

Akkaike Technologies Internship Report

Project: News Summarization and Text-to-Speech Application

1. Project Setup

1.1 Installation Requirements

- Python version - Python 3.11.11
- pip (Python Package Installer)
- Required libraries (please check requirements.txt)

1.2 Steps to Install and Run

- git clone
- Github Link: <https://github.com/Mrud11/News-Summarization-and-Text-to-Speech-Application>
- cd news-summarization
- Dependencies installation - check requirements.txt file.
- Run the api.py file for backend purpose, (code: python api.py).
- Run the (streamlit) app.py for the frontend purpose (code: streamlit run app.py).

2. Model Details

2.1 News Extraction

- **Method Used:** BeautifulSoup (Web Scraping).
- **Purpose:** Extracts **title, summary, and article link** for the tata company.

2.2 Sentiment Analysis

- **Model Used:** Textblob
- **Purpose:** Classifies the news articles as **Positive, Negative, or Neutral**.

2.3 Text-to-Speech (TTS)

- **Model Used:** gTTS (Google Text-to-Speech).
- **Purpose:** Converts the summarized news into **Hindi speech output**.

2.4 Hugging Face Deployment

- **UI used:** Streamlit , License used: MIT
- **Purpose:** To showcase it to the users so they can fetch the news and sentiment report

3. API Development

The API, built using Flask, fetches news articles and performs sentiment analysis. It enables to retrieve news articles for a given company (tata and reliance) and analyze their sentiment.

3.1 How to Access the API

- Endpoint: GET /news?company=<company_name>
- Example Request: <https://gold-pandas-wait.loca.lt/> (new link comes every time we run this code)
- Response Format:

```
{  
  "company": "Tata",  
  "articles": [  
    {  
      "title": "Tata Group companies quietly partner with Elon",  
      "link": "https://newslink.com",  
      "sentiment": "Positive"  
    }  
  ]  
}
```

- **Functionality :**

- **Fetch News:** Retrieves news articles from tata_news_sentiment.csv.
- **Sentiment Analysis:** Uses TextBlob to classify sentiment as Positive, Negative, or Neutral based on the news title.

4. API Usage:

Libraries	Purpose	Installation
BeautifulSoup	Web scraping	pip install beautifulsoup4
VADER/ TextBlob	Sentiment analysis	pip install vaderSentiment
gTTS	Text-to-Speech conversion	pip install gtts

5. Assumptions & Limitations

5.1 Assumptions

- News articles can be scraped without restrictions.
- Sentiment analysis correctly classifies article tone.
- TTS accurately converts Hindi text into speech.

5.2 Limitations

- Some websites with JavaScript-rendered content cannot be scraped.
- Sentiment analysis may misinterpret sarcasm or mixed sentiment.
- TTS may struggle with technical terms or brand names.

6. Deployment on Hugging Face Spaces

6.1 Steps to Deploy

1. Create a Hugging Face account.
2. Go to Spaces **then** Create New Space.
3. Name the space (**e.g., news-summarization**).
4. Choose "Streamlit" as the SDK.
5. Upload the following files:
 - app.py (Streamlit UI)
 - api.py (Flask API)
 - utils.py (Helper functions)
 - requirements.txt (Dependencies)
 - README.md (Documentation)
6. Commit the files to the main branch.
7. Wait for the deployment to complete.
8. Access the app via the public link provided by Hugging Face.

6.2 Public Deployment Link (my project link)

Output Link: <https://huggingface.co/spaces/Mrud11/news-sentiment-analysis-text-to-speech>

7. Project File Structure

- app.py - Frontend (Streamlit UI)
- api.py - Backend API (Flask)
- utils.py - Utility functions (Scraping, Sentiment, TTS)
- requirements.txt - Dependencies
- README.md - Documentation
- data - Folder containing scraped CSV (if required)

8. Output Screenshots









News Articles


	Title	Link
0	Tata Group stock skyrockets 10% after receiving order from Gujarat Energy Transmiss	https://news.google.com
1	Tata Group companies quietly partner with Elon Musk-led Tesla; become global supp	https://news.google.com
2	Ratan Tata reunited with his first true love after 50 years, took her out and..., read the	https://news.google.com
3	Tata stocks to buy, share price target 2025: Up to 41% upside! Tata Motors, Steel on li	https://news.google.com
4	Not Ratan Tata, but THIS man from Pakistan was brain behind Tata Group's Rs 12.92 l	https://news.google.com
5	Noel Tata—a new era begins - The Week	https://news.google.com
6	Meet woman, who rejected Rs 70000000000 offer by Ratan Tata, earned Rs 2300 crore	https://news.google.com
7	Tata stocks lose nearly Rs 3 lakh crore in FY25 as TCS, Titan play spoilsport. What's ne	https://news.google.com
8	BSE 500 Tata stock zooms 17% today; do you own? - ET Now	https://news.google.com
9	This man from Pakistan was brain behind Ratan Tata's Rs 1294000000000 company,	https://news.google.com

Sentiment Report

	Sentiment
0	Positive
1	Neutral
2	Positive
3	Positive
4	Neutral
5	Neutral
6	Negative
7	Negative
8	Neutral
9	Neutral

 Spaces  Mrud11 / news-sentiment-analysis-text-to-speech  like 0  Running 


App Files Community Settings 

Hugging Face is way more fun with friends and colleagues!  [Join an organization](#) [Dismiss this message](#)

News Sentiment Analysis

Select a company:

Reliance

 Currently no articles present for Reliance.

Comparative Analysis (Audio in Hindi)

▶ 0:13 / 0:13   

Output URL Link: <https://huggingface.co/spaces/Mrud11/news-sentiment-analysis-text-to-speech>

Additional Notes

- Ensure the Flask API runs **before** the Streamlit UI.
- If using Hugging Face, update app.py to point to the correct API URL.
- If **deployment fails**, check logs for missing dependencies.