

**Assignment No. 07**

Semester	B.E. Semester VIII – Computer Engineering
Subject	Data Science Honors
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Academic Year	2024-25
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**Title:** Scrape customer reviews from Google & perform sentiment analysis (tweet API have been stopped)

**Implementation:**

Scraping : Using standard js in console

The image shows a web browser interface with Google Maps on the left and a JavaScript console on the right. The Google Maps interface displays reviews for 'Chitra Cinema'. The reviews listed are:

- Ajita Mehta** (Local Guide · 44 reviews · 13 photos): 5 stars, 9 months ago.
- Vinayak Sherla**: 4 stars, 10 months ago.
- Asmi Bora** (Local Guide · 2 reviews · 3 photos): 5 stars, 10 months ago.
- Anand**: 5 stars, 11 months ago.

The JavaScript console on the right shows the following code being executed:

```
function scrollTo() {
  setTimeout(() => {
    window.document.getElementsByClassName("aQERb Dy8Cb kAKIf dSBAEf Xikgde")[0].scrollBy(0,
    window.document.getElementsByClassName("aQERb Dy8Cb kAKIf dSBAEf Xikgde")[0].scrollHeight)
    scrollTo()
  }, 1000);
}

scrollTo()

[Violation] Added non-passive event listener to a scroll-blocking <some> event. Consider marking event handler as 'passive' to make the page more responsive. See <URL>
[Violation] 'requestAnimationFrame' handler took <ms>

function getReviews() {
  const reviewElements = document.querySelectorAll('div.Myned span.vil7pd');
  const reviews = Array.from(reviewElements).map(element => element.innerText);
  console.log('Reviews:', reviews);
  return reviews;
}

getReviews()
```

The console output shows the following reviews:

```
Reviews:
(232) ['After Renovate quality of theatre is improved than,ence in this range of ticket price is awesome. -', 'The cinema has been beautifully renovated, offerin..., it could be improved by arranging the rows at -', 'I can definitely say after renovation this place must visit this again Later. Good Mark Done -', 'Chitra Cinema in Dadar has s successfully blended a -sound quality, making it a great spot for movie -', 'Amazing Theater I had a Super screening here -', 'Nostalgic experience to see the movie because it's... soft seats with a sofa lounge, Good cleanliness.', 'Comfortable seats and best cinema experience. Near.of old single screen cinema theater. I loved it!!', 'I was watch ing kalki film in Telugu, the theatre .ey and time....they don't even returned our loss', 'This cinema house is to good there is so many facild near mumbai suburban railways station DADAR -', 'Chitra Cinema stands out as an excep tional movie t-ematic experience at an affordable price point. -', 'Best curve screen after new excelor thank you fo r giving us best viewing experience', 'very nice theater. Comfortable and spacious seating arrangement. Sound quali ty is also powerful. ', 'Best place for family. Crowd was decent n all, servuways preferred this place . Pocket friend ly also.', 'It's much better than the last time The seats have,sive in comparison to the corporate cinema groups', 'The cinema has been renovated, although maintenanc... is inadequate, especially during afternoon and -', 'I've been t here twice first on the screening of Fa.of a movie you should book the balcony seats b -', 'The renovated Theatre is much better than before t...etc..,InIservice at the stands outside can improve', 'It's been really good experience in this theatre. -o has visited in this theatre felt the same. Good', 'I always have fun watching movies here with a
```

✓  
10s

```
[2] from textblob import TextBlob

def analyze_sentiment(review):
    # Create a TextBlob object
    blob = TextBlob(review)

    # Get polarity: -1 = negative, 0 = neutral, 1 = positive
    polarity = blob.sentiment.polarity

    # Determine sentiment based on polarity
    if polarity > 0:
        sentiment = "Positive"
    elif polarity < 0:
        sentiment = "Negative"
    else:
        sentiment = "Neutral"

    return sentiment, polarity

# Example: Analyze sentiment of the first 10 reviews
for idx, review in enumerate(reviews, start=1):
    sentiment, polarity = analyze_sentiment(review)
    print(f"review {idx}: Sentiment = {sentiment}, Polarity = {polarity}")
```

```
⇒ review 1: Sentiment = Positive, Polarity = 0.4166666666666667
review 2: Sentiment = Positive, Polarity = 0.38333333333333336
review 3: Sentiment = Positive, Polarity = 0.32299999999999995
review 4: Sentiment = Positive, Polarity = 0.3880952380952381
review 5: Sentiment = Positive, Polarity = 0.46666666666666667
review 6: Sentiment = Positive, Polarity = 0.13333333333333333
review 7: Sentiment = Positive, Polarity = 0.4628571428571428
review 8: Sentiment = Negative, Polarity = -0.39999999999999997
review 9: Sentiment = Positive, Polarity = 0.325
review 10: Sentiment = Positive, Polarity = 0.19166666666666665
```



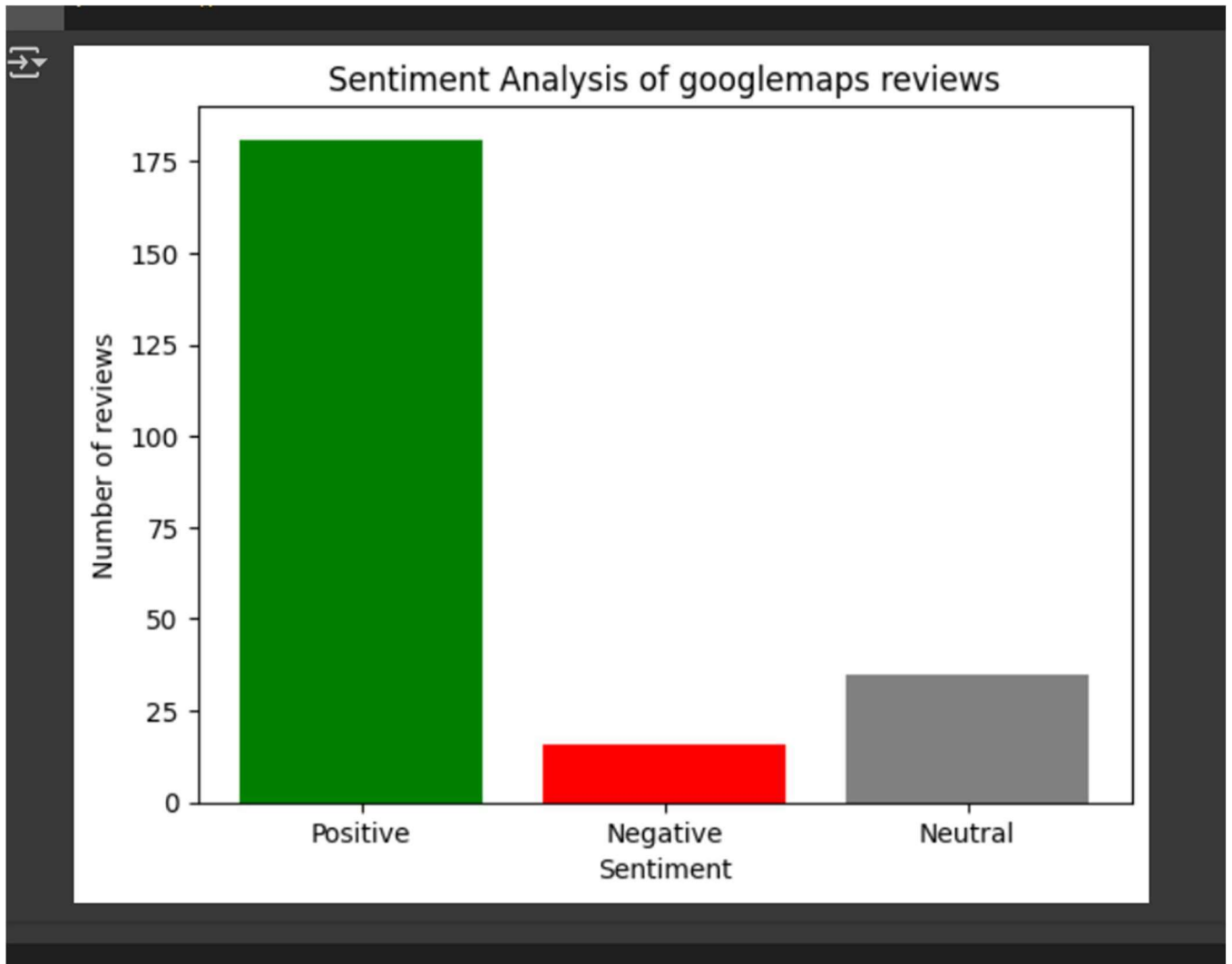
```
import matplotlib.pyplot as plt

# Analyze sentiment of the reviews
sentiments = {"Positive": 0, "Negative": 0, "Neutral": 0}

for review in reviews:
    sentiment, _ = analyze_sentiment(review)
    sentiments[sentiment] += 1

# Create a bar graph for the sentiments
labels = list(sentiments.keys())
values = list(sentiments.values())

plt.bar(labels, values, color=["green", "red", "gray"])
plt.title("Sentiment Analysis of googlemaps reviews")
plt.xlabel("Sentiment")
plt.ylabel("Number of reviews")
plt.show()
```



**Insights:**

- Most of the people has positive response
- Some have negative response due to bad experience due to technical issues during movie