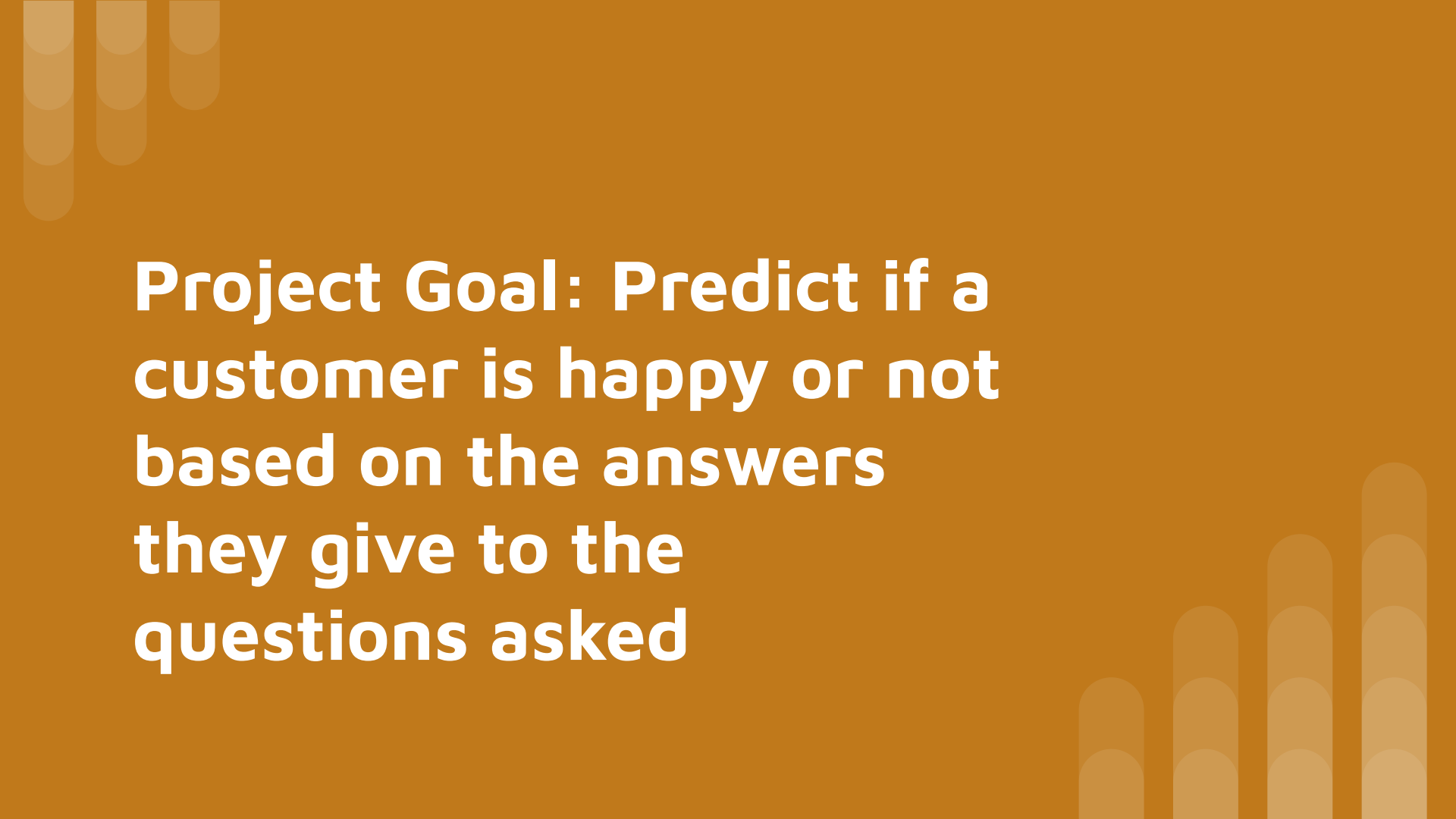


# Happy Customers Final Report

Apziva Project 1  
By: Sophia Wagner



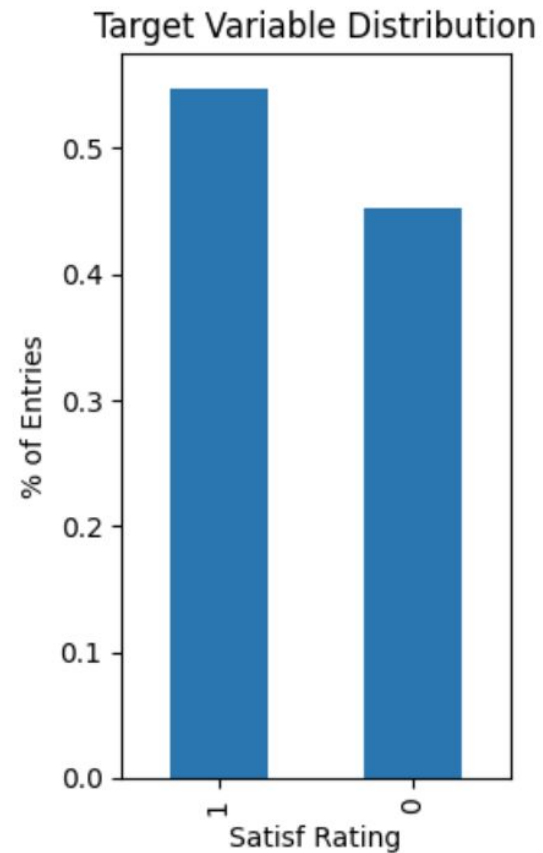


**Project Goal: Predict if a customer is happy or not based on the answers they give to the questions asked**



## Look at the Data

	Average	Standard Deviation
X1	4.33	0.08
X2	2.53	1.11
X3	3.31	1.02
X4	3.75	0.88
X5	3.65	1.15
X6	4.25	0.81



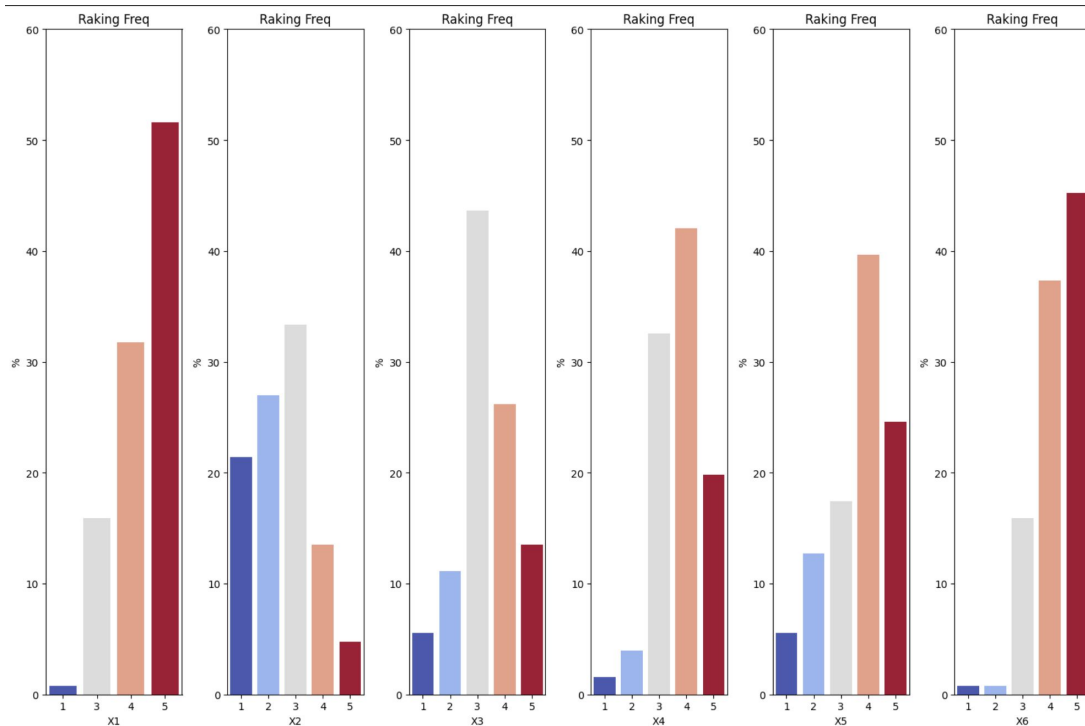


# Look at the Data

- The features are not linearly independent
- Multicollinearity was found to be present between the features of the dataset

From this 3 models were compared:

- Logistic Regression
- Random Forest Classifier
- Stochastic Gradient Descent Classifier





# The Model

Model Type: Random Forest Classifier

- Implemented using Python's Sklearn with a 80%/20% train-test split

Features Used in the model:

- X1: my order was delivered on time
- X3: I ordered everything I wanted to order
- X6: the app makes ordering easy for me

Model Performance: 80.77%

- Unhappy Class Precision: 73%
- Happy Class Precision: 87%

## Interpretation of Confusion Matrix:

True Positives (TP): 13

True Negatives (TN): 8

False Positives (FP): 2

False Negatives (FN): 3

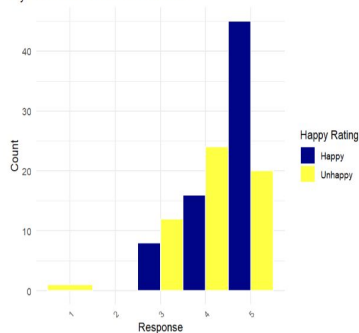


# Suggestions for Future Surveys

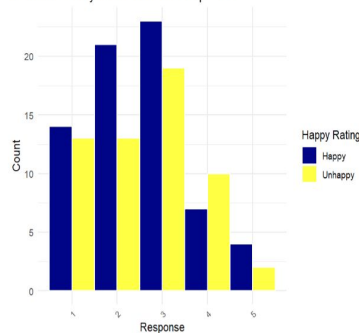
Questions I recommend removing from the next survey:

- “Contents of my order was as I expected”
- “I paid a good price for my order”

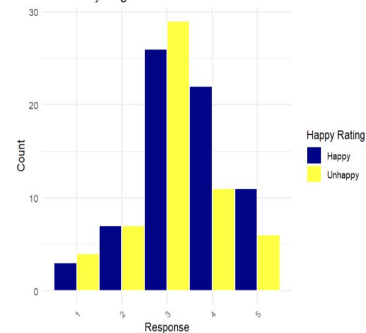
My Order Was Delivered On Time



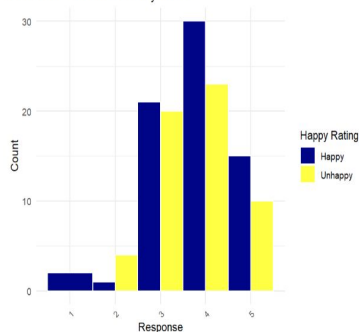
Contents Of My Order Was As I Expected



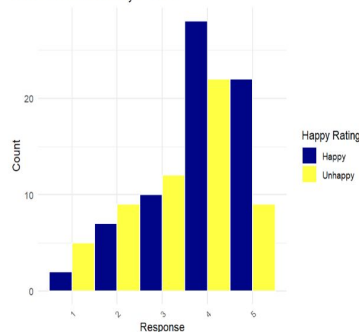
I Ordered Everything I Wanted To Order



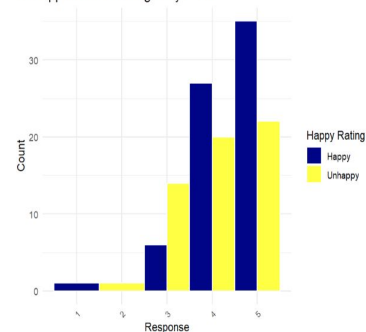
I Paid A Good Price For My Order



I Am Satisfied With My Courier



The App Makes Ordering Easy For Me



# Final Survey Suggestion

I would strongly encourage reworking the wording of question X2 to be more like **"Contents of my order met or exceeded my expectations"**

- Comparing the Likert scale graph and the colored bar graph a larger number of customers are giving a 1-3 rating for X2 but most of those customers are being labeled as "happy" in the colored bar graph

- A possible example to consider for the benefit of rewriting the question is the scenario where a customer orders 1 item and they receive 2 pieces of the item. When answering the question "Contents of my order were as I expected" the customer could likely answer 'No' because they only ordered 1 item but received 2. However, the customer could be a Happy customer!

Therefore, rewording the question like the suggestion above could lead to a better understanding/representation of the customer's experience

