An analysis of Financial Consumer Complaints of a Finance Firm

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Importing Libraries

In [2]:
```python
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
```

Reading File

Top 10 consumer complaints details

In [3]:
```python
df = pd.read_csv("Financial Consumer Complaints.csv")
```

In [4]: ▶| df.head(10)

Out[4]:

	Complaint ID	Date Sumbited	Product	Sub-product	Issue	Sub-issue	Company public response	Compan
0	2824926	2/24/18	Credit card or prepaid card	General-purpose credit card or charge card	Closing your account	Company closed your account	NaN	Cumulu Financi:
1	1515991	8/12/15	Debt collection	Credit card	Improper contact or sharing of info	Contacted employer after asked not to	NaN	Cumulu Financi:
2	1145261	12/5/14	Bank account or service	Checking account	Deposits and withdrawals	""	NaN	Cumulu Financi:
3	2573763	7/13/17	Mortgage	Conventional home mortgage	Trouble during payment process	""	Company has responded to the consumer and the ...	Cumulu Financi:
4	2573113	7/13/17	Mortgage	Conventional home mortgage	Struggling to pay mortgage	""	NaN	Cumulu Financi:
5	2406037	3/27/17	Credit card	""	Billing disputes	""	NaN	Cumulu Financi:
6	2395777	3/20/17	Debt collection	Mortgage	Cont'd attempts collect debt not owed	Debt resulted from identity theft	Company has responded to the consumer and the ...	Cumulu Financi:
7	2850771	3/19/18	Checking or savings account	Checking account	Managing an account	Deposits and withdrawals	Company has responded to the consumer and the ...	Cumulu Financi:
8	2376685	3/7/17	Mortgage	Other mortgage	Settlement process and costs	""	Company has responded to the consumer and the ...	Cumulu Financi:
9	2825857	2/26/18	Credit card or prepaid card	Store credit card	Closing your account	Company closed your account	Company has responded to the consumer and the ...	Cumulu Financi:

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Buttom 5 consumer complaints details

In [5]: ▶| `df.tail(5)`

Out[5]:

	Complaint ID	Date Sumbited	Product	Sub-product	Issue	Sub-issue	Company public response	Cor
75508	3080971	11/22/18	Debt collection	Credit card debt	Communication tactics	Frequent or repeated calls	Company has responded to the consumer and the ...	Cu Fir
75509	3111624	12/28/18	Checking or savings account	Checking account	Managing an account	Deposits and withdrawals	NaN	Cu Fir
75510	3141604	2/1/19	Checking or savings account	Checking account	Managing an account	Deposits and withdrawals	Company has responded to the consumer and the ...	Cu Fir
75511	3081601	11/23/18	Debt collection	I do not know	Attempts to collect debt not owed	Debt was result of identity theft	Company has responded to the consumer and the ...	Cu Fir
75512	3081360	11/21/18	Checking or savings account	Other banking product or service	Closing an account	Company closed your account	NaN	Cu Fir

Shape of data

In [6]: ▶| `df.shape`

Out[6]: (75513, 17)

Data Type

In [7]: ▶| `df.dtypes`

Out[7]:
```
Complaint ID                     int64
Date Sumbited                   object
Product                         object
Sub-product                     object
Issue                           object
Sub-issue                       object
Company public response         object
Company                         object
State                           object
ZIP code                        object
Tags                            object
Consumer consent provided?      object
Submitted via                   object
Date Received                   object
Company response to consumer    object
Timely response?                object
Consumer disputed?              object
dtype: object
```

Columns headers or Title

In [8]: ▶| `df.columns`

Out[8]:
```
Index(['Complaint ID', 'Date Sumbited', 'Product', 'Sub-product', 'Issu
e',
       'Sub-issue', 'Company public response', 'Company', 'State', 'ZIP c
ode',
       'Tags', 'Consumer consent provided?', 'Submitted via', 'Date Recei
ved',
       'Company response to consumer', 'Timely response?',
       'Consumer disputed?'],
      dtype='object')
```

Unique Data

List of Customer complaints Issues

In [9]: ▶| ```python
df["Issue"].unique()
```

```
Out[9]:  array(['Closing your account', 'Improper contact or sharing of info',
                'Deposits and withdrawals', 'Trouble during payment process',
                'Struggling to pay mortgage', 'Billing disputes',
                "Cont'd attempts collect debt not owed", 'Managing an account',
                'Settlement process and costs',
                'False statements or representation', 'Other fee',
                'Problems when you are unable to pay', 'Transaction issue',
                'Closing on a mortgage', 'Closing an account',
                'Credit decision / Underwriting', 'Credit determination', 'Other',
                'Opening an account',
                'Took or threatened to take negative or legal action',
                'Closing/Cancelling account',
                'Problems caused by my funds being low',
                'Unsolicited issuance of credit card',
                'Written notification about debt',
                'Attempts to collect debt not owed', "Can't repay my loan",
                'Getting a credit card',
                'Problem with a purchase shown on your statement',
                'Problem when making payments',
                'Identity theft / Fraud / Embezzlement', 'Payoff process',
                'Credit line increase/decrease',
                'Problem caused by your funds being low',
                'Taking/threatening an illegal action', 'Late fee',
                'APR or interest rate', 'Problems at the end of the loan or leas
        e',
                'Applying for a mortgage or refinancing an existing mortgage',
                'Communication tactics', 'Fees or interest',
                'Getting a loan or lease', 'Customer service / Customer relation
        s',
                'Collection practices', 'Credit card protection / Debt protectio
        n',
                'Incorrect information on your report', 'Repaying your loan',
                'Cash advance fee', 'Using a debit or ATM card',
                'Improper use of your report', 'Getting a loan',
                'Balance transfer fee',
                'Problem with a lender or other company charging your account',
                'Application processing delay', 'Delinquent account',
                'Credit reporting', 'Balance transfer',
                'Disclosure verification of debt', 'Struggling to pay your bill',
                'Struggling to pay your loan', 'Billing statement',
                'Dealing with your lender or servicer', 'Rewards',
                'Advertising and marketing', 'Trouble using your card',
                "Problem with a credit reporting company's investigation into an e
        xisting problem",
                'Threatened to contact someone or share information improperly',
                'Struggling to repay your loan',
                'Problem with a purchase or transfer',
                'Managing the loan or lease', 'Convenience checks',
                'Unexpected or other fees', 'Bankruptcy',
                'Dealing with my lender or servicer',
                'Forbearance / Workout plans', 'Collection debt dispute',
                'Sale of account',
                'Credit monitoring or identity theft protection services',
                'Trouble using the card',
                'Problem with fraud alerts or security freezes', 'Privacy',
                'Cash advance', 'Overlimit fee',
                'Problem with credit report or credit score', 'Advertising',
```

```
                    'Unable to get your credit report or credit score',
                    'Problem getting a card or closing an account',
                    'Problem with overdraft', 'Arbitration'], dtype=object)
```

Timely response data

In [10]: ▶| `df["Timely response?"].unique()`

Out[10]: `array(['Yes', 'No'], dtype=object)`

Total number of product or service rendered by the company

In [11]: ▶| `df["Product"].nunique()`

Out[11]: 8

List of distinct Product

In [12]: ▶| `df["Product"].unique()`

Out[12]: `array(['Credit card or prepaid card', 'Debt collection',`
          `       'Bank account or service', 'Mortgage', 'Credit card',`
          `       'Checking or savings account', 'Student loan',`
          `       'Vehicle loan or lease'], dtype=object)`

Total number of platform available for customer complaints

In [13]: ▶| `df["Submitted via"].nunique()`

Out[13]: 6

List of platform for customer complaints

In [14]: ▶| `df["Submitted via"].unique()`

Out[14]: `array(['Web', 'Referral', 'Phone', 'Postal mail', 'Fax', 'Email'],`
          `       dtype=object)`

Company response to Consumer

In [15]: ▶| `df["Company response to consumer"].unique()`

Out[15]: array(['Closed with explanation', 'Closed with monetary relief',
             'Closed with non-monetary relief', 'Closed without relief',
             'Closed with relief', 'Closed', 'In progress', 'Untimely respons
       e'],
             dtype=object)

Company Ttle

In [16]: ▶| `df["Company"].unique()`

Out[16]: array(['Cumulus Financial'], dtype=object)

Total Unique or Distinct Count of the dataset

In [17]: ▶| `df.nunique()`

Out[17]: Complaint ID   75513
          Date Sumbited   3233
          Product   8
          Sub-product   46
          Issue   88
          Sub-issue   170
          Company public response   2
          Company   1
          State   61
          ZIP code   10884
          Tags   2
          Consumer consent provided?   4
          Submitted via   6
          Date Received   3117
          Company response to consumer   8
          Timely response?   2
          Consumer disputed?   2
          dtype: int64

In [18]: ▶| df.describe()

Out[18]:

	Complaint ID
count	7.551300e+04
mean	2.073739e+06
std	1.198523e+06
min	1.000000e+00
25%	9.294040e+05
50%	2.383662e+06
75%	3.092298e+06
max	3.897741e+06

Total Number of Customer complaints

In [19]: ▶| df["Complaint ID"].nunique()

Out[19]: 75513

Total number of Timely Response and late Response

In [20]: ▶| df["Timely response?"].value_counts()

Out[20]: Yes   74044
          No   1469
          Name: Timely response?, dtype: int64

The Company has higher rate of Timely Response which represent 98.1% of the Total Response

Rate of Customer Disputed

Result shows that high number of Consumer are satisfied and not disputed

In [21]: ▶| df["Consumer disputed?"].value_counts()

Out[21]: No   31203
          Yes   7363
          Name: Consumer disputed?, dtype: int64

Company Financial Complaints response technique with the total number of issues they could resolve with each technique

In [22]: ▶| `df["Company response to consumer"].value_counts()`

Out[22]:
```
Closed with explanation          54666
Closed with monetary relief      11693
Closed with non-monetary relief   5912
Closed without relief             1779
Closed with relief                 938
In progress                        283
Closed                             241
Untimely response                    1
Name: Company response to consumer, dtype: int64
```

Total Issues submitted via Web, Referral, Phone, Postal mail, Fax and Email

The result shows customers make more use of the Web than the rest of the platform available to submit their Complaints

In [23]: ▶| `df["Submitted via"].value_counts()`

Out[23]:
```
Web            38036
Referral       22289
Phone           8735
Postal mail     5320
Fax             1112
Email             21
Name: Submitted via, dtype: int64
```

Customer Complaints Issues

In [24]: ▶| `df["Issue"].value_counts()`

Out[24]:
```
Managing an account                         8849
Deposits and withdrawals                    6127
Trouble during payment process             3534
Struggling to pay mortgage                  3437
Problem with a purchase shown on your statement  3365
                                             ...
Problem getting a card or closing an account   17
Problem with fraud alerts or security freezes  11
Advertising                                    5
Problem with credit report or credit score     1
Problem with overdraft                          1
Name: Issue, Length: 88, dtype: int64
```

Count of Product by Customer Complaints

In [25]: ▶|
```python
df["Product"].value_counts()
```

Out[25]:
```
Credit card                      19176
Checking or savings account      13436
Mortgage                         12470
Credit card or prepaid card      10241
Bank account or service           9893
Debt collection                   7177
Student loan                      2050
Vehicle loan or lease             1070
Name: Product, dtype: int64
```