

# Cart recommendations through a combination of customer history analysis and filtering techniques

## CHALLENGES

An E-commerce company wanted to add functionality to their checkout system to recommend additional products to their customers based on their previous order and site search history. To recommend products that fit their customers' needs and behavior, the company would need to identify and process relevant customer data points from across all devices and channels.

## SOLUTIONS

Neal Analytics helped the business recommend relevant products by implementing a predictive ad platform.

To serve the most relevant ads to customers, Neal designed the platform to leverage historical multi-variable segmentation. The segmentation enabled the business to divide customers into groups based on various attributes. Neal then used segments alongside a customer recommendation model to implement a filtering method that leverages both content-based filtering and collaborative filtering. The filtering method, in turn, helps to and infer product and customer relationships.

## SOLUTIONS

Content-based filtering is a popular technique that helps understand the users' preferences based on keywords in the database. Here, "content" refers to the attributes of the products a user likes. So, the idea behind content-based filtering is to tag products using specific keywords and to recommend various products with similar attributes.

**Example:** Netflix provides you movie recommendations based on your choices.

While collaborative filtering methods help filter out products that a user might like based on the reactions by similar users. It uses an extensive database of users and finds smaller sets of users having similar tastes to a particular user.


**Example:** Amazon displays products frequently bought together (e.g., a shaker bottle is frequently purchased with protein supplements).

## RESULTS

The historical multi-variable segmentation helped the E-commerce company predict what their customer was likely to purchase next. With their data and a customer recommendation model, the company could recommend highly relevant products in advertisements, suggest appealing add-on items as customers shopped, and provide "did you forget" style reminders to customers in the checkout process.

These predictions not only helped create less friction for customers in the online shopping process but also offered a data-driven method to improve engagement and sales.

| Time of year          | Q1                             | Q2                     | Q3               |
|-----------------------|--------------------------------|------------------------|------------------|
| Industry              | Education                      | Professional services  | Personal         |
| Customer history      | 3 years of transactions        | 1 year of transactions | New customer     |
| Click-through channel | Direct site login              | Direct site login      | Social media ads |
| Customer cluster      | Frequent supply closet restock | Break room habits      | Mobile browser   |
| ...                   | ...                            | ...                    | ...              |
| Purchase history      | Transaction 01, 02, 03, ...    | Transaction 01, 02, 03 | None             |



**Likely next purchases**

- ✓ Paper
- ✓ Pens
- ✓ Paper clips
- ✓ K-cups
- ✓ Creamer
- ✓ Protein bars
- ✓ Office equipment

Based on the segmentation, the most likely purchase predictions for customers were:

- Paper
- Pens
- Paper clips
- K-cups
- Creamer
- Protein bars
- Office equipment