



Unlocking Customer Insights

Analyzing shopping behavior to drive strategic business decisions.

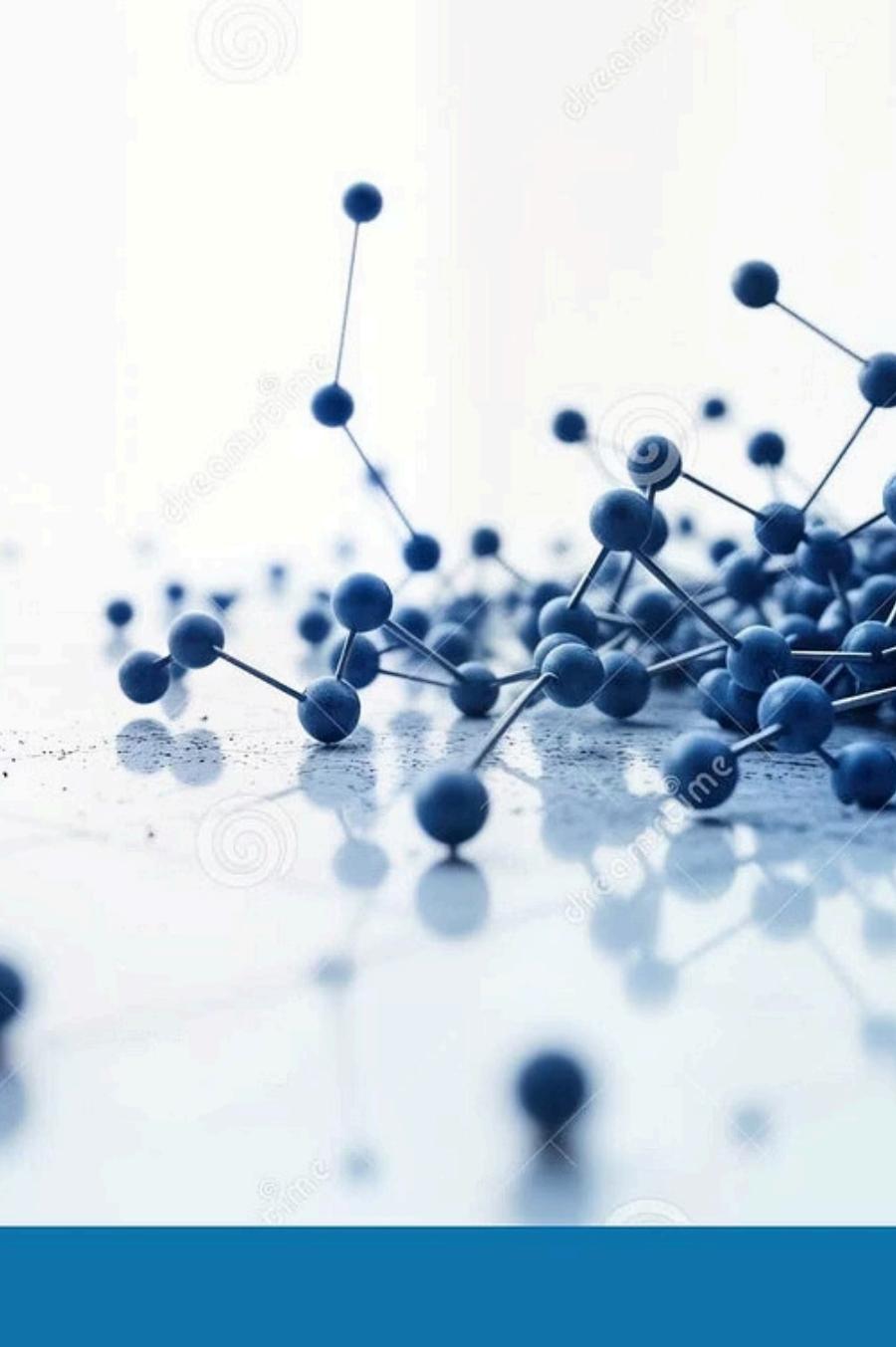
Project Overview

This project analyzes customer shopping behavior using transactional data from 3,900 purchases. Our goal is to uncover insights into spending patterns, customer segments, product preferences, and subscription behavior.



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ID 339491163 © Ankmsn

A complex network of blue spheres connected by thin lines, resembling a molecular structure or a neural network, set against a light blue background.

Dataset Summary

Data Volume

3,900 rows, 18 columns of transactional data.

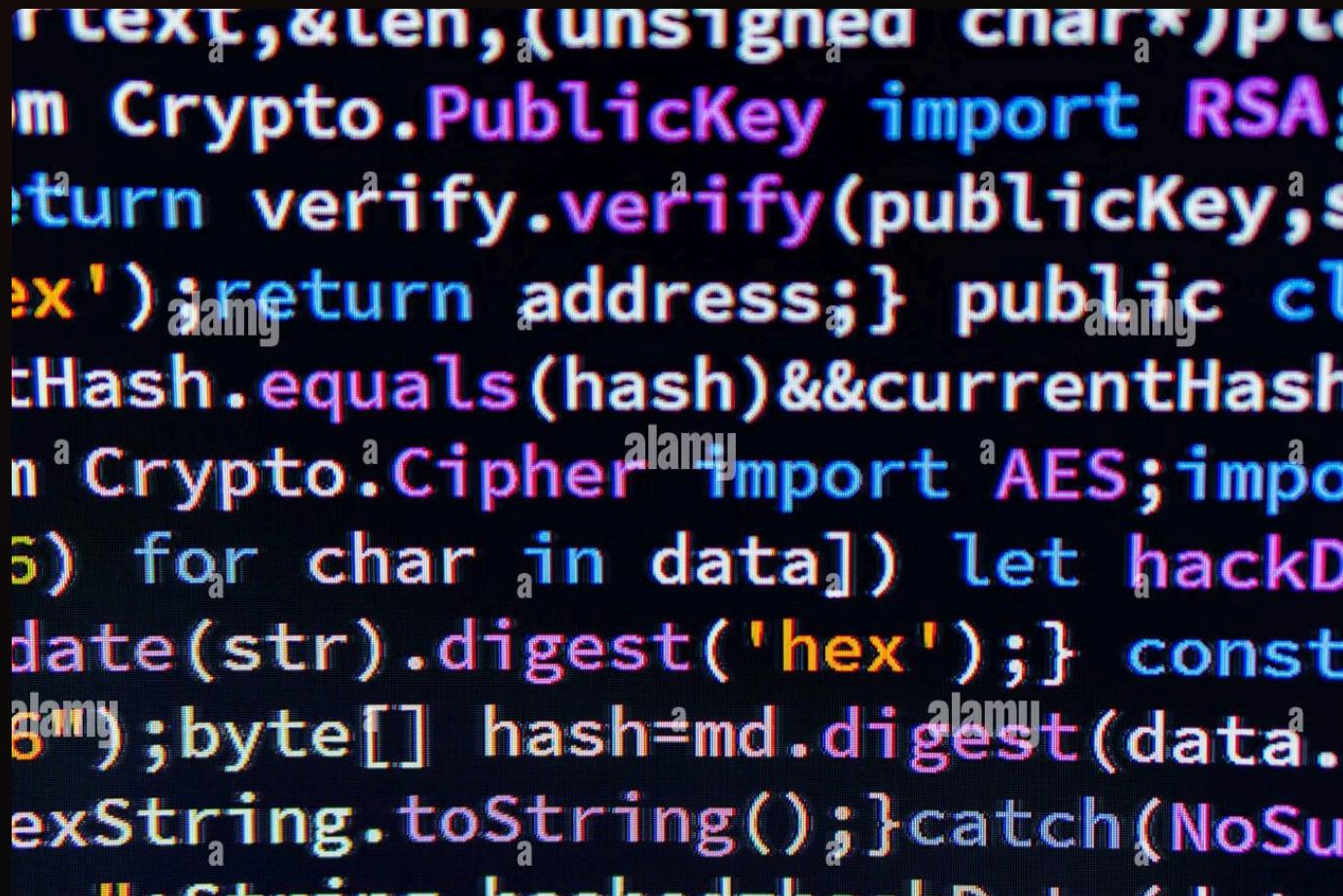
Key Features

Demographics, purchase details, shopping behavior, subscription status.

Missing Data

37 values in Review Rating, imputed using median per category.

Exploratory Data Analysis (Python)



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text, & len, a unsigned char*)pt;
m Crypto.PublicKey import RSA;
return verify.verify(publicKey, s
ex'); return address;} public cl
tHash.equals(hash)&&currentHash
n Crypto.Cipher import AES; impo
6) for char in data]) let hackD
date(str).digest('hex');} const
5";byte[] hash=md.digest(data.
exString.toString();}catch(NoSu
ll String hacked=hackD.t

```

alamy

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www.alamy.com

01

Data Loading & Exploration

Imported dataset, checked structure and summary statistics.

02

Data Cleaning

Handled missing values and standardized column names.

03

Feature Engineering

Created age groups and purchase frequency columns.

04

Database Integration

Loaded cleaned data into PostgreSQL for SQL analysis.



Key SQL Analysis Findings

1

Revenue by Gender

Male customers generated \$157,890, females \$75,191.

2

High-Spending Discount Users

Identified 839 customers who used discounts but spent above average.

3

Top 5 Products by Rating

Gloves, Sandals, Boots, Hat, and Skirt had highest average ratings.

4

Shipping Type Comparison

Express shipping had higher average purchase amounts (\$60.48 vs \$58.46).

SQL Analysis: Deeper Dive

- **Subscribers vs. Non-Subscribers**

Non-subscribers had higher total revenue (\$170,436) and average spend (\$59.87).

- **Discount-Dependent Products**

Hat, Sneakers, Coat, Sweater, and Pants had highest discount rates.

- **Customer Segmentation**

3,116 Loyal, 701 Returning, and 83 New customers identified.



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Product & Age Group Insights



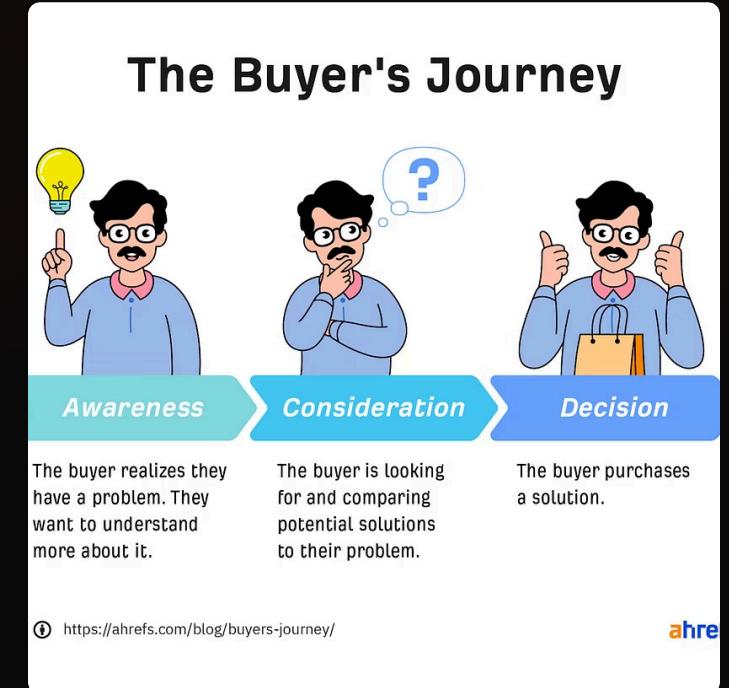
Top Products per Category

Identified best-selling items in Accessories, Clothing, and Footwear.



Revenue by Age Group

Young Adults generated highest revenue (\$62,143).



Repeat Buyers & Subscriptions

Repeat buyers (over 5 purchases) are more likely to subscribe.

Customer Behavior Dashboard

Subscription Status

No	Yes
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Gender

Female	Male
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Category

Accessories

Clothing

Footwear

Outerwear

Shipping Type

Free Shipping

Next Day Air

Standard

Store Pickup

\$59.76

Average Purchase Amount

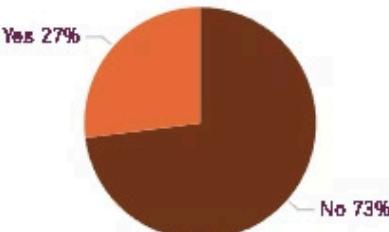
3.9K

Number of Customer

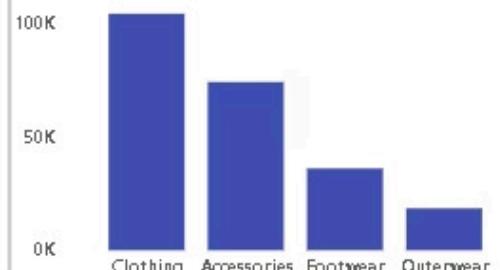
3.75

Average of review_rating

% of Customer by subscription_status



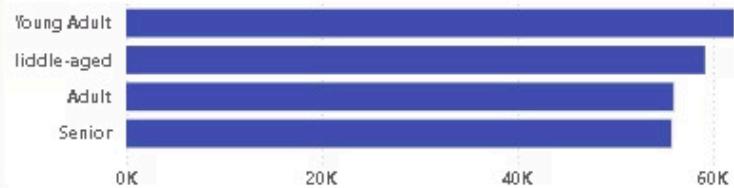
Revenue By Category



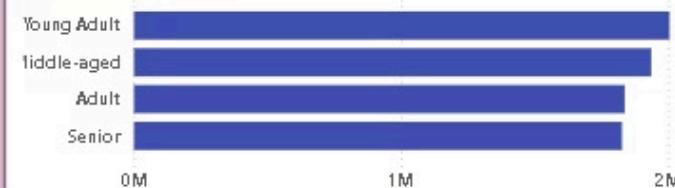
Sales By Category



Revenue By Age Group



Sales By Age Group



Key Dashboard Metrics

3.9K

Customers

Total number of unique customers analyzed.

\$59.76

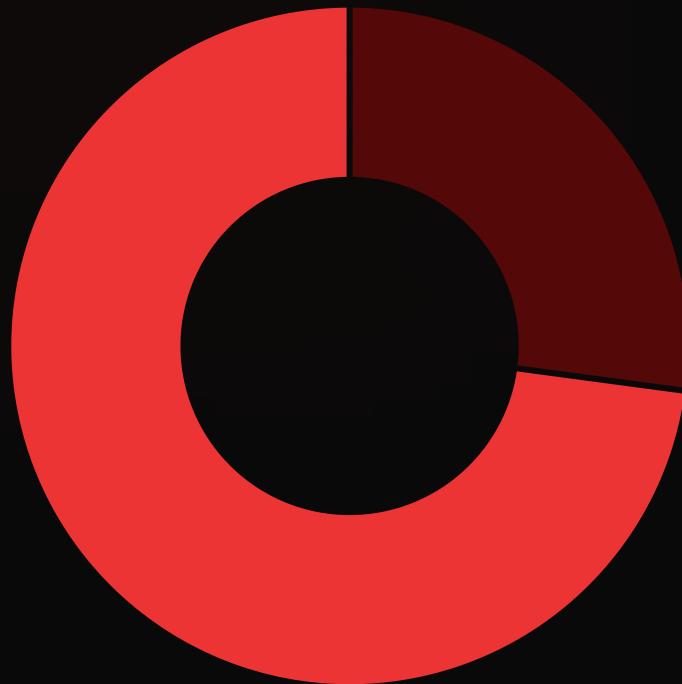
Avg. Purchase

Average amount spent per transaction.

3.75

Avg. Rating

Overall average review rating across products.



■ Yes ■ No

Subscription Status

27% of customers are subscribers, indicating growth potential.

Revenue by Category

Clothing leads with ~100K, followed by Accessories (~70K).



Strategic Recommendations



Boost Subscriptions

Promote exclusive benefits to increase subscriber base.



Customer Loyalty

Implement programs to reward repeat buyers and foster loyalty.



Review Discount Policy

Optimize discounts to balance sales and profit margins.



Targeted Marketing

Focus campaigns on high-revenue age groups and shipping preferences.