

Team: Agileacrobats

Team members: Pak Kwan, Julia Hoge, Fangfang Cui

Due Date: August 1st 2021

### Final Project Writeup

**Provide a short writeup on how your project is looking to answer the two questions listed below. (No more than 200 words). Below are the two questions you need to answer:**

#### **Retail Question 1: how does customer engagement change over time?**

- **Do household spend less or more?**

We created a dashboard where you could interactively choose any of the households and display their spending over a 24-month period on a nicely plotted graph. Sales for most households spiked in March 2020, possibly due to the beginning of COVID lockdowns and then dropped back to normal. Only half of the days of August 2018 and August 2020 is available, therefore, the spending in those months are lower than other months. See video for plots.

- **What categories are growing or shrinking with changing customer engagement?**

We have plotted graphs to analyze each of the categories individually. From the looks of it, people are spending more on Grocery staple and baby products while less on floral and pork. See video for plots.

- **How might we re-engage customers within the store? Or within a specific category?**

We can send coupons on different commodities where the sales are down to encourage shopping on items households used to buy.

#### **Retail Question 2: which demographic factors (e.g. household size, presence of children, income) appear to affect customer engagement?**

I merged transactions table with households table. For each column (loyalty\_flag, age\_range, etc.) in households table, I calculated average household spending for each value in each column, then union them together. Figure 3 shows that typically people aged 19-24, aged 35-44, household size of 5+, and income higher than 150+ typically

spends more, therefore have higher customer engagement, while a household of single adult, aged 75+, and no loyalty card have lower customer engagement. See video for plots.

## **Use Agile development methodology for development effort and provide a short write-up on**

- 1. what worked**
- 2. what did not**
- 3. What improvements can be made.**

**(No more than 200 words). Google search “Agile Retrospective” for information. (2 points)**

What worked well is that during the initial meeting, we identified that our team is composed of three people with different skillsets and interests. Pak has many years of experience in data engineering space, Julia has a strong interest in UI/UX design, while Fangfang wants to focus more on data analysis. Therefore, we divided the project into three big portions: data engineering, data analysis, and web development, and further defined the roles and responsibilities and tasks for each team members. Well-defined roles and responsibilities have been extremely helpful during project execution.

The website worked fine locally, but the migration to azure did not work well and it would simply not fetch any data no matter how hard we tried, so we decided to make a video to showcase our product. In addition, the amount of work required to complete the data engineering, data analysis, and web development may not be well balanced. It appears that at the end of the project, major workload which includes web development, software integration all falls into web development. Therefore, resulted in Julia spending more hours on this project compared to the rest of the team members.

We could have spent more time discussion the amount of work required to complete each one of the major tasks. Identify help needed sooner in areas that may be outside of our primary role and responsibility, and help team member that has a heavier workload.