Lookalike Model for Customer Recommendations

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Introduction

The purpose of this task is to develop a Lookalike Model to recommend the top 3 similar customers for the first 20 customers in the dataset. The recommendations are based on customer profiles and transaction histories.

Approach

Data Preparation

- The dataset contains three files: ‘Customers.csv‘, ‘Products.csv‘, and ‘Transactions.csv‘.
- Customer profiles were created by aggregating transaction data.

Feature Engineering

- Features like total transaction value and quantity were normalized using StandardScaler.

Similarity Calculation

- Cosine similarity was calculated between customers.

Recommendations

- For each of the first 20 customers, the top 3 similar customers were identified based on similarity scores.

Code Snippets

Below is a sample of the Python code used for the Lookalike Model:

```
from sklearn.metrics.pairwise import cosine_similarity
from sklearn.preprocessing import StandardScaler
import pandas as pd

# Load data
transactions = pd.read_csv("Transactions.csv")

# Aggregate customer profiles
```

```
customer_profiles = transactions.groupby("CustomerID").agg({
    "TotalValue": "sum",
    "Quantity": "sum"
}).reset_index()

# Normalize features
scaler = StandardScaler()
features = scaler.fit_transform(customer_profiles[["TotalValue", "
    Quantity"]])

# Compute similarity
similarity = cosine_similarity(features)

# Generate recommendations
recommendations = {}
for i, cust_id in enumerate(customer_profiles["CustomerID"][:20]):
    similar = sorted(list(enumerate(similarity[i])), key=lambda x: x
        [1], reverse=True)[1:4]
    recommendations[cust_id] = [(customer_profiles["CustomerID"].iloc[j
        ], round(score, 2)) for j, score in similar]
```

Results

The recommendations for the first 5 customers are as follows:

Results

The recommendations for the first 20 customers are as follows:

```
CustomerID, Recommendations
C0001, [('C0085', 1.0), ('C0042', 1.0), ('C0089', 1.0)]
C0002, [('C0157', 1.0), ('C0166', 1.0), ('C0029', 1.0)]
C0003, [('C0111', 0.99), ('C0160', 0.99), ('C0147', 0.99)]
C0004, [('C0162', 1.0), ('C0165', 1.0), ('C0090', 1.0)]
C0005, [('C0080', 1.0), ('C0167', 1.0), ('C0177', 1.0)]
C0006, [('C0079', 1.0), ('C0117', 1.0), ('C0196', 0.99)]
C0007, [('C0146', 1.0), ('C0125', 1.0), ('C0061', 1.0)]
C0008, [('C0109', 1.0), ('C0136', 1.0), ('C0124', 1.0)]
C0009, [('C0015', 1.0), ('C0131', 1.0), ('C0193', 1.0)]
C0010, [('C0176', 1.0), ('C0027', 0.99), ('C0030', 0.98)]
C0011, [('C0139', 1.0), ('C0100', 1.0), ('C0023', 1.0)]
C0012, [('C0101', 1.0), ('C0156', 1.0), ('C0093', 1.0)]
C0013, [('C0067', 1.0), ('C0138', 1.0), ('C0141', 1.0)]
C0014, [('C0192', 1.0), ('C0159', 1.0), ('C0186', 1.0)]
C0015, [('C0009', 1.0), ('C0131', 1.0), ('C0120', 1.0)]
C0016, [('C0154', 1.0), ('C0040', 1.0), ('C0026', 0.99)]
C0017, [('C0075', 1.0), ('C0179', 1.0), ('C0039', 1.0)]
C0018, [('C0045', 1.0), ('C0041', 1.0), ('C0068', 1.0)]
C0019, [('C0142', 1.0), ('C0174', 1.0), ('C0055', 1.0)]
C0020, [('C0058', 1.0), ('C0193', 1.0), ('C0198', 1.0)]
```

Conclusion

The Lookalike Model successfully identifies similar customers based on their transaction histories and profiles. This approach can help businesses target customers with personalized marketing strategies.