

PROJECT 4  
DATA 643  
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RECOMMENDING PRODUCTS BASED ON PAST SALES RECORDS

### Introduction

Usually Businesses keep their customers purchases on files for a long period of time and customers tend to buy the same products over again, imagine we want to create ratings on the products based on quantities sold. A company dealing roughly with same customers, the goal will be to keep those existing customers by having a great retention strategy, this is where recommendation based on past sales record play a significant role, for new or potential customers, recommending the right product is also key to success.

Through this course (DATA 643), we have learned different techniques of recommender systems, I will attempt to implement those techniques using sales records

### The goal

Take sales records (example quarterly sales data) from customers and use normalized sales quantity as a proxy for product ratings (the more a customer buys of a given product the higher the product is rated). Then create a recommender system that makes product recommendations for customers when quoting, tracking an opportunity or when a customer searches for a product (like Amazon, Netflix).

### Strategy

- Collecting quarterly sales data by customer and product and aggregating quantities sold. Note that this project can be adjust to many businesses sales ,but I decide to make usage of quarterly data found on this website <http://www.viavisolutions.com/en-us/search/site/data%2520sales>. About VIAVI:

*Viavi (NASDAQ: VIAV) software and hardware platforms and instruments deliver end-to-end visibility across physical, virtual and hybrid networks. Precise intelligence and actionable insight from across the network ecosystem optimizes the service experience for increased customer loyalty, greater profitability and quicker transitions to next-generation technologies. Viavi is also a leader in anti-counterfeiting solutions for currency authentication and high-value optical components and instruments for diverse government and commercial applications.*

#### *Specialties*

*Software and hardware platforms and instruments for physical, virtual and hybrid networks, Anti-counterfeiting solutions for currency authentication*

- Implementing a recommender.

- Creating an output matrix of recommendations (Customer x Products) as well as a log of the error estimates or recommendation accuracy.