Course Case: Apprentice Chef
A2: Classification Modeling Case Study – Machine Learning

Insight 1

"People buy from those they know, like and trust", possibly the oldest saying in sales applies perfectly to your (Apprentice Chef) cross-selling results.[1] All 758 customers who follow their meal recommendations >30 percent of the time signed up for the *Halfway There* promotion. Selling to existing customers have a 60-70% chance of success, while when selling to new prospect the probability drops to less than half.[2] Furthermore the 1008 customers ordering recommended meals between 10-30 percent of the time only have a cross sell rate of 0.43.

Cross-sell conversion rate %	70%	40%	100%
Following recommendation %	0-10	10-30	30-90

Insight 2

The channel(s) used to promote the *Halfway There* offer is uncertain, but we assume customers are mainly informed through email. The marketing team discloses the difference in response rate between the domain "subgroups". Cross-sell conversion rate is dependent on the email domain subgroup since customers with "junk" domains often don't open emails with promotion, which in this case results in only a 42% conversion rate. Customers who registered an email they check frequently ("personal" and "professional" domain) are converting 70-85 percent of the time. The correlation between cross-sell success and junk (-.28) and professional (+0.19) domain tell the same story.

Actionable recommendation

Apprentice Chef needs to build trust with their customers through better recommendations to improve the cross-sell conversion rate. Customers who know and trust your recommendations are more likely to purchase additional products from you. To better tailor the recommendations to the customer's needs a broader range of alcoholic beverages should be introduced. According to Gallup beer continues to be the most frequently picked alcoholic beverage (40%) in the U.S., including California.[3] The growing scene of micro-breweries in the Bay Area creates the perfect atmosphere and timing to diversify the revenue stream and promote local products.[4]

In order to more build trust and effectively promote the *Halfway There* offer Apprentice Chef needs set up incentives for customers to register with email addresses they check frequently or

[1] Columbus, L. (2020). *Why Trust Is Emerging As The Most Powerful Catalyst Of Selling Effectiveness*. https://www.forbes.com/sites/louiscolumbus/2013/07/22/why-trust-is-emerging-as-the-most-powerful-catalyst-of-selling-effectiveness/#89f5e8073597

[2] ShortStack. (2020). *How do Your Customers Prefer to Receive Promotions From You? [Infographic] - ShortStack*. https://www.shortstack.com/blog/learn-how-your-customers-prefer-to-receive-their-promotions/

[3] Gallup.com. (2020). *Beer Remains the Preferred Alcoholic Beverage in the U.S.*. https://news.gallup.com/poll/214229/beer-remains-preferred-alcoholic-beverage.aspx [Accessed 6 Feb. 2020].

[4] SFChronicle.com. (2020). *Craft beer growth is slowing, but the Bay Area is healthier than ever*. https://www.sfchronicle.com/wine/article/Craft-beer-growth-is-slowing-but-the-Bay-Area-is-13562070.php

inform customers through other channels. Customers should also register their age when signing up to make sure underage customers don't receive inappropriate promotions. This is also a missing dataset to monitor the effectiveness of promotional efforts.

Final model (GradientBoostingClassifier) AUC-score: 0.8029