CAPITAL ONE FINANCIAL CORPORATION

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Customer Complaints

Consumer Financial Protection Bureau. "Consumer Complaint Database." Accessed January 7, 2026.

Business Context

Below are the key priorities for this analytics work:

- Identify key areas for improvement and target investment effectively
- Focus on reducing complaint volume
- Improve customer outcomes across products and services
- Ensure the company remains fully compliant with laws and regulations

Time series

Complaint Volume Over Time

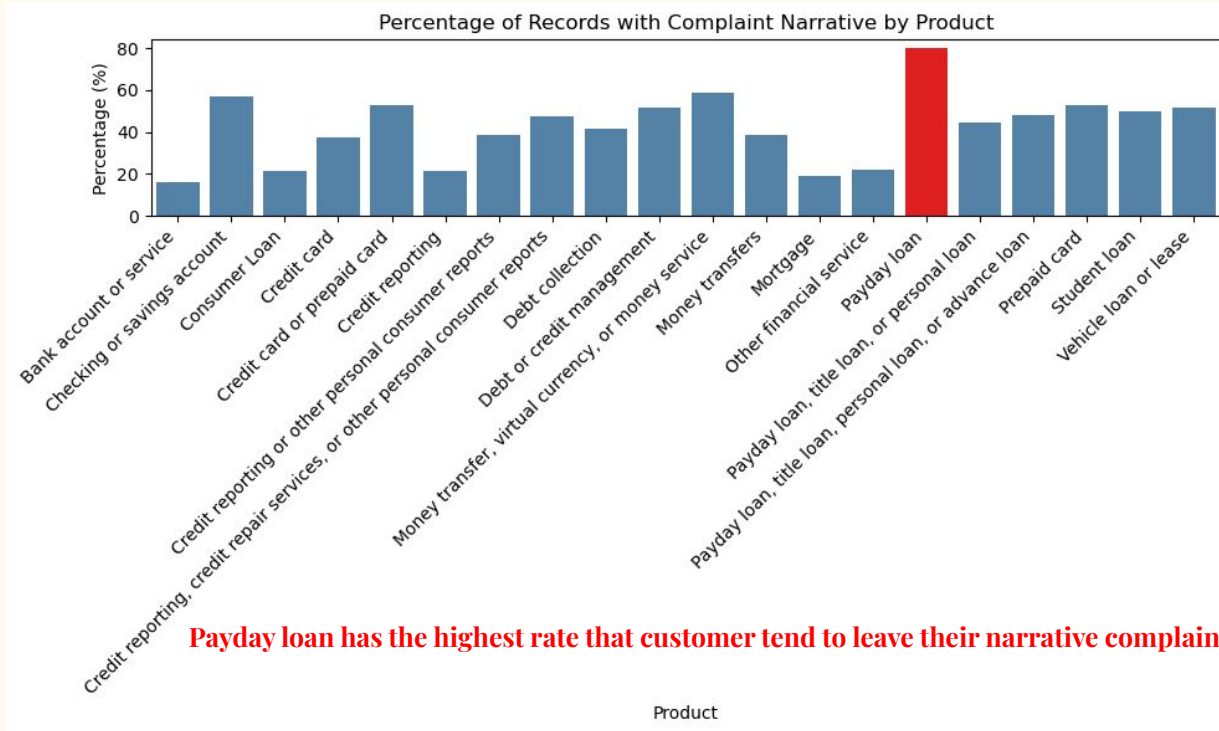Daily Complaint Volume — January 2025

date_received=Jan 17, 2025
complaint_count=3007

Top 5 Products on January 17, 2025 (Colored by Subproduct)

subproduct
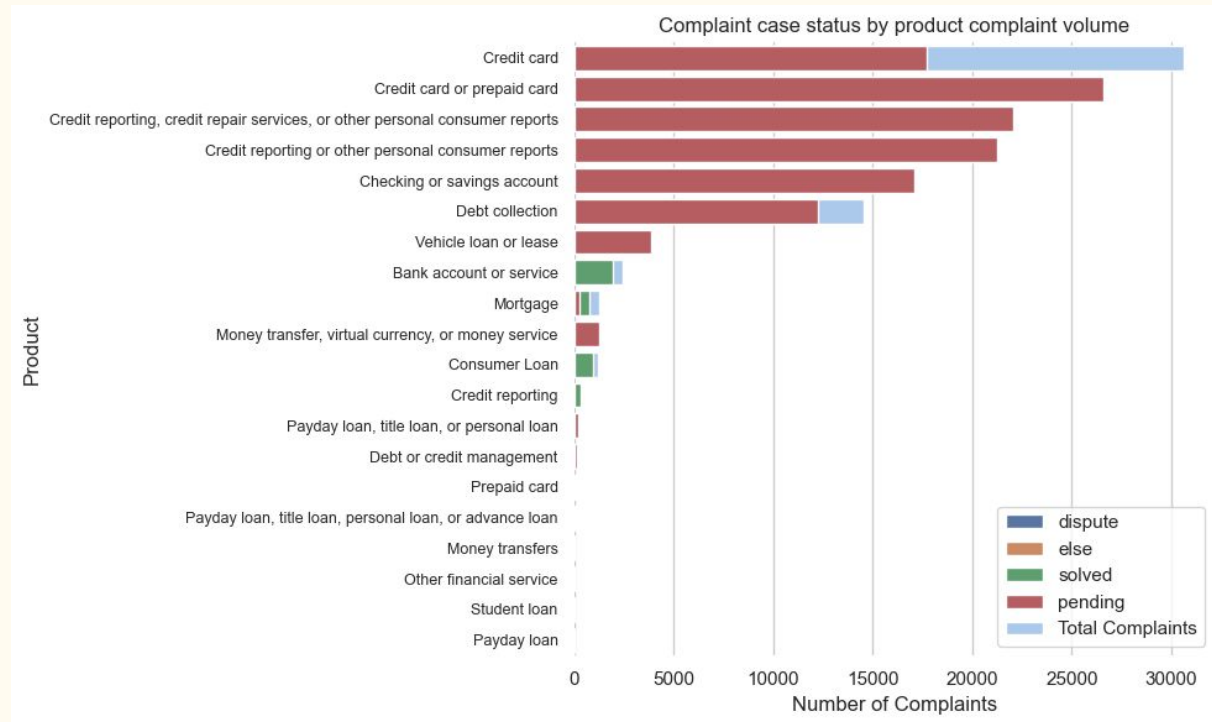- CD (Certificate of Deposit)
- Checking account

Narrative Complaints

Add column to define whether customer left the complaint and Create dataset to identify proportion of total complaint and with narrative complaint case

Percentage of Records with Complaint Narrative by Product

Payday loan has the highest rate that customer tend to leave their narrative complaint

Determine case status
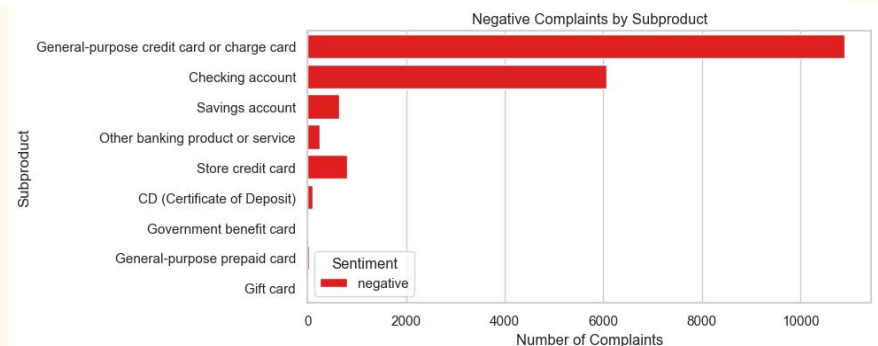
Add column to define whether customer left the complaint or not
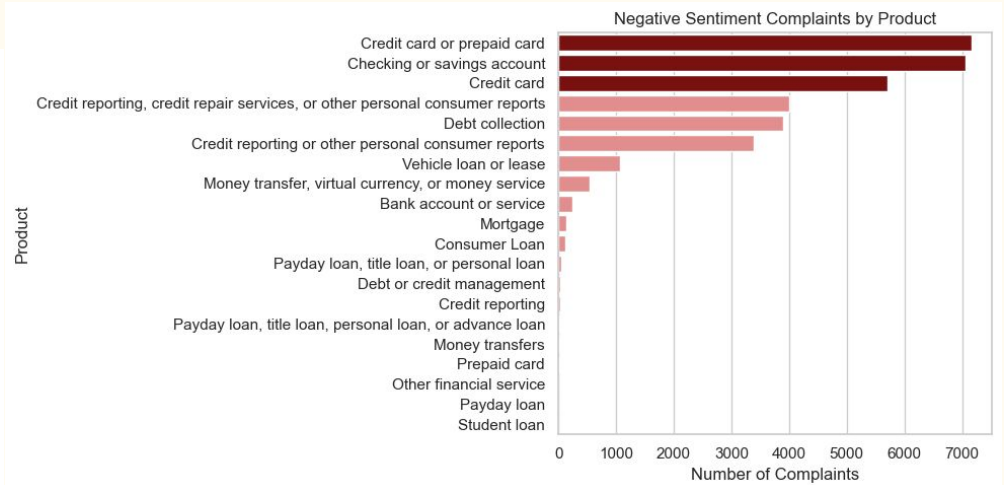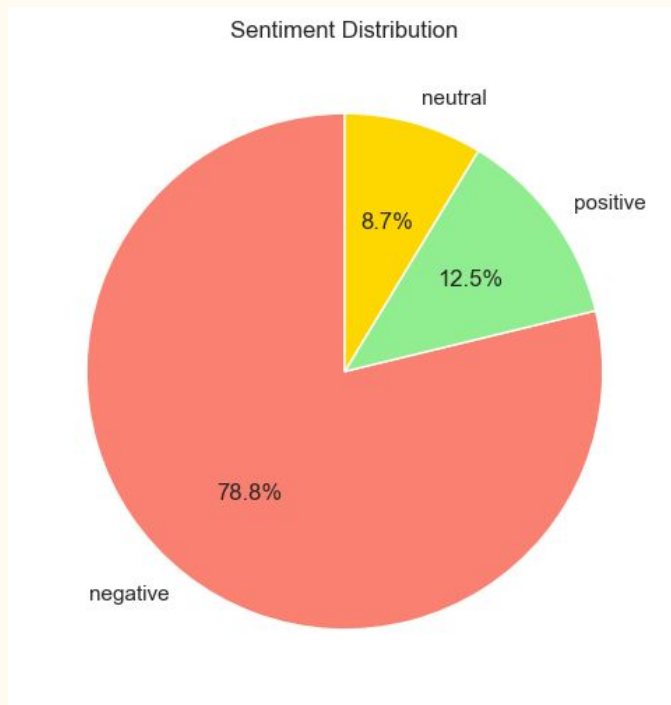
MODEL EVALUATION
Sentiment Analysis

Sentiment Analysis

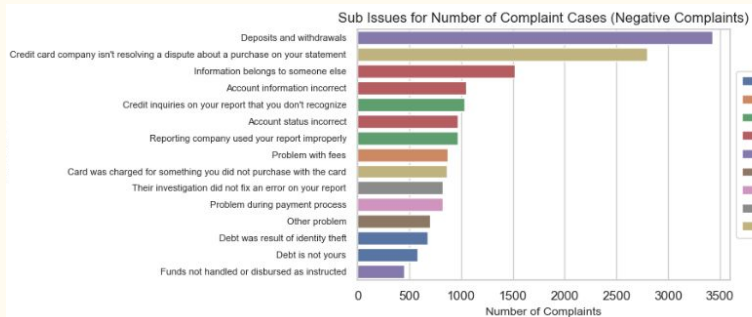Apply NLTK to find sentimental from customer complaint by applying vader_lexicon

Sentiment Analysis

Bar Plot depict Top Complaints issue and SubIssue from Negative Sentiment only

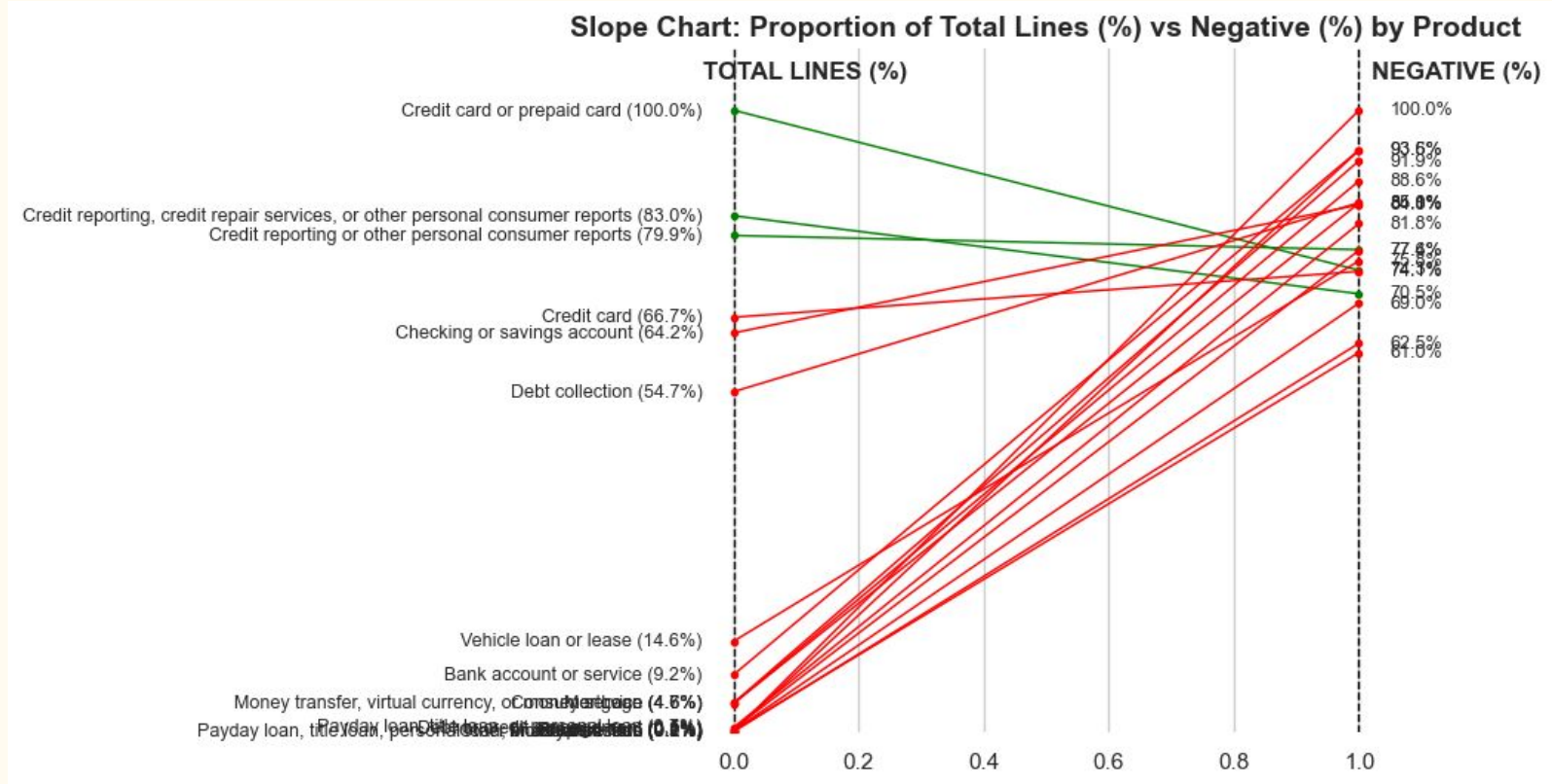**Top issue is the Incorrect information on customer report with**

Top Subissue related to;

- **Information belongs to someone else; and**
- **Credit inquiries on customer report that you don't recognize**

Sentiment Analysis

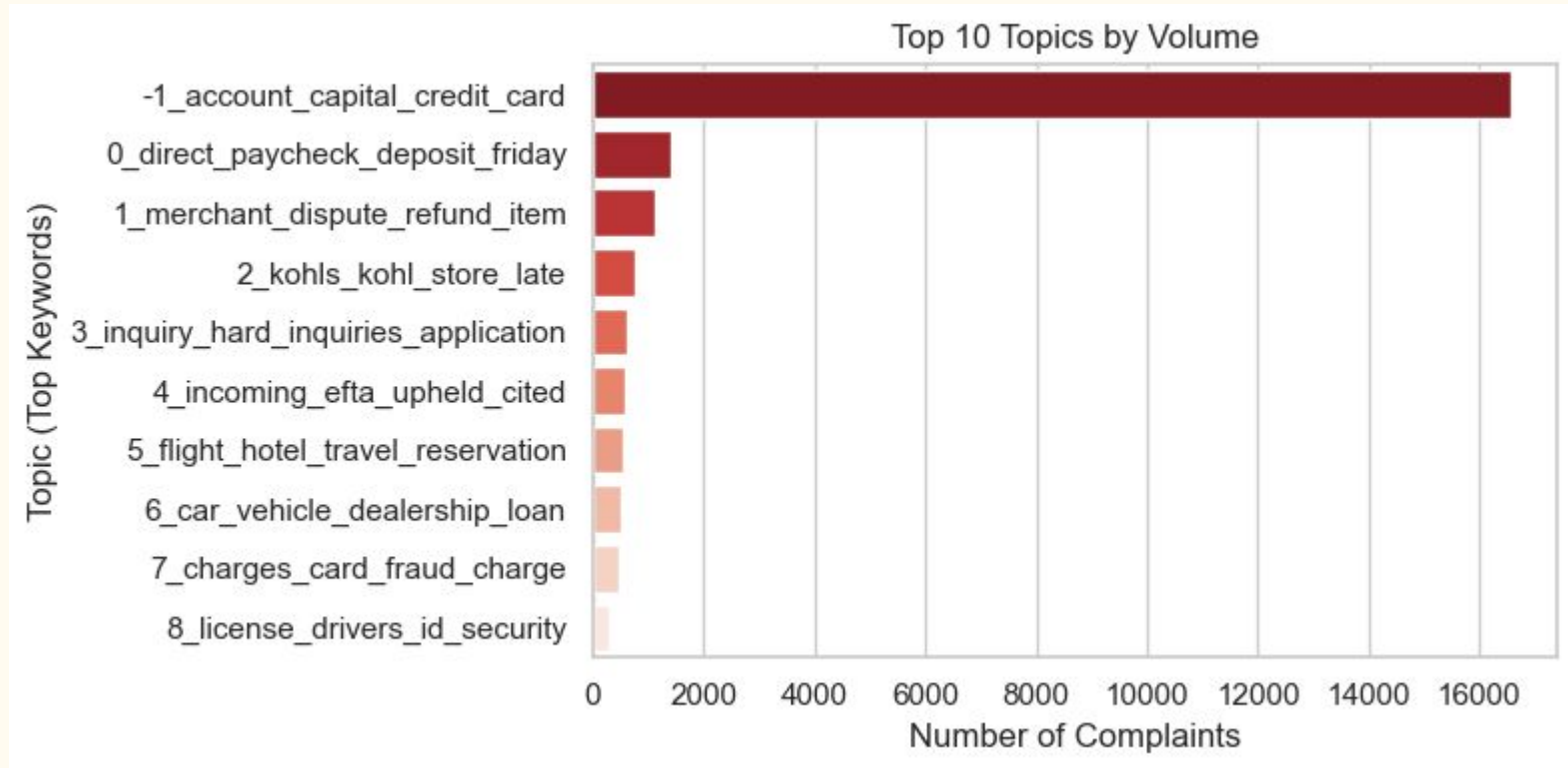Parallel line chart compare negative% with the total complaint lines by product

Slope Chart: Proportion of Total Lines (%) vs Negative (%) by Product

TOTAL LINES (%)   NEGATIVE (%)

Credit card or prepaid card (100.0%)   100.0%

93.6%
91.9%
88.6%

Credit reporting, credit repair services, or other personal consumer reports (83.0%)   85.0%
Credit reporting or other personal consumer reports (79.9%)   81.8%

77.6%
74.3%

Credit card (66.7%)   70.5%
Checking or savings account (64.2%)   69.0%

Debt collection (54.7%)   62.5%
61.0%

Vehicle loan or lease (14.6%)

Bank account or service (9.2%)

Money transfer, virtual currency, or money service (4.6%)   Consumer Mortgage

Payday loan, title loan, personal loan, or advance loan (0.1%)

0.0   0.2   0.4   0.6   0.8   1.0

MODEL EVALUATION BERTopic

BERTopic

Analyze Narrative complaint of customer into topic by focusing on the extreme negative comment

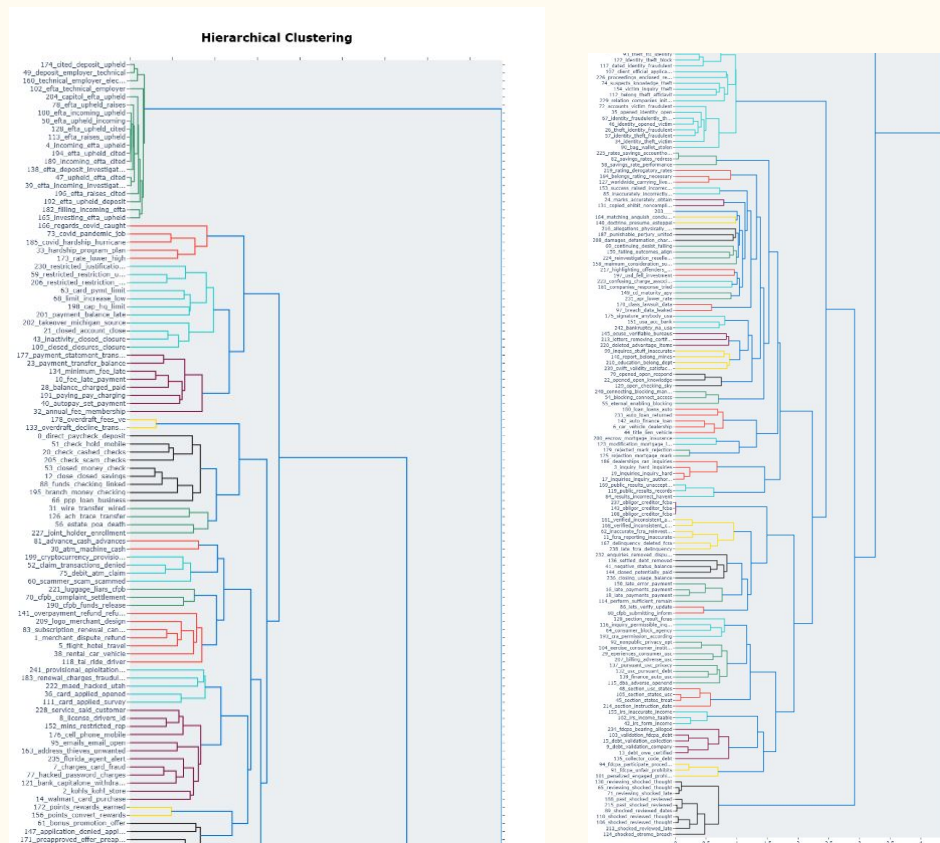Top 10 Topics by Volume

BERTopic

Topics that appear the distant is close together share similar

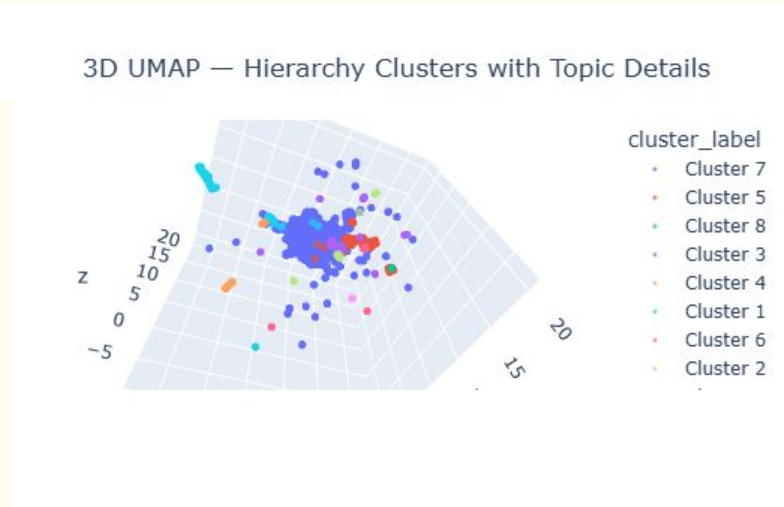Depicts similar to distance map but reports in the Hierarchical graphtopic

Intertopic Distance Map

Hierarchical Clustering

MODEL EVALUATION CTFIDF

CTFIDF

Visualize clustering from the negative complaint dataset

3D UMAP — Hierarchy Clusters with Topic Details

cluster_label
- Cluster 7
- Cluster 5
- Cluster 8
- Cluster 3
- Cluster 4
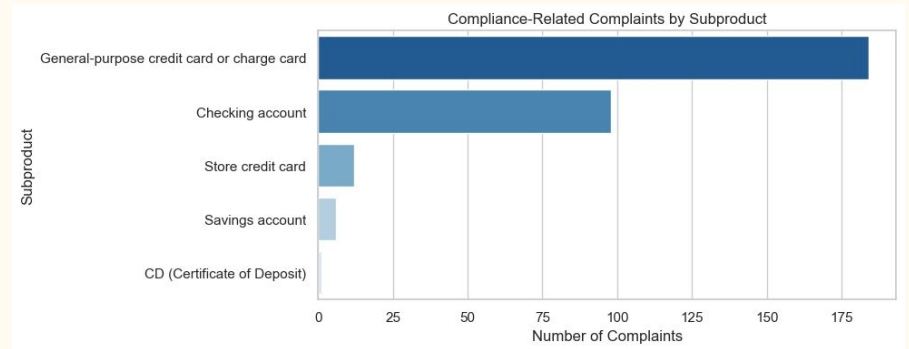- Cluster 1
- Cluster 6
- Cluster 2

Focus on Compliance-related Topic

Finding the closest topic with the compliance wording and phrase

Extract top 5 related topic where most of the SubProduct falls under

- **General-purpose credit card or charge card and**
- **Credit reporting**

Compliance-Related Complaints by Subproduct

MODEL EVALUATION LLMs

LLMs

Summarize Cluster header from top negative topic for compliance-related product

```
Topic 27 (222 complaints): flight, travel, airline, ticket, flights
   - Credit card or prepaid card: 128 complaints
   - Credit card: 87 complaints
   - Checking or savings account: 7 complaints

Topic 52 (118 complaints): auto, finance, authorize, financing, inquiries
   - Credit reporting, credit repair services, or other personal consumer reports: 72 complaints
   - Credit reporting or other personal consumer reports: 27 complaints
   - Vehicle loan or lease: 15 complaints
   - Consumer Loan: 2 complaints
   - Credit card: 1 complaints
   - Payday loan, title loan, personal loan, or advance loan: 1 complaints

Topic 150 (41 complaints): reinvestigation, item, accuracy, agency, paragraph
   - Credit reporting or other personal consumer reports: 25 complaints
   - Credit reporting, credit repair services, or other personal consumer reports: 10 complaints
   - Debt collection: 3 complaints
   - Credit card: 2 complaints
   - Vehicle loan or lease: 1 complaints

Topic 353 (15 complaints): nonpublic, hereinafter, privacy, private, induce
   - Credit reporting, credit repair services, or other personal consumer reports: 7 complaints
   - Debt collection: 4 complaints
   - Credit reporting or other personal consumer reports: 3 complaints
   - Vehicle loan or lease: 1 complaints

Topic 385 (14 complaints): echange, currency, foreign, rate, conversion
   - Money transfer, virtual currency, or money service: 6 complaints
   - Checking or savings account: 3 complaints
   - Credit card or prepaid card: 3 complaints
   - Credit card: 2 complaints
```

```
===== Topic 27 | 222 complaints =====
Summary: They had a problem with flight refund.


===== Topic 52 | 118 complaints =====
Summary: Auto loan inquiries were not easy.


===== Topic 150 | 41 complaints =====
Summary: Consumer information reporting may not be accurate.


===== Topic 353 | 15 complaints =====
Summary: Consumer reporting with identity capital theft issues.


===== Topic 385 | 14 complaints =====
Summary: Foreign exchange rates and bank fees issues.
```

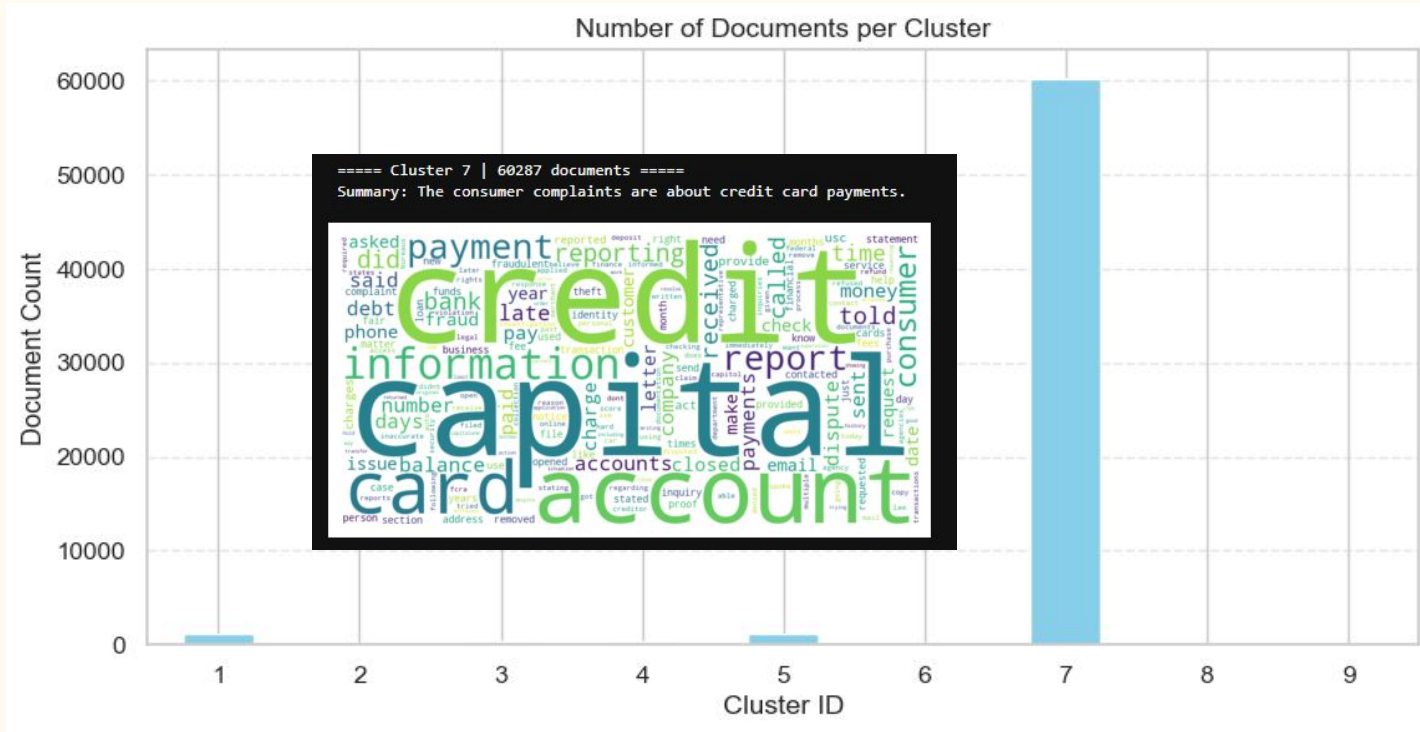Interpret main narrative complaint related to the <u>compliance</u> concerns

```
After analyzing the complaint summaries, the main issues can be identified as follows:

* **Late or Unavailability of Direct Deposit Funds**: There have been complaints regarding employers failing to access or provide direct deposit funds in a timely manner, which can cause inconvenience or financial difficulties for employees.

* **Credit Account Identity Theft and Unauthorized Activities**: Multiple complaints have been filed regarding unauthorized changes or capital issues on credit accounts, indicating cases of identity theft or unauthorized access to credit accounts.

* **Non-Compliance with Credit Rights**: Some of these complaints mention specific violations of credit rights, which suggests that there are discrepancies in how credit accounts are being managed or reported, often due to unauthorized activities.

* **Delayed or Failed Direct Deposit Payments**: There have also been instances where direct deposit payments from an employer are not being made promptly, which can lead to financial issues for the affected employees.
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INSIGHTS - Summarize negative complaint from top cluster

Cluster 7 has the highest complaint volume which relates to the consumer complaints are about **credit card payments.**

STRATEGIC RECOMMENDATION

Key Compliance Concerns

1. Priority Risks

- Capital theft and fraud impacting personal and financial data
- High complaint volume in credit cards, credit reporting, and repair services

2. Consumer Pain Points

- Inaccurate or incomplete credit reporting
- Denied credit applications due to score issues
- Lack of transparency in savings account rate changes
- Limited ability to opt out of financial data reporting
- Perceived gaps in fair reporting under consumer protection rules

3. Implications

- Elevated regulatory exposure
- Customer trust erosion
- Need for stronger reporting accuracy and data-handling controls

Strategic Focus for Product & Service Improvement

Priority Product Areas

- Credit card services
- Credit reporting
- Account management

Capability Investments

- **Technology:** Data analytics, IT, engineering
- **Reporting Accuracy:** Finance and compliance
- **Customer Service:** Operations and support teams

Implementation Focus

- Prioritize high-complaint states: CA, TX, FL, NY
- Targeted actions to reduce national complaint volume

Expected Outcomes

- Improved service quality
- Stronger reporting integrity
- Reduced complaints and regulatory risk
- Enhanced customer satisfaction