

Objective

Develop a web-based application that extracts key details from multiple news articles related to a given company, performs sentiment analysis, conducts a comparative analysis, and generates a text-to-speech (TTS) output in Hindi. The tool should allow users to input a company name and receive a structured sentiment report along with an audio output.

Setup Guide

Prerequisites

- Python 3.8+
- FastAPI
- Uvicorn
- Requests
- BeautifulSoup
- Transformers
- Sentence-Transformers
- gTTS (Google Text-to-Speech)
- Googletrans
- Streamlit

Installation

Clone the repository:

<https://github.com/Rushi1820/NewsSummary>

Install All Libraries:

```
pip install -r requirements.txt
```

Run the FastAPI backend:

```
uvicorn main:app --host 127.0.0.1 --port 8080 --reload
```

Run the Streamlit frontend:

```
streamlit run streamlit.py
```

Workflow

Backend (FastAPI)

1. **API Request:** The user requests company news via </api/v1/getcompanynews/{company}>.

2. **Web Scraping:** The system fetches news articles from Economic Times using `requests` and `BeautifulSoup`.
3. **Text Processing:** Extracts descriptions from the articles and generates topic keywords using NLP models (`sentence-transformers`).
4. **Sentiment Analysis:** Uses a pre-trained transformer model to determine whether the sentiment is positive, negative, or neutral.
5. **Impact Analysis:** Compares articles for their business impact by analyzing sentiment differences and topic overlaps.
6. **Summarization:** Uses NLP techniques to generate a concise summary of all collected company news.
7. **Audio Generation:** The summarized text is converted into Hindi speech using `gTTS` (Google Text-to-Speech) and stored as an audio file.
8. **Response:** Returns structured JSON data, including articles, sentiment scores, business impact analysis, and audio output.

Frontend (Streamlit)

1. **User Input:** The user enters a company name in a text input field.
2. **API Call:** The Streamlit application sends a request to the FastAPI backend to fetch company news and sentiment data.
3. **Data Display:** Extracted news articles, summaries, and sentiment analysis results are displayed in an interactive format.
4. **Audio Playback:** A button allows users to listen to the generated Hindi summary via an embedded audio player.

API Endpoints

1. Get Company News

- **Endpoint:** `GET /api/v1/getcompanynews/{company}`
- **Description:** Fetches and analyzes the latest news for a given company.
- **Query Parameters:**
 - `company` (string): The name of the company whose news needs to be fetched.
- **Response Format:**

```
{  
  "Company": "tesla",  
  "Articles": [  
    {
```

"title": "Tesla's All-Hands-Meet at 10 PM had employees worried and confused; here's what Elon Musk said at the meeting",

"link":

"https://economictimes.indiatimes.com/news/international/us/teslas-all-hands-meet-at-10-pm-had-employees-worried-and-confused-heres-what-elon-musk-said-at-the-meeting/articleshow/119316269.cms",

"description": "Tesla employees were left surprised by an unexpected all-hands meeting last Thursday night. Held at 9:30 pm ET, the meeting caused confusion and frustration due to its timing and lack of advance notice. During the meeting, CEO Elon Musk updated employees on Tesla's recent achievements and addressed challenges, including falling stock prices and ongoing protests at sales centers.",

"Topics": [

"tech and corporate America",

"t.b.org"

],

"sentiment": "NEGATIVE",

"score": 0.9946969747543335

},

{

"title": "Hang on to stock: Tesla CEO Elon Musk to staff",

"link":

"https://economictimes.indiatimes.com/news/international/business/hang-on-to-stock-tesla-ceo-elon-musk-to-staff/articleshow/119316282.cms",

"description": "During an all-hands meeting broadcast Thursday on X, he said, 'If you read the news, it feels like Armageddon.' Musk joked he can't walk past a television without seeing a Tesla on fire, then mocked his detractors. 'I understand if you don't want to buy our product, but you don't have to burn it down. That's a bit unreasonable.'",

"Topics": [

"environmental-impact",

```
" solar-energy",

" wind",

" renewable-energy",

" solar-panel\n\n\nBook"

],

"sentiment": "NEGATIVE",

"score": 0.9878639578819275

},

{

"title": "Top analyst Dan Ives sounds alarm, says Tesla's crisis is here, urges Elon Musk to ditch DOGE and refocus on saving the brand",

"link":

"https://economictimes.indiatimes.com/news/international/us/tesla-faces-crisis-to-p-analyst-dan-ives-calls-for-elon-musk-to-prioritize-brand-over-doge/articleshow/119311767.cms",

"description": "Wedbush Securities' top analyst Dan Ives urges Tesla CEO Elon Musk to focus on leading the company amid its current crisis. Ives warns that Tesla's image is being damaged by Musk's involvement in politics and the brand is facing significant challenges. He believes Musk's return to leadership is essential to resolving the crisis.",

"Topics": [

"e-business",

" financial-research",

" business-economics-and-finance",

" stockmarket"

],

"sentiment": "NEGATIVE",

"score": 0.997708797454834
```

```
}  
],  
"Coverage Differences": {  
  "Comparative Sentiment Score": {  
    "Sentiment Distribution": {  
      "POSITIVE": 0,  
      "NEGATIVE": 3,  
      "NEUTRAL": 0  
    },  
    "Coverage Differences": [  
      {  
        "Comparison": "similarity score between articles:0.584087073802948",  
        "Impact": "Musk has a short-term solution to the current and future crises, but he  
remains involved in the political process and will likely have short-term  
consequences in the company's image and valuation."  
      },  
    ],  
    "Topic Overlap": [  
      {  
        "Topic Overlap": {  
          "Common Topics": [],  
          "Unique Topics in Article 1": [  
            "tech and corporate America",  
            " t.b.org"  
          ],  
        },  
      },  
    ],  
  },  
}
```

"Unique Topics in Article 2": [

" solar-panel\n\n\nBook",

" wind",

" solar-energy",

" renewable-energy",

"environmental-impact"

]

}

},

]

},

"Final Sentiment Analysis": "Overall, the news coverage is negative, which may impact stock growth and performance"

},

"Audio":

//OExAAA
AA
AA
AA
AA//OExAAms7IIAHmG
3QTgd4BmtKdyiYywRX8djZ8N6HoYhkWOZOgiH9k07u7MIR4Qe9YhjEIBAAQJ3
Z5PbbMt0zFHpwTJk9w8nt4TXD9yacECEGBCTAMDPw4uJu7vERUf3OIW5/Q4G
bxAAg44QRu//NERERAgibu4G

The audio is in base4 form will be converted to actual form while showing in the streamlit application.

Live deployment is not possible as the models required high space where free tier space is max 512mb in most of the deployment websites.

Application Images:

Company News Summary

Enter Company Name:

google

Get News Summary

News Summary for google

Title: Google removes 331 malicious apps from Play Store linked to 'Vapor Operation'

Summary: Vapor Operation infected 331 apps with 60M+ downloads, engaging in ad fraud and phishing,; the malware bypassed Android 13 security, hid icons, and used fake login pages to steal data; Despite Google's removal, users should update devices, enable Play Protect, and check for hidden malware.

Sentiment: NEGATIVE (Score: 0.9991080164909363)

Topics: VirusTotal, Google-SDROOT, Google-SDROOT, Google-SA

Link to full article: [Click here](#)

Title: Google adds Canvas and Audio Overview to Gemini AI

Sentiment Distribution

{

"POSITIVE" : 2

"NEGATIVE" : 1

"NEUTRAL" : 0

}

Coverage Differences

Comparison: similarity score between articles:0.1338718980550766

Impact: * * **This is the most popular new app released this holiday season.

Comparison: similarity score between articles:0.15107369422912598

Impact: * "AI has opened doors that were previously closed by experts" * "AI is making knowledge more accessible, whether it's helping students find relevant research papers or enabling farmers to get up-to-date weather information.

Sentiment Distribution

```
{
  "POSITIVE" : 2
  "NEGATIVE" : 1
  "NEUTRAL" : 0
}
```

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Impact: * "AI has opened doors that were previously closed by experts" * "AI is making knowledge more accessible, whether it's helping students find relevant research papers or enabling farmers to get up-to-date weather information.

Conclusion

This application automates the retrieval, analysis, and presentation of company news with sentiment and impact assessments. The integration of FastAPI and Streamlit ensures seamless functionality for users.

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