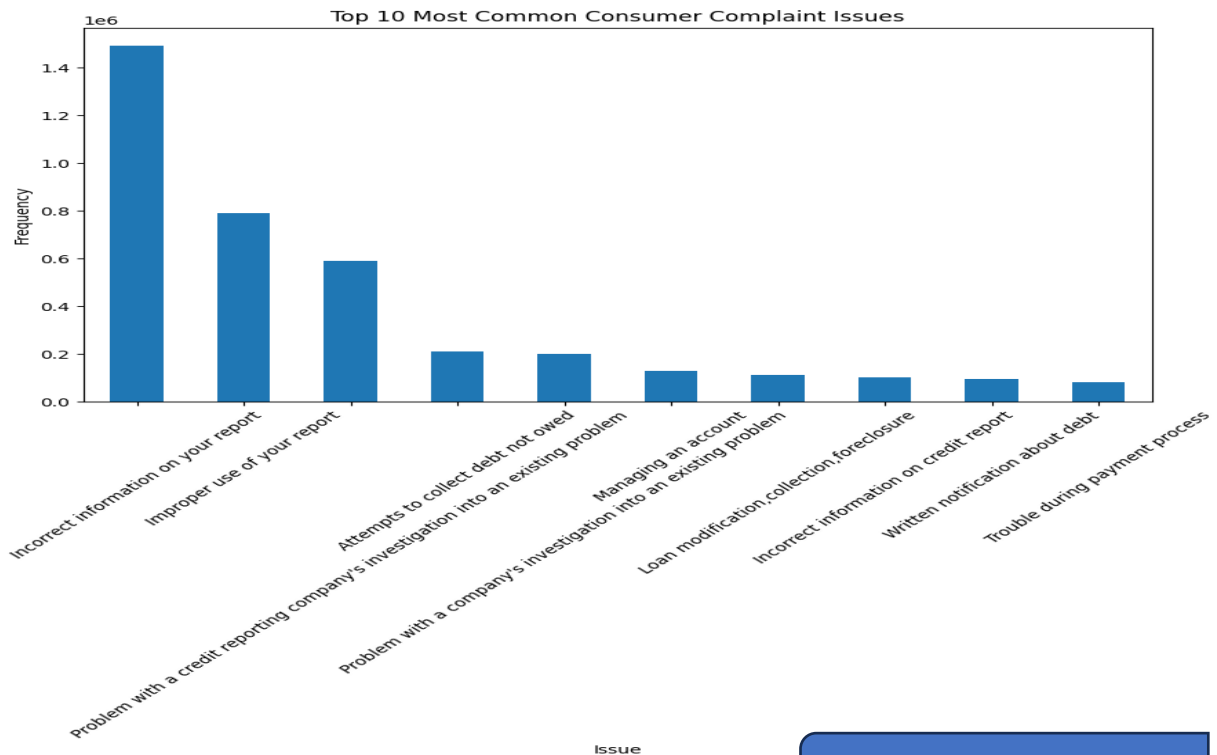# COMPLAINTS ANALYSIS

```
1. Data set reference link: https://www.consumerfinance.gov/data-
research/consumer-complaints/#download-the-data
File data source: https://files.consumerfinance.gov/ccdb/complaints.csv.zip
Problem statement:
Download the data from the file data source and provide possible data
insights.
```


Top 10 Most Common Consumer Complaint Issues

MY ANALYSIS

Consumer complaint data , visualized through a bar chart, pinpoints priority areas for resource allocation. Insight into issue frequency aids in informed decision making guiding resource distribution effectively. By targeting high frequency issues, organization enhance quality standards, elevating overall customer satisfication levels.Analyzing issue distribution unveils procedural gaps, offering a venues for process refinement and optimization proactive issue resolution not only builds trust but also fosters loyalty , nurturing robust customer engagement over time

RECOMMENDATIONS

Allocates resources based on bar chart priorities to maximize impact and satisfication. Make data informed decisions for resource allocation and operational strategies. Drive quality enhancements by addressing high frequency issues and monitoring effectiveness. Identify procedural gaps for optimization , streamlining operations, and improving customer experience prioritize proactive issue resolution to demonstrate commitment and foster loyality.

COMPLAINTS ANALYSIS

Trends in Consumer Complaints Over Time
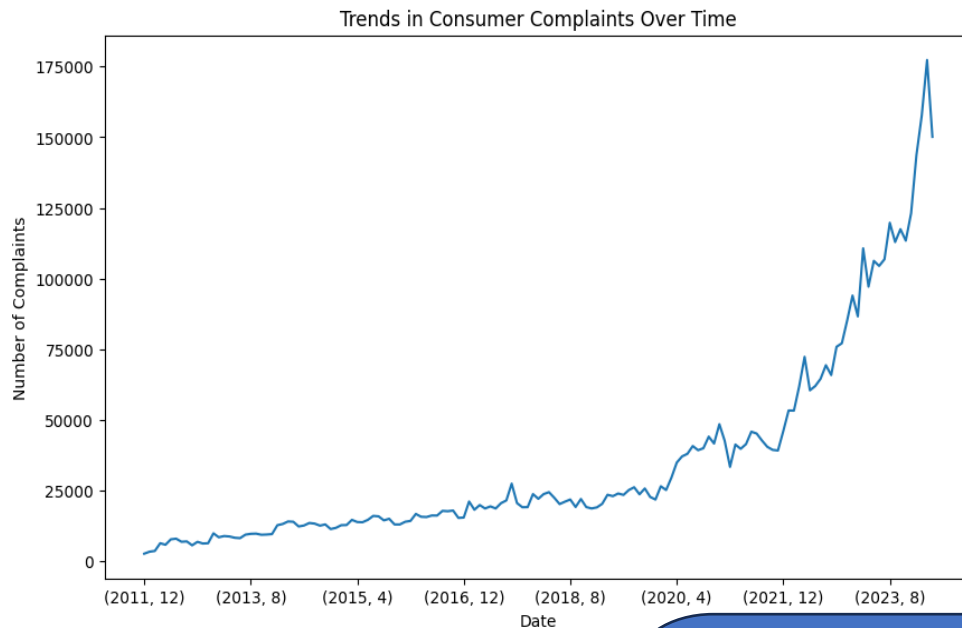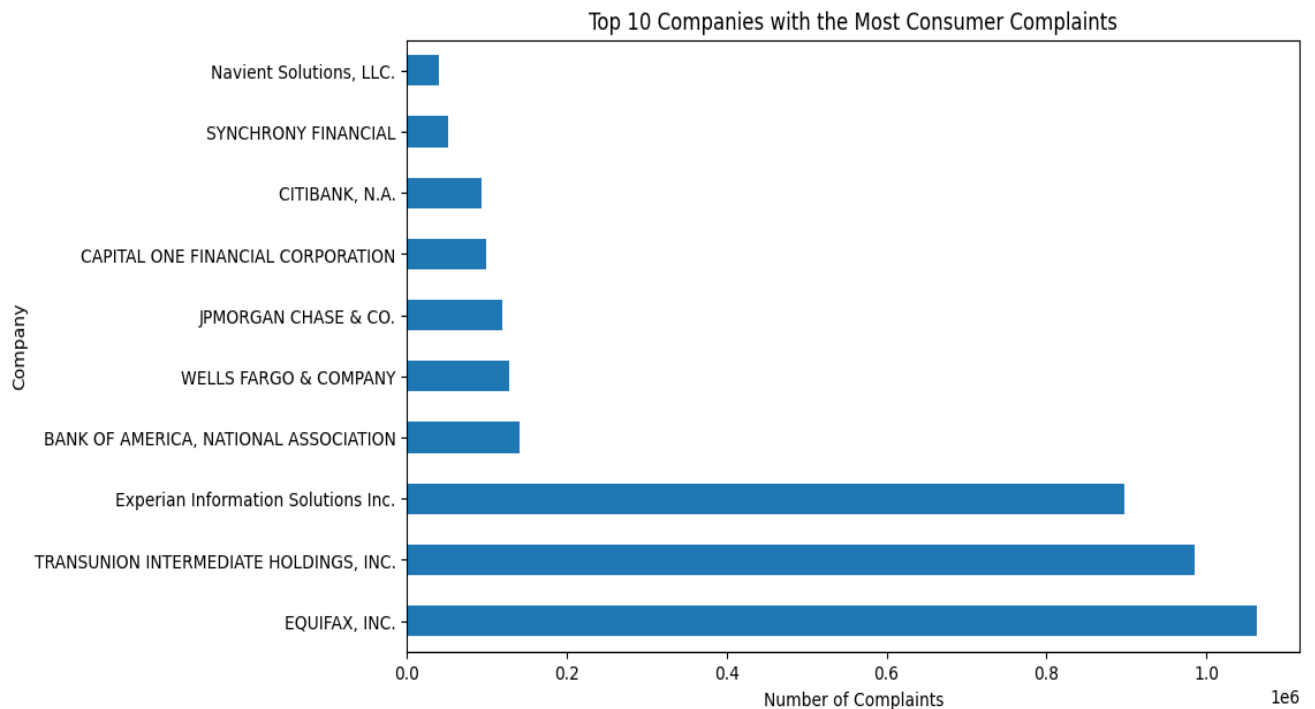

MY ANALYSIS

The chart visually represents consumer complaints volume overtime highlighting patterns and trends. Peaks and troughs suggest potential seasonal fluctuations in complaint frequency. The trajectory of the line indicates the long term trend in complaint volumes, whether they're increasing , decreasing , or remaining stable. Sudden spikes or drops may signify exceptional events impacting complaint volumes. stakeholders can use this data to identify peak complaint periods, enabling proactive measures to improve service quality and address consumer concerns efficiently.

RECOMMENDATION

Stakeholders can implement seasonal adjustment strategies by allocating additional resources during peak compliant periods to maintain service quality. Long term trend analysis involves continuously monitoring complaint volumes to adapt organizational strategies effectively. Event response protocols should be established to address sudden spikes or drops in compliant volumes promptly. Proactive service improvement initiatives can utilize data to identify areas for enhancement, invest in training, and prevent recurring complaints lastly, fostering stakeholder collaboration and communication ensures a unified approach to addressing consumer concerns

COMPLAINTS ANALYSIS

Top 10 Companies with the Most Consumer Complaints

MY ANALYSIS

The chart represents a ranking of companies based on complaint volume, with those receiving the most complaints listed at the top. Each bar visually represents the volume of complaints, making it easy to compare companies at a glance longer bars indicate higher complaints counts. This visual aid simplifies the identification of companies with both the highest and lowest complaint volumes. Additionally the chart serves as a valuable tool for assessing consumer satisfaction and service quality, as higher complaint volumes suggest potential issues and dissatisfaction, Furthermore, it facilitates benchmarking for companies, aiding regulatory bodies and consumer advocacy groups in monitoring marketplace issues effectively
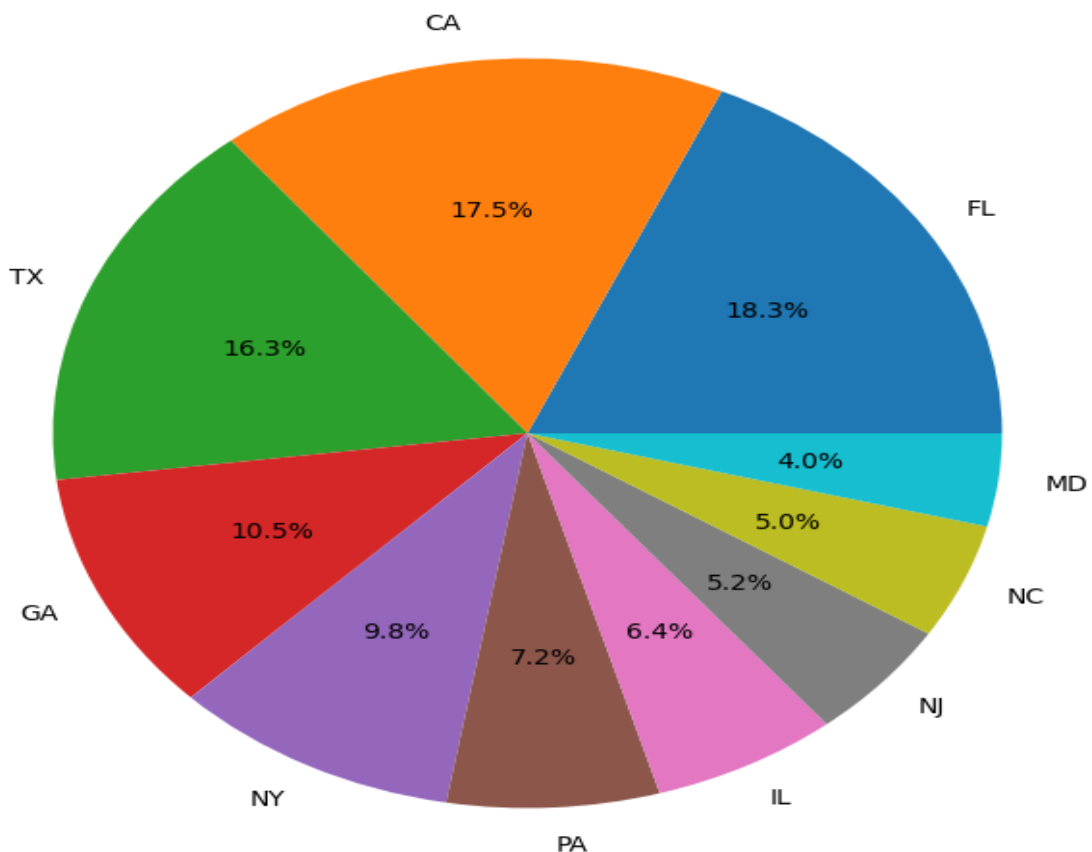
MY RECOMMENDATIONS

High complaint volume companies must prioritize addressing consumer dissatisfaction by improve customers service product quality, and resolving recurring issues promptly. Analyzing low complaint volume companies can offer valuable insights for improving customer experience. Implementing effective feedback mechanism helps gather insights, enhancing consumer satisfaction and preventing complaints. Adopting a culture of continuous improvement involves reviewing and addressing trends in complaint data to enhance service quality. Collaborating with regulatory bodies and advocacy groups demonstrates a commitment to consumer protection and fosters trust among consumers.

COMPLAINTS ANALYSIS

MY ANALYSIS

The pie chart displays consumer complaint distribution among the top 10 states, derived from dataframe state column values. Each slice represents complaint proportions per state, formatted with one decimal place. Large slices indicates higher complaint volumes, facilitating easy comparison of states contribution to total complaints. This aids in identifying states with the highest complaint volumes, directing focus towards pertinent consumer issues . overall , it's a concise tool for understanding and addressing consumer concerns across states.
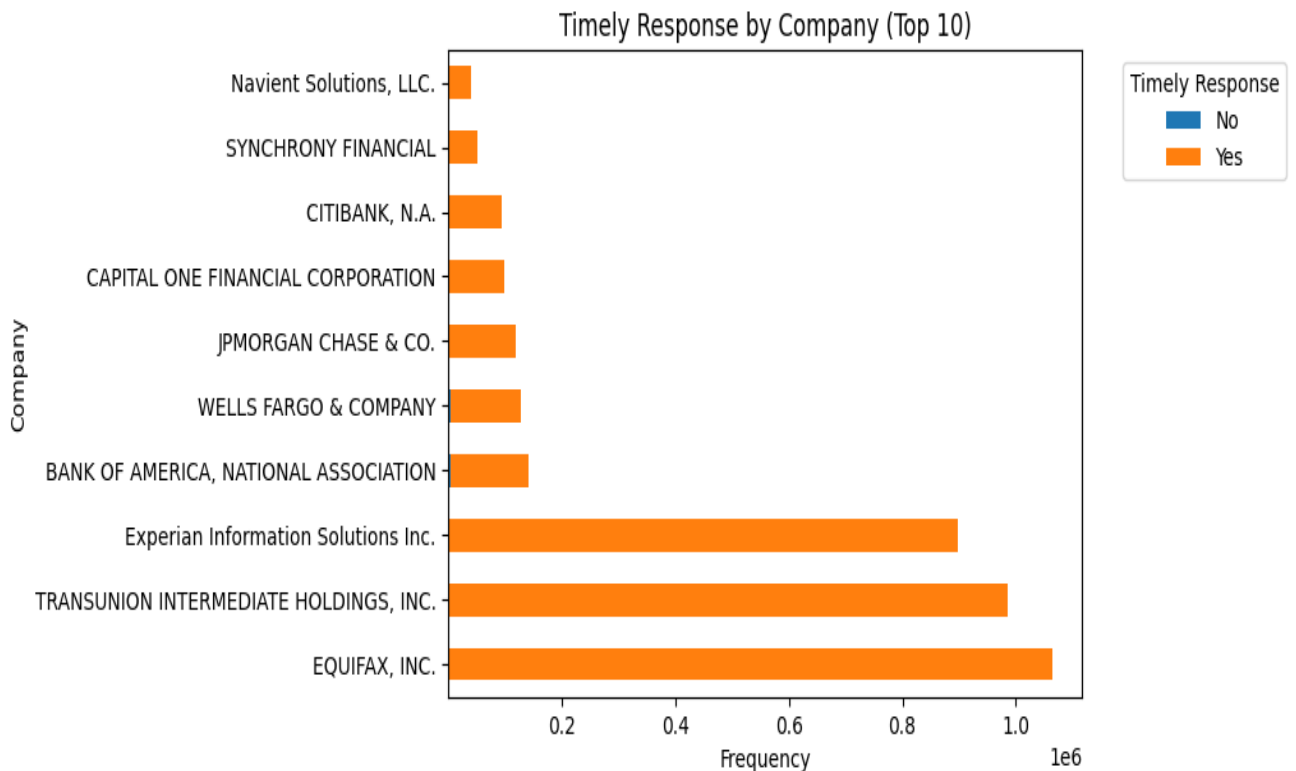
Top 10 States with the Highest Consumer Complaints

CA — 17.5%
FL — 18.3%
MD — 4.0%
NC — 5.0%
NJ — 5.2%
IL — 6.4%
PA — 7.2%
NY — 9.8%
GA — 10.5%
TX — 16.3%

RECOMMENDATIONS

Focus efforts on states with high complaint volumes, prioritizing consumer satisfaction. Investigate reasons for disproportionate complaints to uncover systemic issues. Tailor solutions to address unique concerns in different regions. Implement continuous monitoring systems to adapt to changing consumer trends. Engage local stakeholders, including authorities and advocacy groups, to effectively address consumer concerns and foster positive change within communities.

COMPLAINTS ANALYSIS

Timely Response by Company (Top 10)

Timely Response
- No
- Yes

Companies (top to bottom): Navient Solutions, LLC.; SYNCHRONY FINANCIAL; CITIBANK, N.A.; CAPITAL ONE FINANCIAL CORPORATION; JPMORGAN CHASE & CO.; WELLS FARGO & COMPANY; BANK OF AMERICA, NATIONAL ASSOCIATION; Experian Information Solutions Inc.; TRANSUNION INTERMEDIATE HOLDINGS, INC.; EQUIFAX, INC.

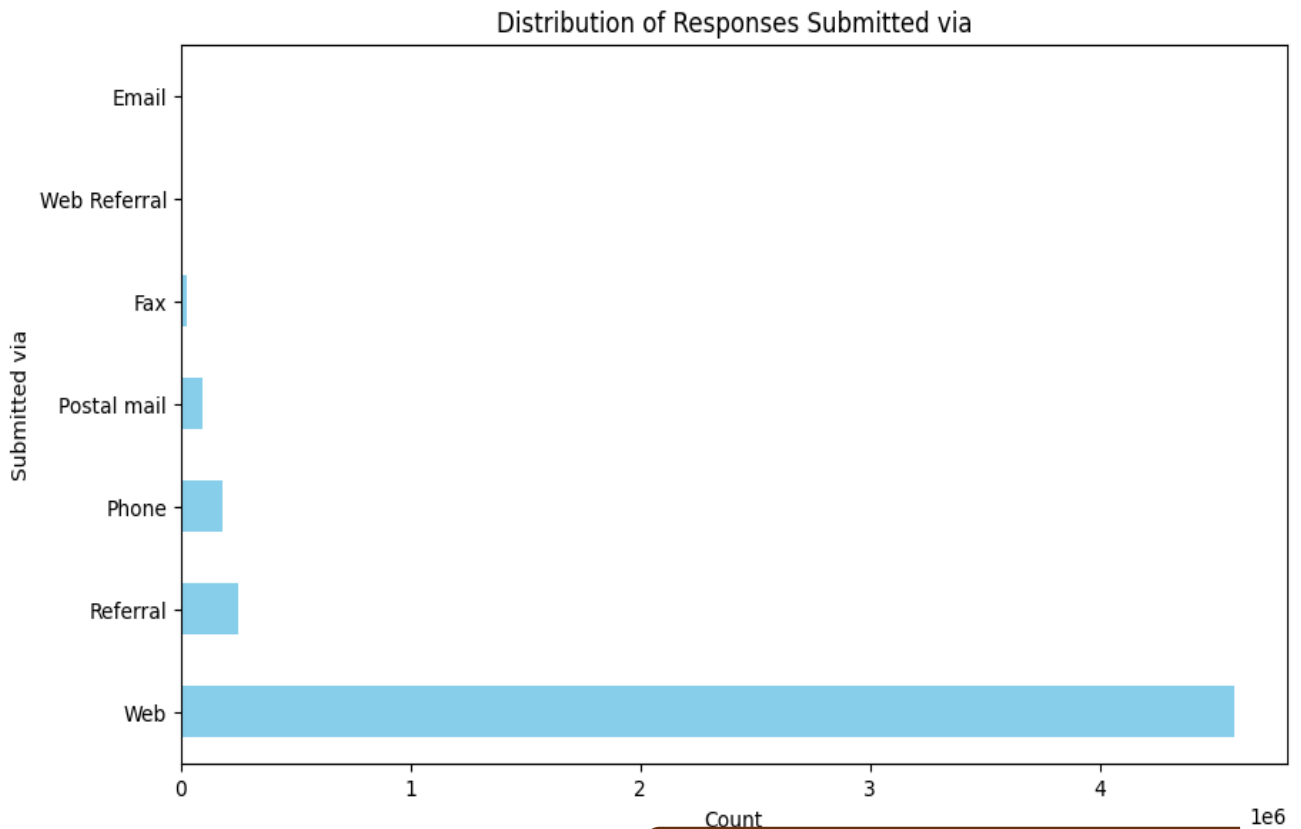X-axis: Frequency (1e6), marks at 0.2, 0.4, 0.6, 0.8, 1.0

MY ANALYSIS

The horizontal stacked bar chart displays timely and untimely response frequencies for the top 10 companies . Bars represent companies, segmented to show the proportion of each response type. Varied bar lengths indicate differing response frequencies. Analyzing these variances offers insights into customer service efficiently. Aiding in improvement identification. The legend distinguish between response types, aiding interpretation

RECOMMENDATIONS

The horizontal stacked bar chart facilitates performance evaluation by assessing companies with longer bars for efficiency and identifying factors contributing timely responses. Benchmarking response frequencies across companies establishes industry standards and sets improvement goals. Implementing targeted training programs addresses deficiencies in response timelines and enhance overall customer service efficiency. Continuous monitoring of response frequencies enables evaluation of improvement efforts effectiveness,facilitating adiustments in strategies as needed

COMPLAINTS ANALYSIS

Distribution of Responses Submitted via

Submitted via (y-axis, top to bottom): Email, Web Referral, Fax, Postal mail, Phone, Referral, Web

Count (x-axis): 0, 1, 2, 3, 4 — 1e6

MY ANALYSIS

The horizontal bar chart illustrate the distribution of responses submitted via different channels. Each bar represents a submission channel, with its length indicating the count of responses received through the channel. From the chart, we observe that certain submission channels may be more popular or preferred by consumers that others. Analyzing these preferences can inform strategies for optimizing response collection and improving overall engagement with consumers.

RECOMMENDATION

Channel optimization allocates resources to popular submission channels, maximizing response collection efficiency .Diversifying options accommodates consumer preferences, enhancing engagement. Integrating feedback mechanism streamlines collection and boosts satisfaction. Regular evaluation identifies trends , adjusting strategies for optimal engagement. This approach enhances responsiveness, strengthening the connection between business and customers.

2. Given an unsorted array of integers, find the length of the
longest continuous increasing subsequence (subarray).

Example 1: Input: [1,3,5,4,7] Output: 3

Example 2: Input: [2,2,2,2,2] Output: 1

Example 1

```python
a=[1,3,5,4,7]
n=len(a)
substr=[]
length=1
for i in range(0,n-1):
  if a[i]<a[i+1]:
    length+=1
  else:
    substr.append(length)
    length=1
substr.append(length)
print(max(substr))
```

Example 2

```python
a=[2,2,2,2,2]
n=len(a)
substr=[]
length=1
for i in range(0,n-1):
  if a[i]<a[i+1]:
    length+=1
  else:
    substr.append(length)
    length=1
substr.append(length)
print(max(substr))
```

```
3. Given a list of non negative integers, arrange them such that they
form the largest number.

Example 1:

Input: [10,2] Output: "210" Example 2:

Input: [3,30,34,5,9] Output: "9534330"
```

```python
input1 = [10, 2]
input2 = [3, 30, 34, 5, 9]
input1 = [str(num) for num in input1]
input2 = [str(num) for num in input2]
input1.sort(key=lambda x: (x * 4)[:4], reverse=True)
input2.sort(key=lambda x: (x * 4)[:4], reverse=True)
output1 = ''.join(input1)
output2 = ''.join(input2)

print("Output for Example 1:", output1)
print("Output for Example 2:", output2)
```

```
4. Store all the "servlet-name", and "servlet-class" to a csv file
from the attached sample_json.json file using Python.
```

```python
import json
import csv

#local file path directory
pd.read_json(r"C:\Users\Sivashankar murugan\Downloads\DT A1 sample_json.json")

# Read data from JSON file
data = pd.read_json(r"C:\Users\Sivashankar murugan\Downloads\DT A1
sample_json.json")

# Extract "servlet-name" and "servlet-class" from each item in the JSON
servlet_data = [(servlet['servlet-name'], servlet['servlet-class'])
for servlet in data['web-app']['servlet']]

# Write to CSV file
with open('servlet_data.csv', 'w', newline='') as csv_file:
    writer = csv.writer(csv_file)
```

COMPLAINTS ANALYSIS

```python
    # Write headers
    writer.writerow(['servlet-name', 'servlet-class'])
    # Write data
    writer.writerows(servlet_data)

print("CSV file created successfully.")
```