Apprentice Chef, Inc Case Analysis

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Insights

This research aims to understand how much revenue to expect from each customer within their first year of order. To gain insights into the relationship between revenue and bunch of features which may affect revenue. Here discuss two main insights.

Insight 1

Through engineering some features and analysis outlier, we can see the feature called "UNIQUE_MEALS_PURCH"(Count of unique meal sets ordered per customer account) plotted show in Figure 1. From plot of counting unique meals purchase, we can see only three meal sets are most popular, and normally less than 9 different meal sets would be ordered. But not sure it is because only 9 different meal sets as best-selling products to be ordered, or Customers' dining habits result in a focus on less than 9 products at most. If it is the first reason, I will suggest cancelling the 9-18 meal sets and only retaining the classic 9 meal sets to save cost. (Figure 2)

Insight 2

Base on the (Pearson) correlation and Correlation Heatmap, we can see there are eight critical features are high positive correlation and three critical features are high negative correlation.

If a customer watched instructional videos for meal preparation longer, she/he will trend to spend more money on this app. If the meal rating is higher, the revenue is also higher. Especially the rate at 4 is most positive influence to improve the revenue. However, there is weird thing is that if average number of clicks per site visit high, the revenue would be decrease. (Table 1). (Figure 1)

Actionable Recommendation.

I recommend digging into why less than half types of meal sets would be ordered. Is that 9 meal sets are classic flavours that most customers would prefer to order? Or it is only happened to Customers' dining habits result in a focus on less than 9 products at most. If it is the first reason, I will suggest cancelling the 9-18 meal sets and only retaining the classic 9 meal sets to save cost; If it is the second reason, I would suggest to create habit match in the client's weekly plan, only 9 favourite sets are recommended according to the client's past preferences. This way also could be increase the interests of subscribing to the weekly plan.

Final model's highest R-Square

My best performance model is GBDT Regression(GradientBoostingRegressor) Model, Training data score is 0.838, and Test data score is 0.768.

Reference

Table 2 (Pearson) Correlation

Critical Features	**Pearson correlation**
	Positive
AVG_PREP_VID_TIME	0.64
MEDIAN_MEAL_RATING	0.61
TOTAL_MEALS_ORDERED	0.60
TOTAL_PHOTOS_VIEWED	0.47
MASTER_CLASSES_ATTENDED	0.45
LARGEST_ORDER_SIZE	0.44
change_LARGEST_ORDER_SIZE	0.36
out_TOTAL_MEALS_ORDERED	0.35
	Negative
change_CONTACTS_W_CUSTOMER_SERVICE	-0.36
change_TOTAL_PHOTOS_VIEWED	-0.37
AVG_CLICKS_PER_VISIT	-0.55

Source: Develop a (Pearson) Correlation (YU_HUANG_A1_Analysis, 2020)

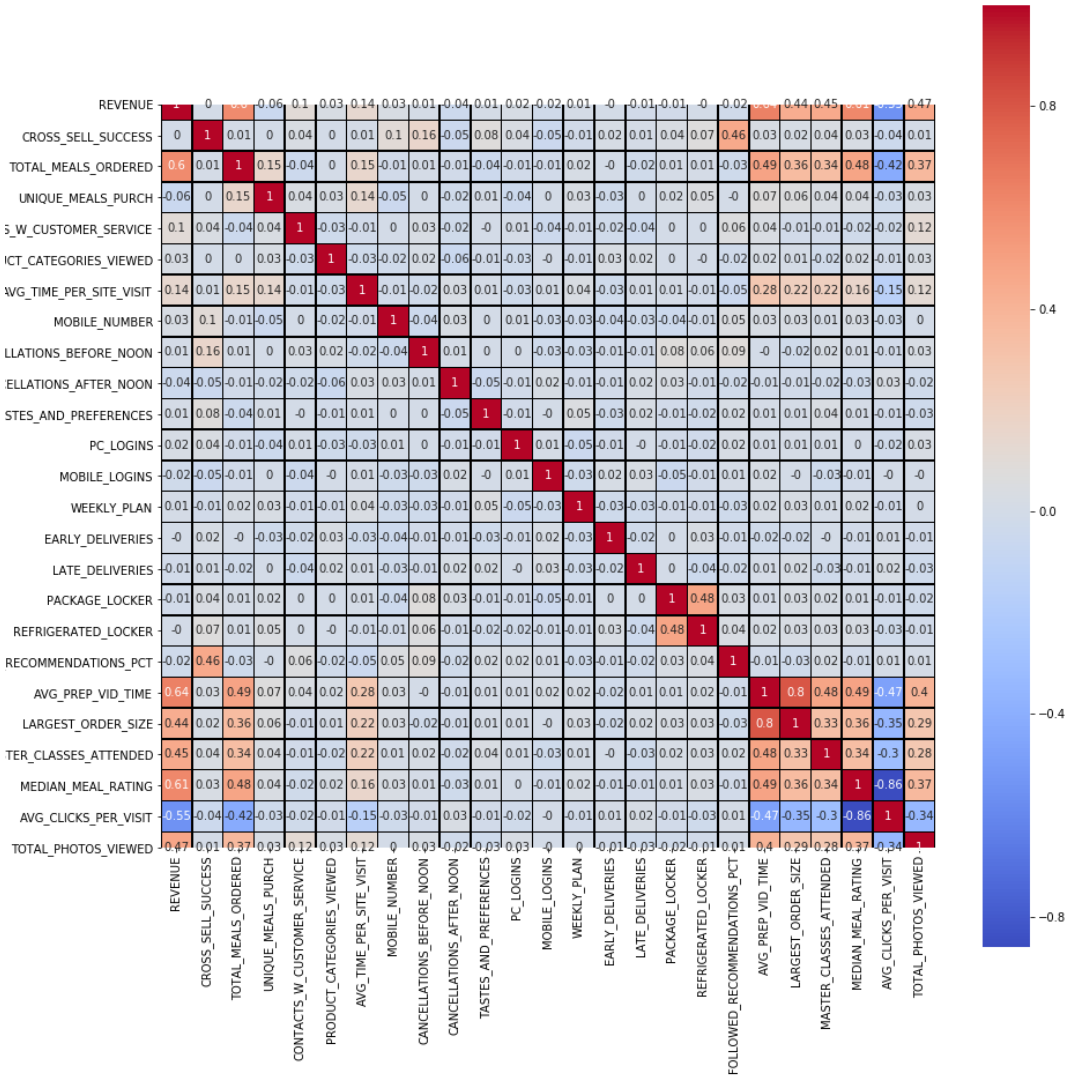

Figure 1. Correlation heatmap(YU_HUANG_A1_Analysis, 2020)

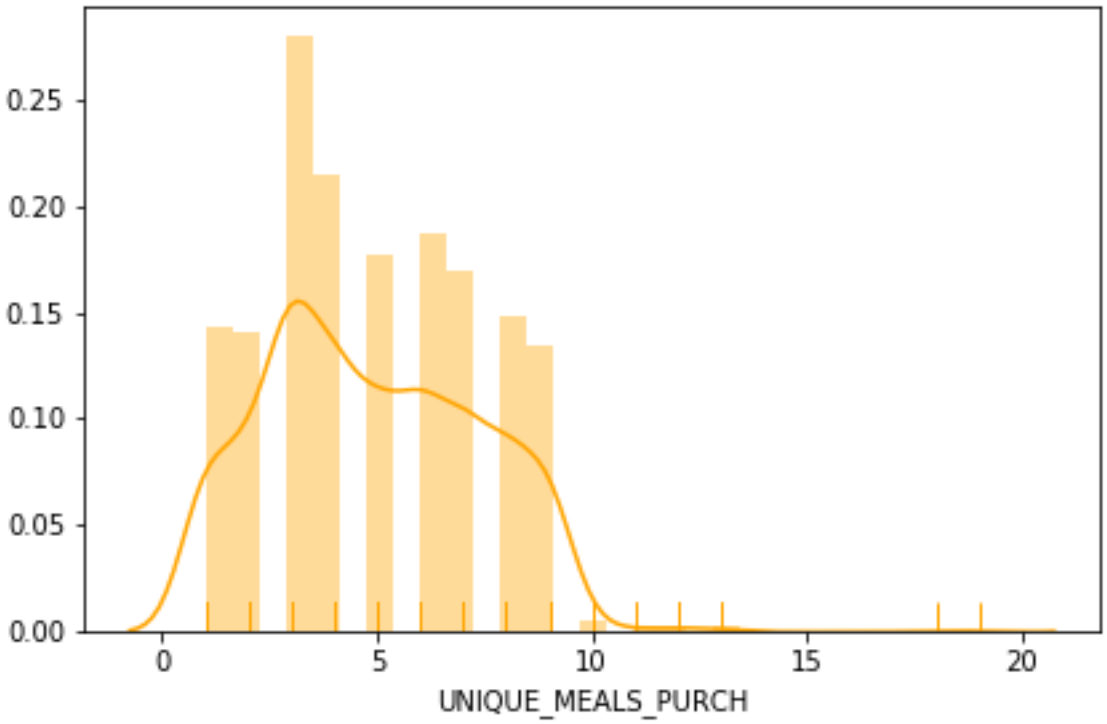

Figure 2. UNIQUE_MEALS_PURCH (YU_HUANG_A1_Analysis, 2020)