Instacart: What's in Your Basket?

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What is instacart

Instacart is a grocery ordering delivery app that aims to make it easier to fill your refrigerator or pantry

Released a customers record dataset in May 2017:

- Orders
- Products
- Aisles
- Departments

Instacart create a seamless user experience with personalization and recommendations

Objectives

Using prior purchasing information, can we predict what products customers are going to reorder?

Can we segment customers into groups by purchases?

Workflow

Objective 1: Predicting Future Reorders

Models	**Accuracy Score**
Logistic Regression	59.7%
AdaBoost Classifier	65.6%
Random Forest Classifier	66.6%
Gradient Boosting Classifier	**67.1%**

Objective 1: Feature Importance

Feature Importance: A measure of how well a variable helps predict your target

Most important feature was the **sequence in which products were added** to a cart

- Makes intuitive sense
- When you’re shopping you always add what you use the most first
- Every subsequent addition is of less importance

Objective 2: Customer Segmentation

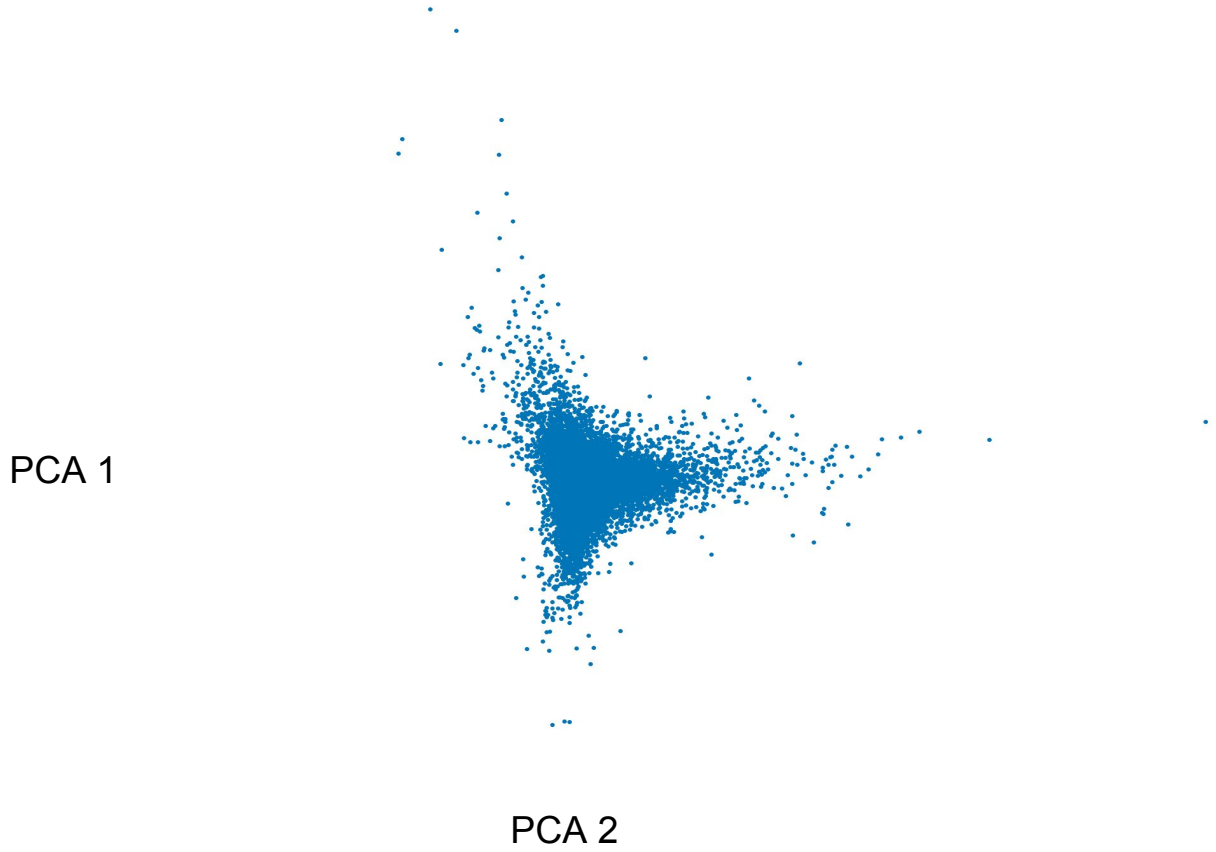
Used aisles data which represents categories of products

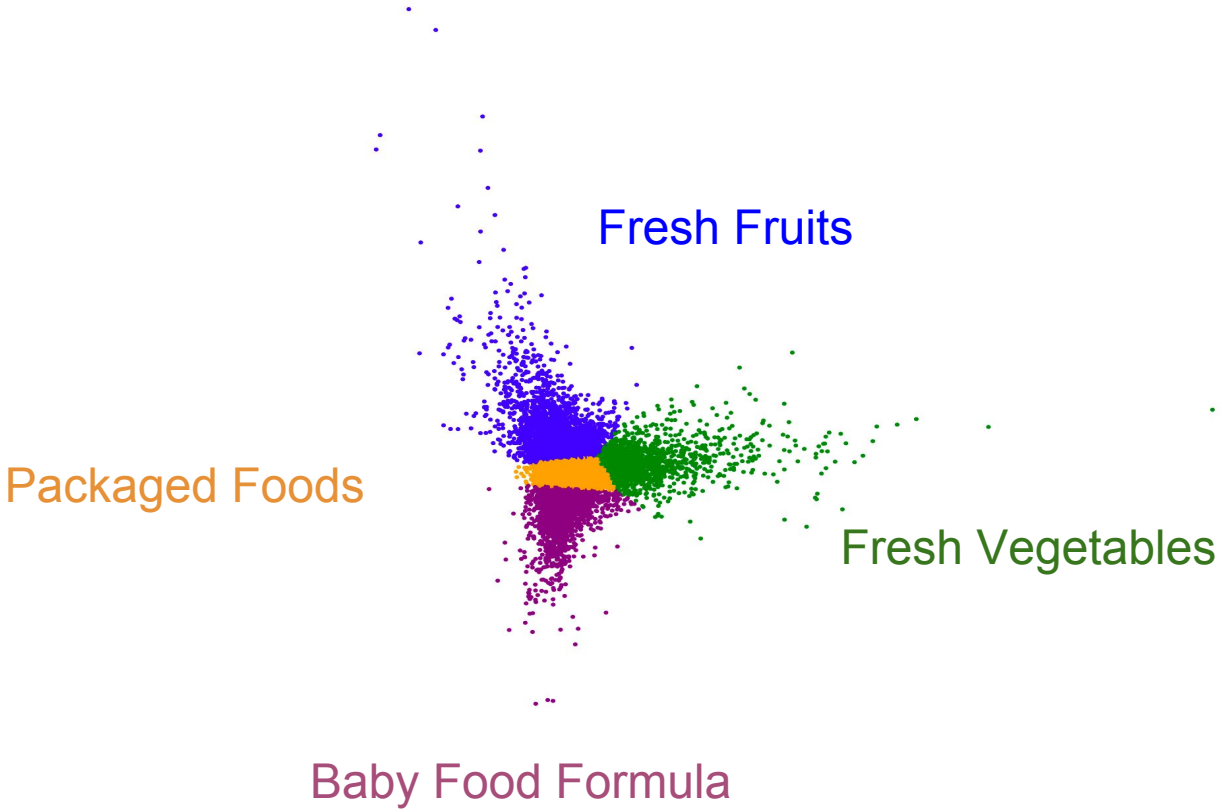
PCA with 6 features:

- Dimensionality reduction
- Reduces data to 6 new features that capture the most variance

KMeans with 4 clusters:

- Breaks the data into 4 groups


PCA 1
PCA 2


Fresh Fruits
Packaged Foods
Fresh Vegetables
Baby Food Formula

Takeaway

Now that we know what a customer is likely to reorder and what cluster they fall in, we can market to them better:

- Coupon targeting for items that may interest them
- Automatically preload cart
- Recommend new products to them efficiently

We can help partner stores plan their inventory based on expected demand for products

Thank you!

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