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|  | **DEPARTMENT OF COMPUTER ENGINEERING** |

**Experiment No. 03**

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| Semester | B.E. Semester VIII – Computer Engineering |
| Subject | Social Media Analysis Lab |
| Subject Professor In-charge | Prof. Amit Aylani |
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**Title:** Monitor the online reputation of a specific brand by collecting social media mentions, analyzing the sentiment of these mentions, and identifying the top influencers discussing the brand.

**Description:**

The primary goal of this experiment is to monitor the online reputation of a specific brand by collecting social media mentions, analyzing their sentiment, and identifying key influencers discussing the brand. This will help in understanding public perception, addressing negative feedback, and leveraging positive discussions for brand growth.

**Methodology:**

1. **Data Collection:**
   * Use web scraping and APIs (such as Twitter/X API, Facebook Graph API, and Reddit API) to collect social media mentions related to the brand.
   * Gather data including text, timestamps, user details, and engagement metrics (likes, shares, retweets, comments).
2. **Preprocessing:**
   * Remove stop words, emojis, special characters, and unnecessary metadata.
   * Standardize text by converting to lowercase and applying lemmatization or stemming.
3. **Sentiment Analysis:**
   * Apply NLP techniques to classify mentions as positive, negative, or neutral.
   * Use pre-trained models like VADER (for short social texts) or fine-tuned transformer models (BERT, RoBERTa) for sentiment classification.
4. **Influencer Identification:**
   * Rank users based on engagement metrics (follower count, retweets, mentions, replies).
   * Use network analysis to identify key opinion leaders discussing the brand.
5. **Insights and Visualization:**
   * Generate sentiment trend graphs to track reputation over time.
   * Create a network graph of influencers and their reach.
   * Identify emerging patterns and topics associated with the brand.

**Program Code:**

!pip install asyncpraw

import praw

from textblob import TextBlob

import pandas as pd

CLIENT\_ID = 'wR4s22ZsHO85tg5kvqpx7g'

CLIENT\_SECRET = 'Ko7OcgyNlmVjupa-OlDaHbTmCwpURA'

USER\_AGENT = 'Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/91.0.4472.124 Safari/537.36'

reddit = praw.Reddit(

  client\_id=CLIENT\_ID,

  client\_secret=CLIENT\_SECRET,

  user\_agent=USER\_AGENT,

  check\_for\_async=False

)

def collect\_mentions(brand\_name, limit=10, comment\_limit=5):

  mentions = []

  for submission in reddit.subreddit("all").search(brand\_name, limit=limit):

    author\_karma = getattr(submission.author, 'link\_karma', 0)

    mentions.append({

      'type': 'post',

      'text': submission.title + " " + submission.selftext,

      'author': getattr(submission.author, 'name', 'Deleted'),

      'karma': author\_karma,

      'upvotes': submission.score

    })

    submission.comments.replace\_more(limit=0)

    for comment in submission.comments[:comment\_limit]:

      mentions.append({

        'type': 'comment',

        'text': comment.body,

        'author': getattr(comment.author, 'name', 'Deleted'),

        'karma': getattr(comment.author, 'link\_karma', 0),

        'upvotes': comment.score

      })

  return mentions

def analyze\_sentiment(mentions):

  data = [{

    'type': mention['type'],

    'text': mention['text'],

    'author': mention['author'],

    'karma': mention['karma'],

    'upvotes': mention['upvotes'],

    'sentiment': TextBlob(mention['text']).sentiment.polarity

  } for mention in mentions]

  return pd.DataFrame(data)

def identify\_top\_contributors(df, top\_n=5):

  return (df.groupby('author')

      .agg({'karma': 'max', 'upvotes': 'sum', 'sentiment': 'mean'})

      .reset\_index()

      .sort\_values(by=['upvotes', 'karma'], ascending=[False, False])

      .head(top\_n))

brand\_name = "iphone"

mentions = collect\_mentions(brand\_name, limit=20, comment\_limit=3)

df = analyze\_sentiment(mentions)

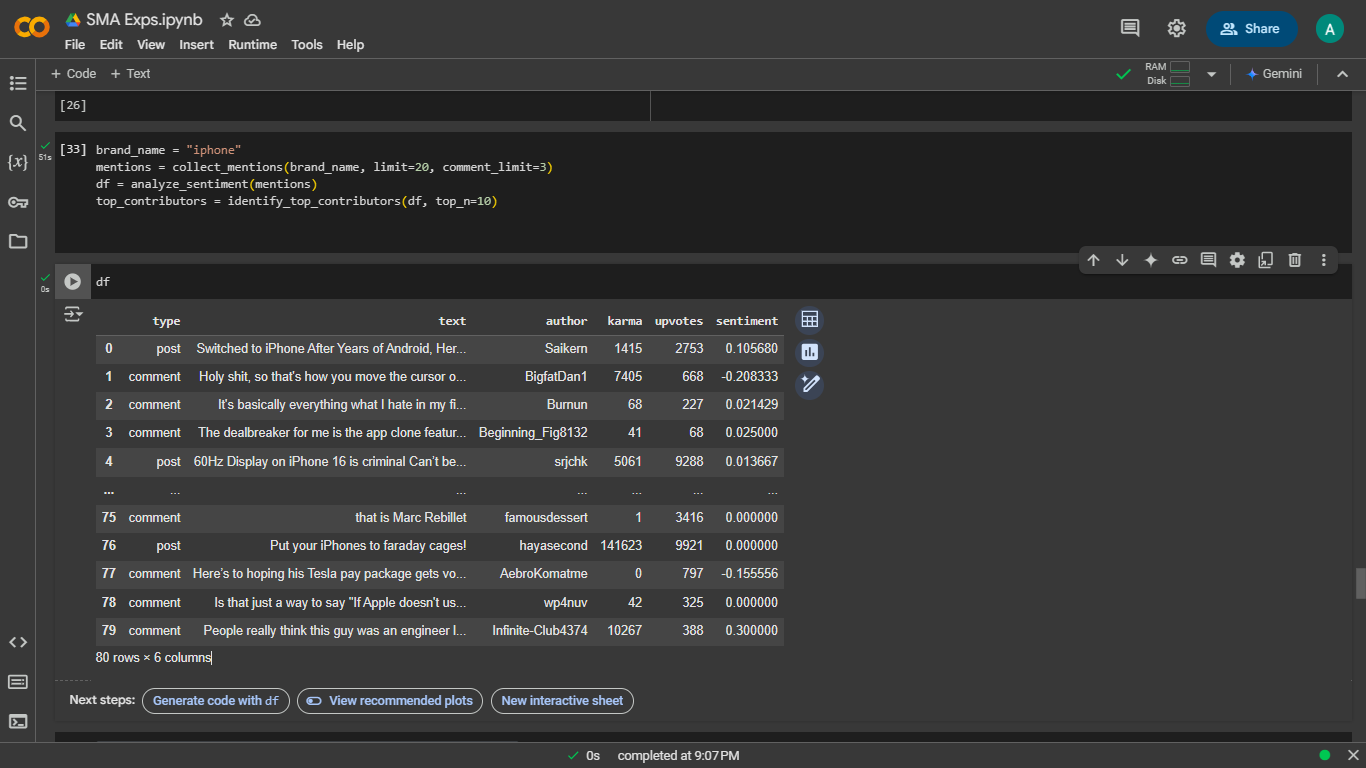
top\_contributors = identify\_top\_contributors(df, top\_n=10)

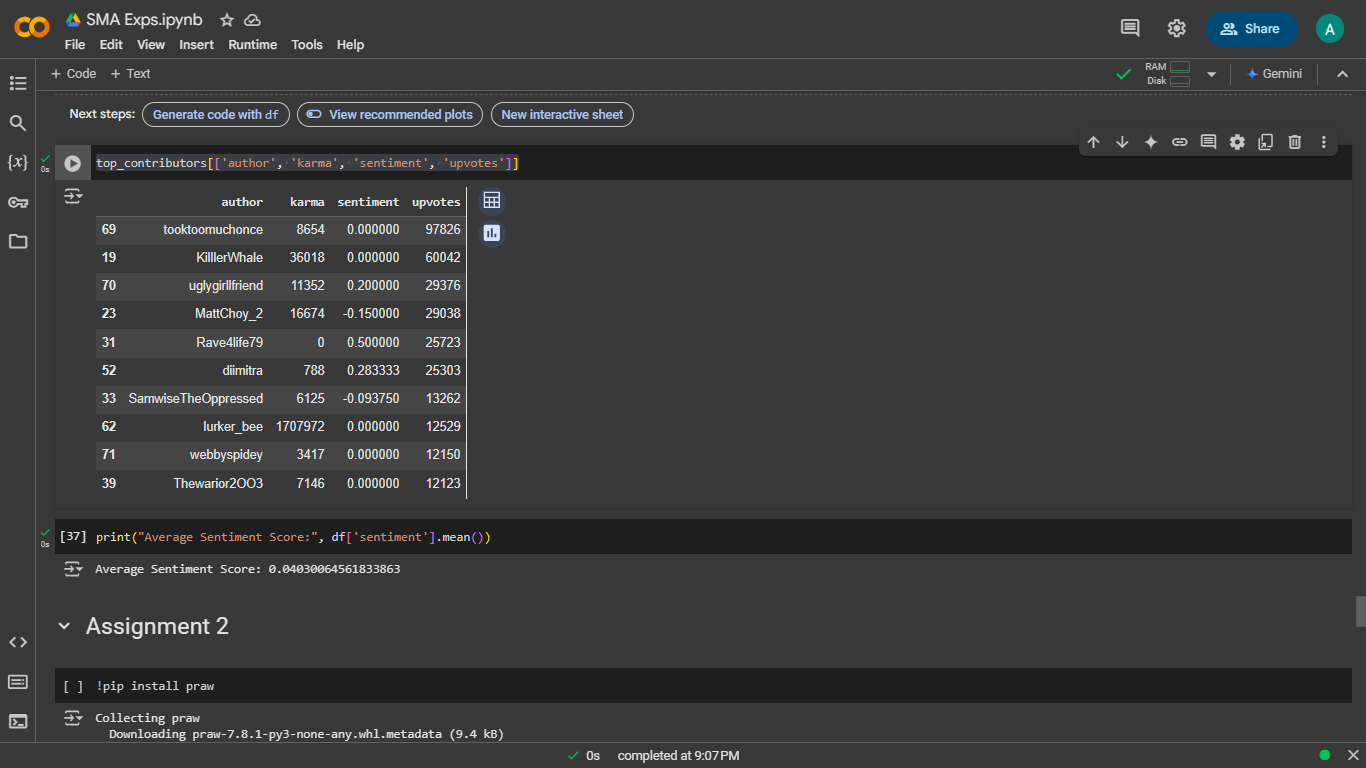
df

top\_contributors[['author', 'karma', 'sentiment', 'upvotes']]

print("Average Sentiment Score:", df['sentiment'].mean())

**Output:**





**Conclusion:**

This experiment enables the brand to monitor its online reputation by collecting social media mentions and analyzing sentiment. By leveraging sentiment analysis, the brand can track public perception over time and address both positive and negative feedback. Identifying top influencers helps the brand engage with key opinion leaders, amplifying positive discussions and managing potential risks. The insights gained from this process allow for data-driven decision-making, improved brand image, and better consumer engagement. Continuous monitoring ensures timely responses to trends, fostering a stronger connection with the audience.