

**Project Description**

**Of**

**Instacart Market Basket Analysis**

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**Project Description:**

One of the major predictive questions facing retailers is which products consumers will purchase and when. So to find out, we explore a rich, recent data set of 3 million Instacart orders made by about 200,000 users, supplemented with nutritional data from Open Food Facts. The project runs around implementing a recommendation engine for Instacart which helps the consumer have an easy shopping experience and also help the retailers by giving them business insights on when they shall restock their inventory and focus on which aisle and which department as they are the highest sold products. The Instacart data includes information about the date and time orders were placed, in what order items were placed in the user’s shopping cart, and even which virtual departments and aisles the purchased products belong to.

**Purpose of the Exploratory Data Analysis:**

By performing the exploratory data analysis, we were able to find insights on features relevant to the business such as the following:

* Reordering frequency distribution by days since prior order
* Reorder ratio for day of the week Vs hour of the day
* Top 5 users with their departmental purchases
* Top 10 highest selling products
* During what time of that day do people order the highest selling products?
* On which day do people order the highest selling products?

**Recommendation Engine**: Given that a user has placed products P1, . . . , Pn−1 in their shopping cart, what are the next best k products Pn, . . . , Pn+k−1 to advertise. Can shopper types or market basket analysis inform the recommendation

The recommendation engine would help us to find the combo products that a user might like to purchase i.e determining what products might sell well together. Using this technique, Instacart can utilize target marketing during peak times.

**Conclusion**:

So, by building this recommendation system, we are likely to have a personalized communication with the user and also being able to recommend them the products they are most likely to buy in their next order based on their previous purchase history and so by doing this, we are able to do retain the customers, this recommendation engine does not only help the retailers, but also the consumers by having a hassle free online shopping experience.