The most important factor in developing a marketing strategy for E-commerce is the capability to

understand and analyze customers' purchase patterns. Successful, personalized recommendations for each customer can make customers discover products that align with their tastes and interests, possibly adopting these new products as their essentials over time.

In this project, we utilize data from InstaCart, the largest online grocery service in America, to propose product recommendations. The dataset consists of 6 different sub-datasets with information on over 200,000 users and 45,000 products.

After some exploratory analysis, we employed two different algorithms: Clustering and Apriori

to determine recommendation ideas. From the results of each algorithm, we found that we can

make strong product recommendations to InstaCart customers based on user\_id from Clustering and customer purchase history from Apriori, respectively.

Our analysis led us to the conclusion that further study is needed to develop a new recommendation system combining both algorithms to be executed simultaneously. With the help of the new recommendation systems, we expect that InstaCart can retain its regular customers while also attracting new users who are looking to find new products. This will broaden InstaCart’s product catalog and increase its profits.