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HACKATHON 2023

DeCODING Innovation

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Team Details

Team Name	Member Names	Education Institute Name
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Problem Statement

Sentiment Analysis is a well-known algorithm in Machine Learning (ML); however, its usages are mostly limited to the scientific community or the developer's community.

Can we leverage this technique for the general users?

Scenario:

Let's assume you are a YouTube viewer, and you come across a video on a burning topic which have diversified opinions among the viewers. And you would want to know the trending mood of the public on the topic.

You may look at the number of "Likes" on the video, or may go through the comments, but that may not provide the complete insightful picture.

Hence, this idea is about creating an easy tool for general users to get insights into public opinions.

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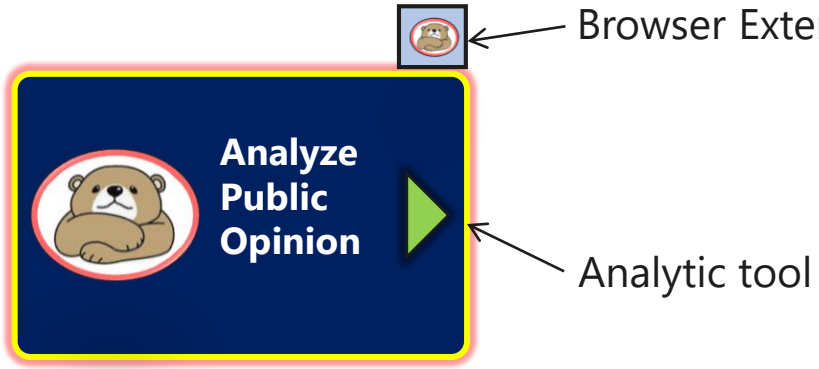
What is your idea for the solution?

- Introducing "**Public Opinion Analyser**", a Web browser extension tool to analyse public opinions from comments or posts or videos in the public domain.
- The proposed idea is intended to provide the ML model for sentiment and video analysis to the use of the common users, through the analytic tool, to get insights into the public opinions.
- We would initiate the development of the tool for the YouTube user's comments first, and then expecting to extend it to any other social media platform.
- The analytic tool, shown below, is intended to provide a user-friendly interface, thereby reducing the need for the coding part that is otherwise required in all ML procedures.



Public Opinion Analyser

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What domains does it address? What is the impact?

Domains:

Out of the various domains that Machine Learning is applied to, this idea belongs to the domains of:

1. **Natural Language Processing**: Also known as NLP, it will be used to interpret, manipulate, and comprehend the human language in the user's comments.
2. **Sentiment Analysis**: Once the system understands the comments based on the NLP output, the Sentiment Analysis model will work to analyse the texts for polarity.
3. **Cloud Video Intelligence API**: It's an GCP service for analysis of videos based on AI.
4. **Generative AI (Vertex AI API)**: Vertex API is used for implementing the capabilities of Generative AI, Here we are using text summarization.

Impact:

As mentioned in the previous slide, Machine Learning procedures require some amount of coding to achieve results from the existing ML models.
However, if we succeed in this idea, it would reduce the coding part and automate the procedures.

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What makes your solution/idea innovative?

As per our understanding, the following **five** thoughts could make this solution/idea innovative:

1. Do we have a quick tool for Sentiment Analysis in the public domain, that is readily available to the common users? The answer could be **No**.

2. Does the idea promotes any automation of custom ML procedures? The answer is **Yes**.

3. Does this idea has possibility to scale or extend the solution to any other social media content apart from the proposed YouTube solution? The answer is **Yes**.

4. Is this idea a repetition of any existing solution? The answer is **No**.

5. Will this solution provide any new experience to the user? The answer is **Yes**.

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Technologies Leveraged

The technology stack in this solution/idea involves the following :

1. Scrape comments & replies using:
    - YouTube Data API v3
    - Twitter API
    - LinkedIn API
    - Web scraping

2. AI and NLP models used:
    - Lexicon-based sentiment analysis
    - Tokenization
    - NLP based Fake review detection model
    - Vertex AI API
    - Video Intelligence API

3. Quick tool to handle the above functionalities using:
    - **Angular/React Js** for tool UI

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Technical Feasibility

As per our understanding, the solution/idea is **technically feasible** because:

- It uses commonly available tools and technologies
- Python ML packages are readily available
- Resources and domain knowledge experts are also available in-house
- The solution is practically reasonable to develop.

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Financial Feasibility

As per our understanding, the solution/idea is **financially feasible** because:

- Resources are available in-house
- Tools and technologies are available in-house
- Domain knowledge experts are available in-house

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Elevator Pitch (1-2 mins)

As a third-party user like marketing executive, researcher, etc., I want to get insight into users comments on a particular social media content, so that I get the gist of the public opinions and understand the mood of the public and trustworthiness of the content.

Hence, this idea/proposal is about creating a quick analytic tool using Machine Learning at the core, to get summarized details on public opinions from the user's comments or posts, with the intension to extend it to other social media platforms in future.

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Summary: Expected Product (MVP)

- A **quick analytic tool** that sits in the browser extension toolbar, that can read comments or posts from URL of social media content.
- The analytic tool can process all the comments in the URL and get insights into the **public opinion** on the content.
- The tool can show **descriptive** as well as **statistical details** to explain the public opinion on the selected content.
- The tool is powered by Machine Learning models – **NLP** and **Sentiment Analysis** algorithms and **AI models** in the backend and UI in the frontend.
- The tool is **intended to extend** it to other famous social media platforms like Twitter X, Instagram, or any other platform in future.

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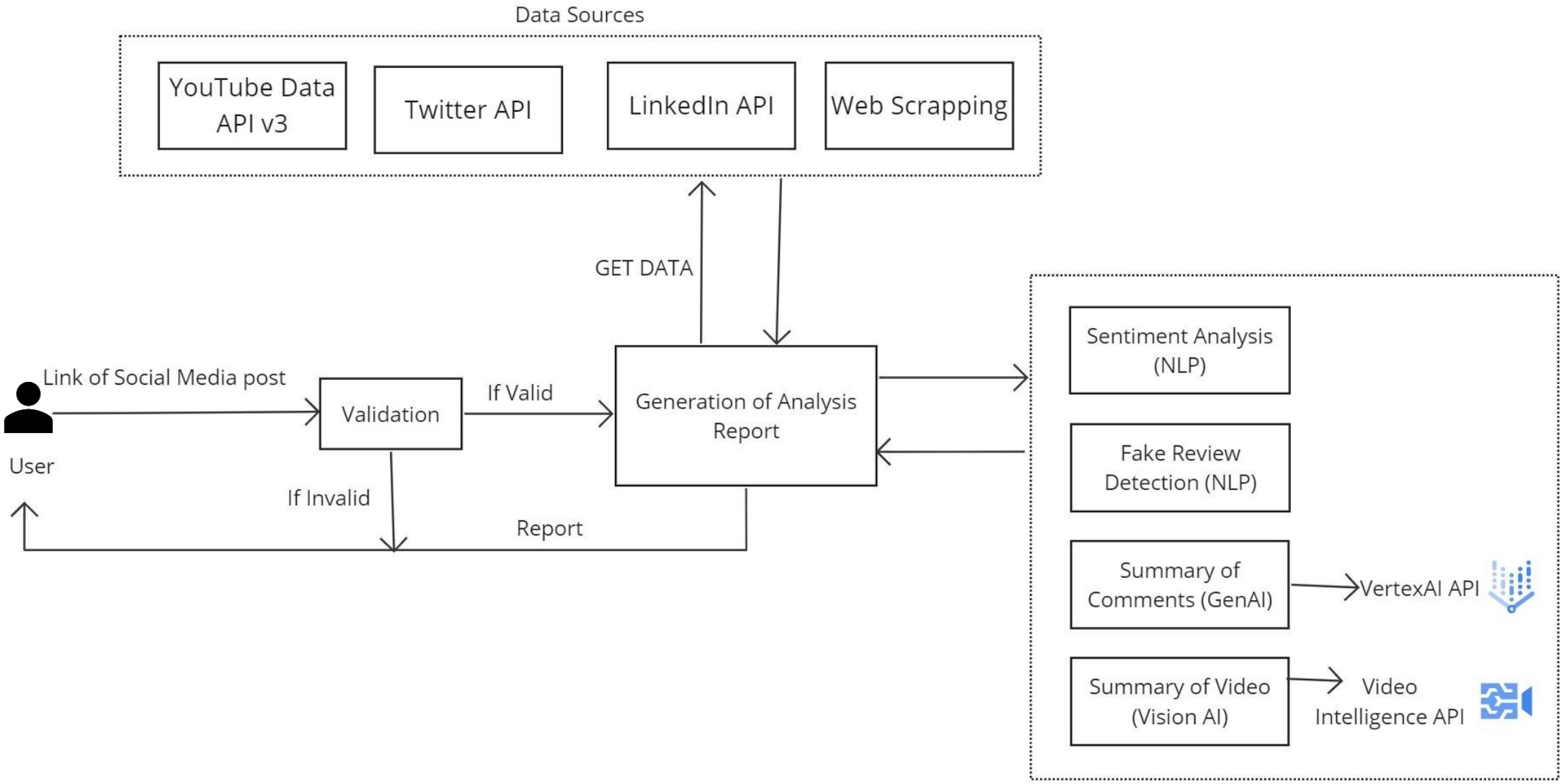
Architecture Diagram



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Demo

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POA Extension
Has access to this site

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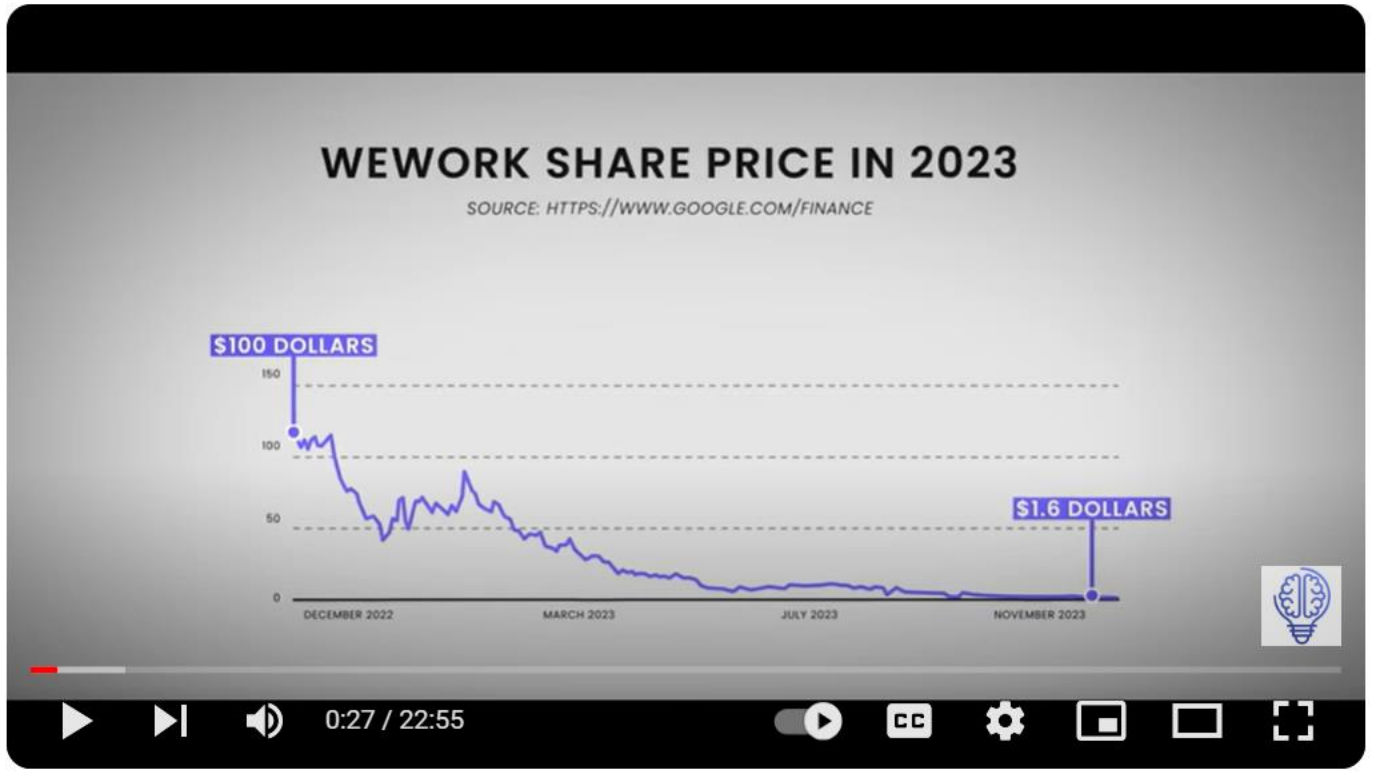

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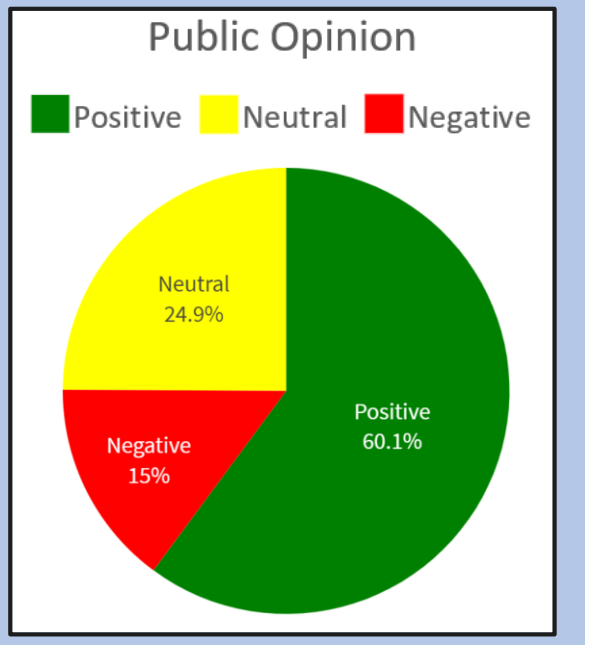
Public Opinion Analyser

Current tab / How WeWork's SHOCKING Mistake made it go BANKRUPT

Sentiment Analysis | Video Summary | Find topic | Go

Video Information			
Total Views	399401	Comment Count	407
Like Count	15710	Fake Comments	81

Comments	Count
Positive	198
Negative	48
Neutral	80
Total	326



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References

- Cloud Video Intelligence API
- Youtube API V3
- Vertex AI Text Summarization
- Twitter API Documentation

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“If we don't do it someone else will.”

- Anonymous

Thanks

End Slide

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