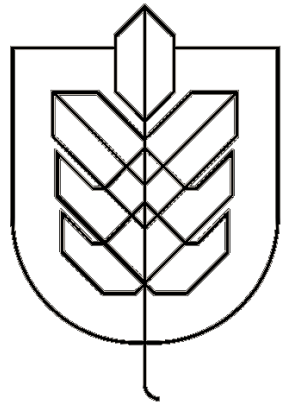
Course Case - Assignment 1 (Individual)

Deliverables (1 of 3):

Analysis Write Up

- Present your best TWO insights (maximum 100 words per insight)
- Make ONE actionable recommendation (maximum 200 words)
- State your final model's highest R-Square value

Course Case - Assignment 1 (Individual)



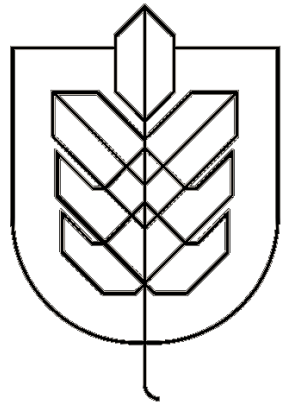
Deliverables (2 of 3):

Data Analysis and Analysis Code

Tell the story of your analysis through:

- exploratory data analysis
- feature treatment and engineering
- utilizing appropriate learning techniques

Course Case - Assignment 1 (Individual)



Deliverables (3 of 3):

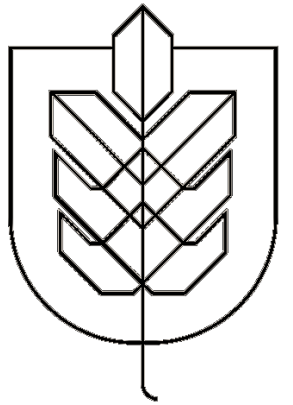
Final Model and Model Code

Model will be assessed on:

- R-Square value on unseen data (randomly seeded)
- Processing speed
- Appropriateness for the problem at hand
- Being submitted as a .py script

Coding files not submitted as a .py script will receive a one-letter grade deduction

Course Case - Assignment 2 (Individual)



Apprentice Chef, Inc.

Launched *Halfway There*, a cross-selling promotion where subscribers receive a half bottle of wine from a local California vineyard every Wednesday

Want to know which customers will subscribe to this service.

Have tasked you with:

- analyzing data
- developing your top insights
- building a machine learning model to predict cross-sell success

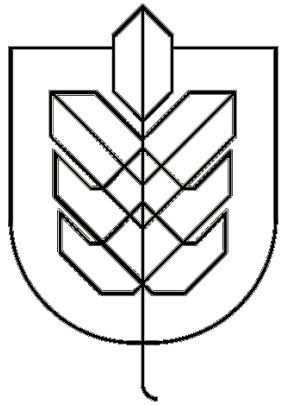
Course Case - Assignment 2 (Individual)

Deliverables (1 of 3):

Analysis Write Up

- Present your best TWO insights (maximum 100 words per insight)
- Make ONE actionable recommendation (maximum 200 words)
- State your final model's highest AUC value

Course Case - Assignment 2 (Individual)



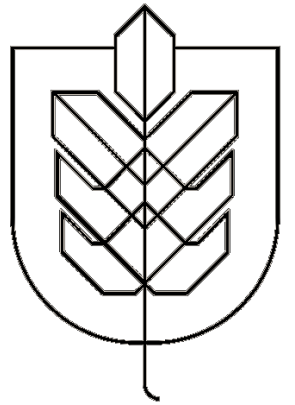
Deliverables (2 of 3):

Data Analysis and Analysis Code

Tell the story of your analysis through:

- exploratory data analysis
- feature treatment and engineering
- utilizing appropriate learning techniques

Course Case - Assignment 2 (Individual)



Deliverables (3 of 3):

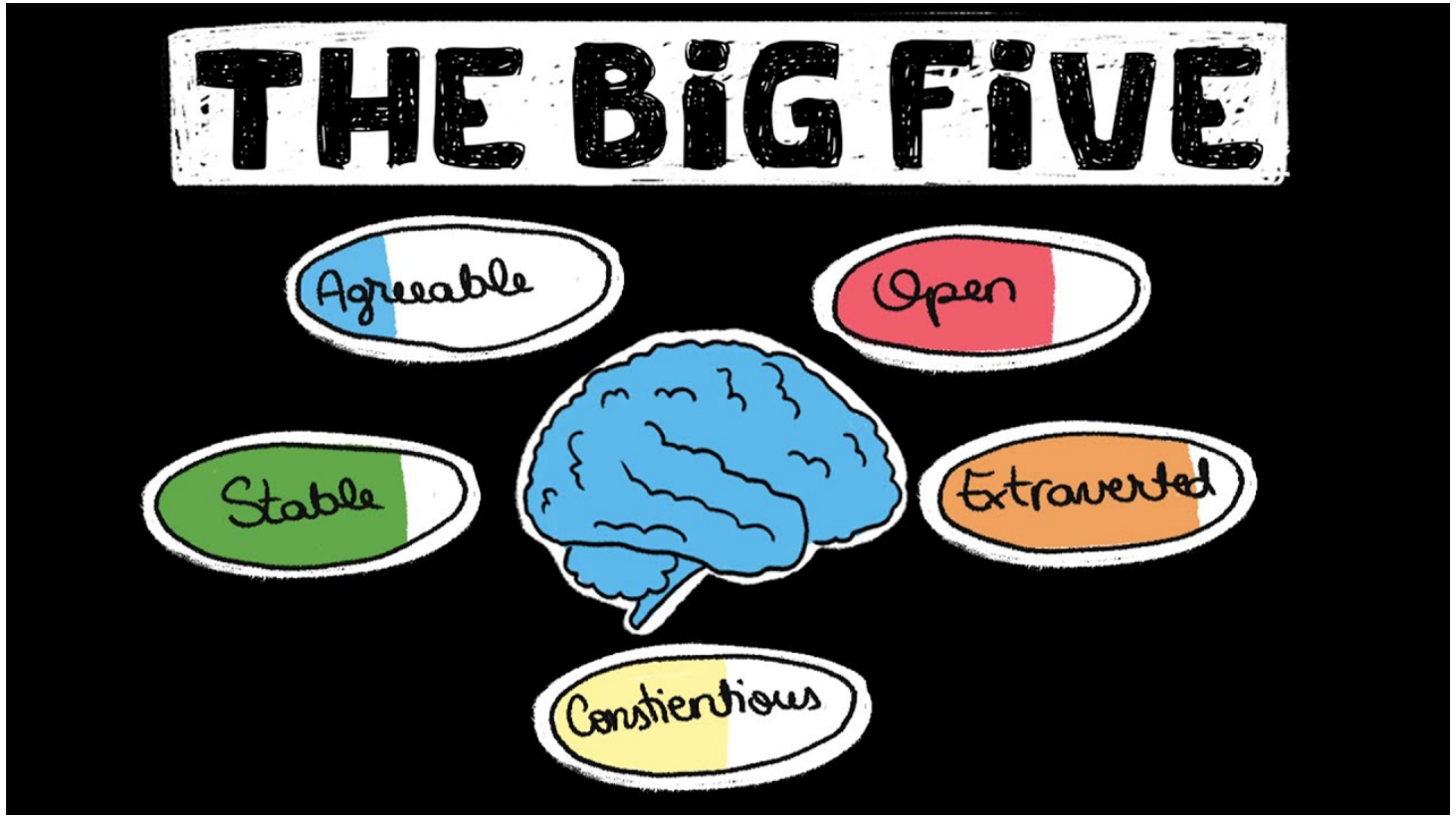
Final Model and Model Code

Model will be assessed on:

- AUC value on unseen data (randomly seeded)
- Processing speed
- Appropriateness for the problem at hand
- Being submitted as a .py script

Coding files not submitted as a .py script will receive a one-letter grade deduction

Final Assessment (Team)



https://www.youtube.com/watch?v=KCwHV9HCxH0

Final Assessment (Team)

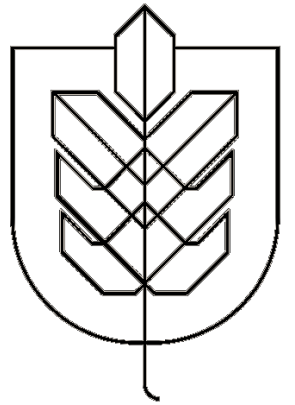
Personality affects life decisions and perception.

You are tasked with:

- analyzing survey data
- developing unsupervised algorithms
- interpreting the results

https://www.psychologytoday.com/us/blog/5-types-people-who-can-ruin-your-life/201804/is-personality-awareness-the-next-big-thing

Final Assessment (Team)

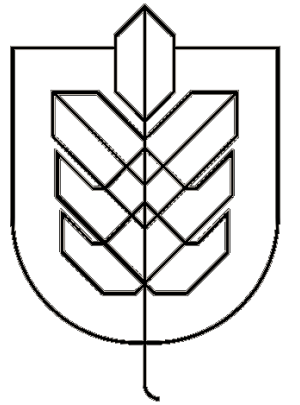


Deliverables (1 of 2):

Analysis Write Up

- Present your best THREE insights (maximum 100 words per insight)
- Make ONE actionable recommendation (maximum 200 words)

Final Assessment (Team)



Deliverables (2 of 2):

Data Analysis and Analysis Code

Tell the story of your analysis through:

- proper separation of data based on its purpose and characteristics (demographics, psychometrics, etc.)
- utilizing appropriate unsupervised learning techniques