



**Case Analysis:**  
**“APPRENTIC CHEF INC”**

**MSBA 5: Machine Learning**

Professor: Chase Kusterer

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STUDENT:

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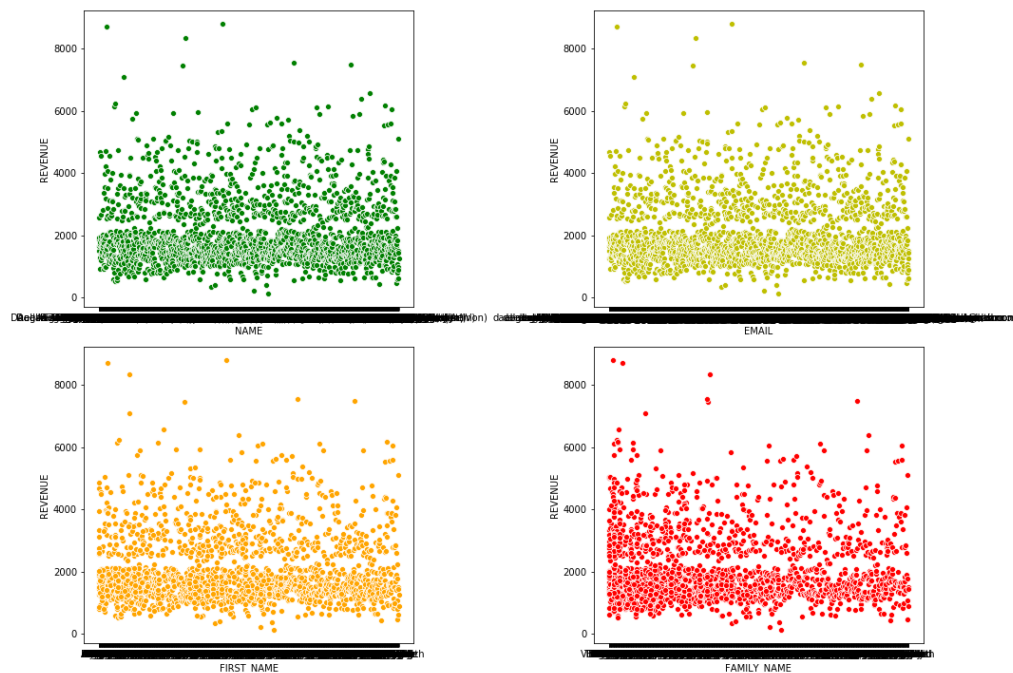
GitHub: <https://github.com/SunlongNgouv>

## Summary Report

Among all insights, there are two outstanding, as below:

### Insight 1: [1.2.0.1 FINDING]

Our customer's expenses fall into three categories: Low, Middle, and High. From the scatterplot of classification data below, among 1933 customers totally, there were 63% of the total customers spent less than 2000 per year on our meals, 34% of the total customers spent between 2001 to 5000, and only 3% of the total customers spent more than 5000.



### Insight 2: [1.1.2.1 and 1.1.2.2 FINDING]

From the data collection on family names, the top four groups were Frey (79), Stark (32), Lannister (29), Tyrell (28). Based on the Google, we found those family names originate from Germany, England and France, which contributed 47% of correlation with the company revenue generation.

In addition, among the "Frey", there may be at least two customers having registered with multiple fake counts to enjoy our promotions on new purchase.

Example: Person 1: Alyn,Alys,Alyx and person 2: Sarra, Serra

21 Alyn Frey [alyn.frey@msn.com](mailto:alyn.frey@msn.com) Alyn Frey

208 Alys Frey [alys.frey@unitedhealth.com](mailto:alys.frey@unitedhealth.com) Alys Frey

1455 Alyx Frey [alyx.frey@aol.com](mailto:alyx.frey@aol.com) Alyx Frey

1228 Sarra Frey [sarra.frey@chevron.com](mailto:sarra.frey@chevron.com) Sarra Frey

1933 Serra Frey [serra.frey@msn.com](mailto:serra.frey@msn.com) Serra Frey

**Actionable Recommendation 1:**

The Apprentic Chef Inc has been noticing its business pain point with customer retention rate, with most of the revenue from customers with less than one-year subscription. Therefore, the company should try with different business strategies to maintain retention rate of the customers. In fact, from the "insight 1" on the customer's segmentation, the company should align its marketing strategies to increase their purchase power in our customers by introducing new promotional meal sets, new drink menu (like fruit juice or shake) with discounts, and free shipping with expense above \$50 per ticket price, or \$100 for bundle purchase per time.

**Linear Regression - R-Squared: 0.60****Prediction Score:**

Model	Train Score	Test Score
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OLS	0.769	0.737
KNN	0.6494	0.5798
GB	0.915	0.853

## APPENDIX

### 1.1.2.1 FINDING

#### FAMILY\_NAME (COUNTS)

Frey (79)

NA (47)

Stark (32)

Lannister (29)

Tyrell (28)

*Based on Google:*

Frey - original from Germany for middle and high class people.

Stark - original from England.

Lannister - original from England and Germany.

Tyrell – original from France

*Business Insight:* Targeting customer groups from Germany, England and France with special promotions.

### 1.1.2.2 FINDING

1. There may be at least two customers in 'Frey' group creating fake counts to gain promotions benefits from our company

Example: Person 1: Alyn,Alys,Alyx and person 2: Sarra, Serra

21 Alyn Frey [alyn.frey@msn.com](mailto:alyn.frey@msn.com) Alyn Frey

208 Alys Frey [alys.frey@unitedhealth.com](mailto:alys.frey@unitedhealth.com) Alys Frey

1455 Alyx Frey [alyx.frey@aol.com](mailto:alyx.frey@aol.com) Alyx Frey

1228 Sarra Frey [sarra.frey@chevron.com](mailto:sarra.frey@chevron.com) Sarra Frey

1933 Serra Frey [serra.frey@msn.com](mailto:serra.frey@msn.com) Serra Frey

### 1.2.0.1 FINDING

1. Total customer amount is 1,933.
2. 63% of the total customers spent less than 2000.
3. 34% of the total customers spent Between 2001 to 5000.
4. 3% of the total customers spent more than 5000.

*Business Insights:* We should allocate new products for lower expense group to try to increase their expenses, and new drink menu for middle expense group to boost their expenses.

#### SIZES IN EACH REVENUE GROUPS:

Below 2000

(1229, 32)

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Between 2001 to 5000

(655, 32)

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Above 5000

(49, 32)