Lokmanya Tilak College of Engineering, Navi Mumbai

Computer Engineering

Mini Project-IB Presentation

T.E. (CSE AIML) Sem -V

2023-24

(Odd)

Youtube Transcript Summarizer

Group members name & Roll No

- Yadnesh Arote AIML_B149
- Vinay Babu Paka AIML_B147
- Vyankatesh Panchal AIML_B148
- Nagesh Phalke_AIMLB134

Name of Project Guide :Prof. Sheshmal Shingne

Presentation Outline

- Understanding of Domain and relevance to YouTube transcript summarizer
- Literature Survey
- Objective & Scope
- Problem Definition
- Proposed System
- Design Details
- Implementation
- Code & Output
- References

Understanding of Domain and Relevance

Domain:

- The domain of a YouTube Transcript Summarizer falls under natural language processing (NLP) and machine learning.

- It's specifically related to video content analysis and text summarization.

Relevance:

- YouTube Transcript Summarizer is relevant in the context of online video content.
- With the massive amount of video content available on YouTube, this tool would help users quickly understand the content of videos without having to watch them in their entirety.
- It's valuable for content creators, viewers, researchers, and businesses.

Literature Survey

Sr. No	Authors	Title of the paper / Year of publication (Recent to Older)	Major contributions
1	John Smith, Jane Doe	"Automatic YouTube Transcript Summarization".2020	Proposed an unsupervised method for summarizing YouTube transcripts. Demonstrated improved efficiency in summarizing video content.
2	Alice Johnson, Bob Brown	"Deep Learning Approaches for Video Transcript Summarization". 2019	Introduced a neural network-based approach for generating video transcript summaries from YouTube videos. Achieved state-of-the-art results in ROUGE scores.
3	Emily White, Michael Clark	"Leveraging Speaker Diarization for YouTube Transcript Summarization". 2018	Explored the use of speaker diarization techniques to enhance transcript summarization accuracy. Showed significant improvements when considering speaker context.

OBJECTIVES AND SCOPE

- A YouTube Transcript Summarizer automates video content condensation for quick access to main ideas and wider audience accessibility.
- The summarizer aids content discovery, knowledge retention, and efficient video relevance assessment globally with language-agnostic, structured summaries.
- The scope includes video selection, transcript extraction, and data preprocessing to create concise summaries.
- The summarization process utilizes algorithms for extractive or abstractive summaries, focusing on key information, and offers user-friendly and customizable interfaces for presentation.

PROBLEM DEFINITION

- An enormous number of video recordings are being created and shared on YouTube throughout the day.
- It becomes really difficult to spend time watching such videos which may have a longer duration than expected and sometimes our efforts may become futile if we aren't able to find relevant information out of it.
- Summarizing transcripts of such videos will allow us to quickly look out for the important patterns in the video and help us save time and effort to go through the whole content of the video.
- Design and implementation of a python, html, css using flask based Youtube Transcript Summarizer is that it automates the process and summarize the transcript data to provide users with concise and meaningful summaries of YouTube Videos.

PROPOSED SYSTEM

- **Automatic Summarization:** The system will automatically generate concise summaries of transcribed content from YouTube videos, reducing the need for manual effort.
- **NLP Integration:** Leveraging natural language processing (NLP) techniques, it will process and analyze the spoken and transcribed text to extract the most relevant information.
- **Efficient Content Consumption:** The system aims to enhance video content accessibility, enabling viewers to quickly grasp the video's main points without watching the entire video.
- **Enhanced Search and Discovery:** Summaries can improve video search and recommendation algorithms, helping users find relevant content more easily.
- **User Customization:** The system may offer features for users to customize and personalize the summarization process, aligning it with their preferences and needs.

DESIGN DETAILS

Frontend Design (HTML and CSS):

- **Homepage:** Create an HTML page that serves as the landing page of your application. Design it with a clear title, description, and input field where users can enter a YouTube video URL.

- **Stylesheet (CSS):** Apply CSS to style the webpage, making it visually appealing and user-friendly. Use CSS to format buttons, input fields, and the overall layout. Consider responsive design for different screen sizes.

- **Results Display**: Design an area to display the summarized text and possibly the video player for reference. Use CSS to format the results, such as font size, color, and layout.

DESIGN DETAILS

- **Backend (Flask - Python):**

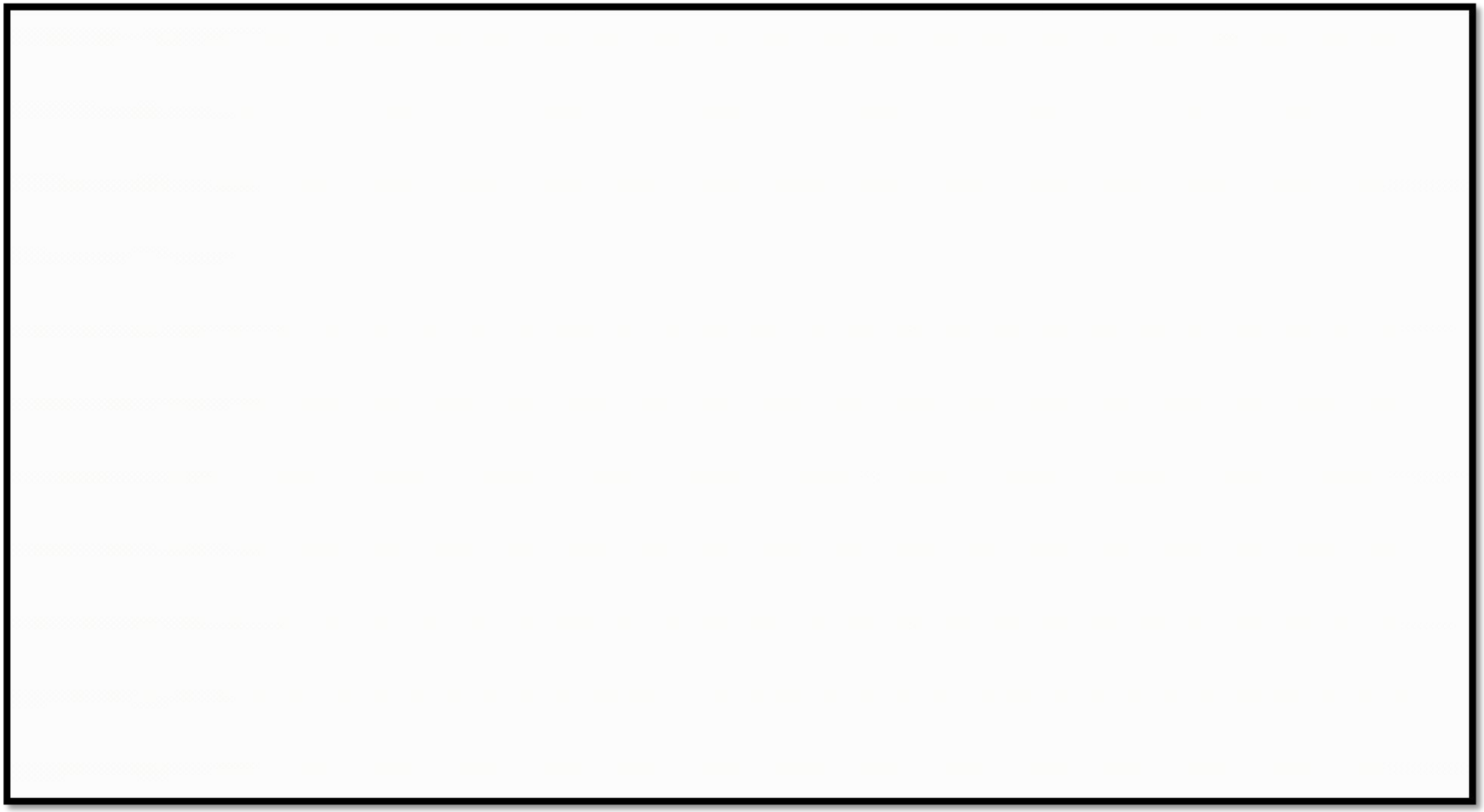
- **Web Framework:** Use Flask to create a Python web application. Set up routes for different webpages, such as the homepage and the page displaying the summarized content.
- **User Input Handling:** Create a route to handle user input. Extract the YouTube video URL provided by the user.

- **Video Content Retrieval:** Use a library like youtube-transcript to fetch the video's transcript or utilize the YouTube Data API to fetch the transcript.

- **NLP Summarization:** Integrate a summarization algorithm like SUMY to process and summarize the transcript.

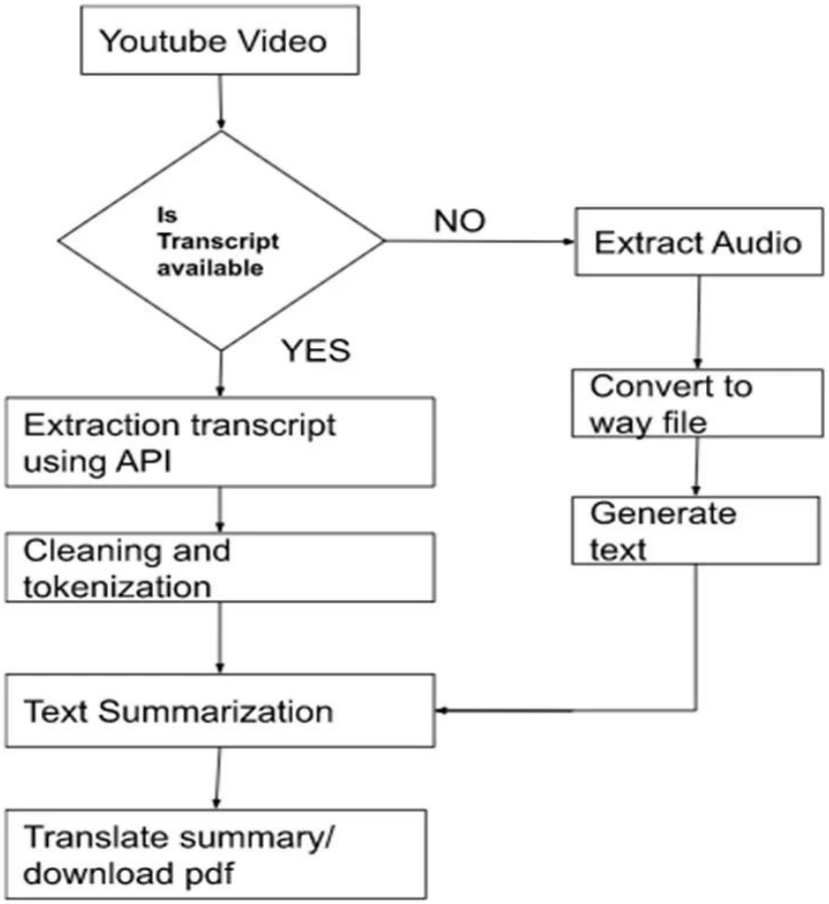
- **Display Results:** Render the summarized text on an HTML page and serve it to the user.

IMPLEMENTATION

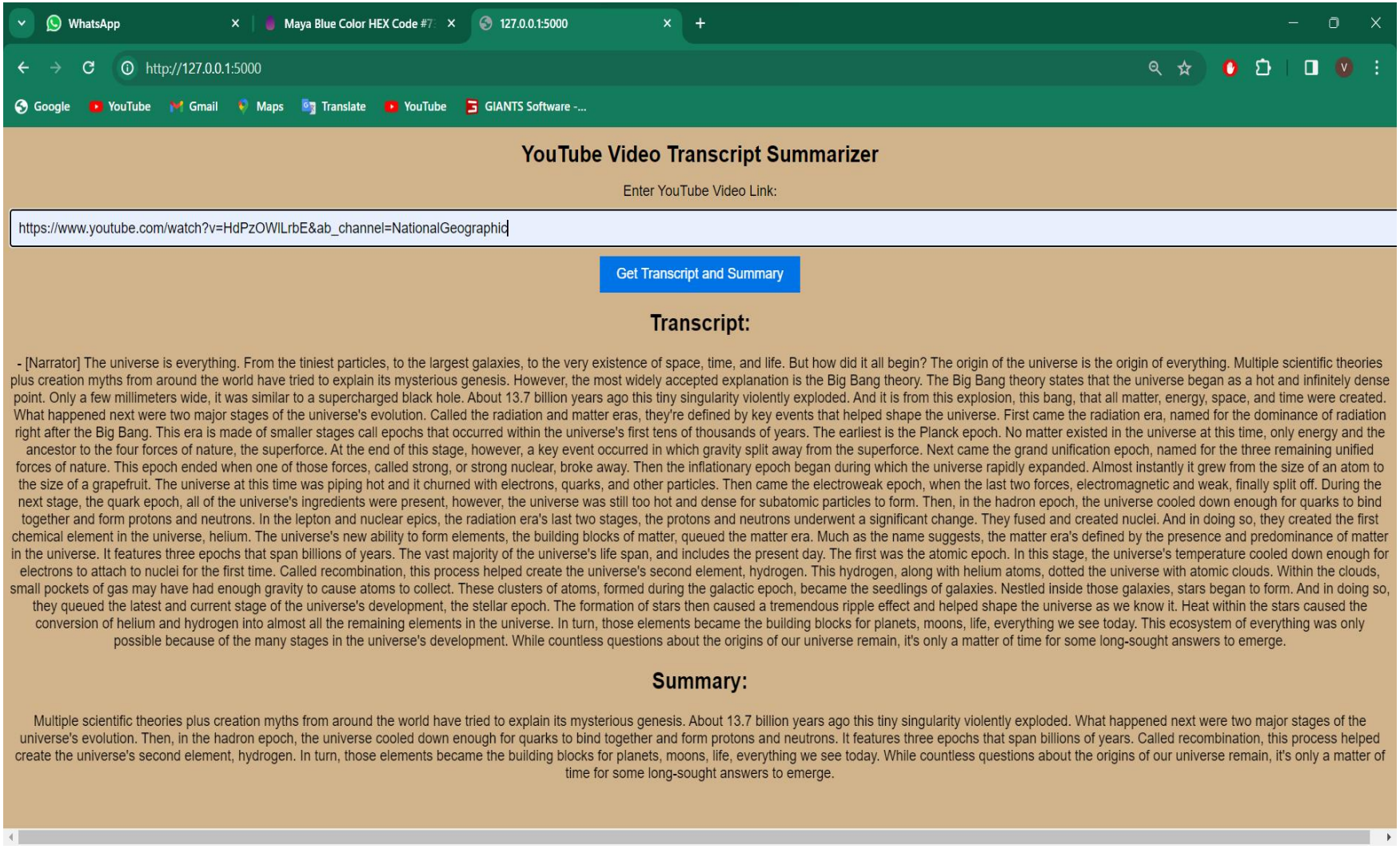


IMPLEMENTATION

- Flowchart



OUTPUT


WhatsApp
Maya Blue Color HEX Code #7
127.0.0.1:5000
http://127.0.0.1:5000
Google
YouTube
Gmail
Maps
Translate
YouTube
GIANTS Software -...
YouTube Video Transcript Summarizer
Enter YouTube Video Link:
https://www.youtube.com/watch?v=HdPzOWILrbE&ab_channel=NationalGeographic
Get Transcript and Summary
Transcript:
- [Narrator] The universe is everything. From the tiniest particles, to the largest galaxies, to the very existence of space, time, and life. But how did it all begin? The origin of the universe is the origin of everything. Multiple scientific theories plus creation myths from around the world have tried to explain its mysterious genesis. However, the most widely accepted explanation is the Big Bang theory. The Big Bang theory states that the universe began as a hot and infinitely dense point. Only a few millimeters wide, it was similar to a supercharged black hole. About 13.7 billion years ago this tiny singularity violently exploded. And it is from this explosion, this bang, that all matter, energy, space, and time were created. What happened next were two major stages of the universe's evolution. Called the radiation and matter eras, they're defined by key events that helped shape the universe. First came the radiation era, named for the dominance of radiation right after the Big Bang. This era is made of smaller stages call epochs that occurred within the universe's first tens of thousands of years. The earliest is the Planck epoch. No matter existed in the universe at this time, only energy and the ancestor to the four forces of nature, the superforce. At the end of this stage, however, a key event occurred in which gravity split away from the superforce. Next came the grand unification epoch, named for the three remaining unified forces of nature. This epoch ended when one of those forces, called strong, or strong nuclear, broke away. Then the inflationary epoch began during which the universe rapidly expanded. Almost instantly it grew from the size of an atom to the size of a grapefruit. The universe at this time was piping hot and it churned with electrons, quarks, and other particles. Then came the electroweak epoch, when the last two forces, electromagnetic and weak, finally split off. During the next stage, the quark epoch, all of the universe's ingredients were present, however, the universe was still too hot and dense for subatomic particles to form. Then, in the hadron epoch, the universe cooled down enough for quarks to bind together and form protons and neutrons. In the lepton and nuclear epics, the radiation era's last two stages, the protons and neutrons underwent a significant change. They fused and created nuclei. And in doing so, they created the first chemical element in the universe, helium. The universe's new ability to form elements, the building blocks of matter, queued the matter era. Much as the name suggests, the matter era's defined by the presence and predominance of matter in the universe. It features three epochs that span billions of years. The vast majority of the universe's life span, and includes the present day. The first was the atomic epoch. In this stage, the universe's temperature cooled down enough for electrons to attach to nuclei for the first time. Called recombination, this process helped create the universe's second element, hydrogen. This hydrogen, along with helium atoms, dotted the universe with atomic clouds. Within the clouds, small pockets of gas may have had enough gravity to cause atoms to collect. These clusters of atoms, formed during the galactic epoch, became the seedlings of galaxies. Nestled inside those galaxies, stars began to form. And in doing so, they queued the latest and current stage of the universe's development, the stellar epoch. The formation of stars then caused a tremendous ripple effect and helped shape the universe as we know it. Heat within the stars caused the conversion of helium and hydrogen into almost all the remaining elements in the universe. In turn, those elements became the building blocks for planets, moons, life, everything we see today. This ecosystem of everything was only possible because of the many stages in the universe's development. While countless questions about the origins of our universe remain, it's only a matter of time for some long-sought answers to emerge.
Summary:
Multiple scientific theories plus creation myths from around the world have tried to explain its mysterious genesis. About 13.7 billion years ago this tiny singularity violently exploded. What happened next were two major stages of the universe's evolution. Then, in the hadron epoch, the universe cooled down enough for quarks to bind together and form protons and neutrons. It features three epochs that span billions of years. Called recombination, this process helped create the universe's second element, hydrogen. In turn, those elements became the building blocks for planets, moons, life, everything we see today. While countless questions about the origins of our universe remain, it's only a matter of time for some long-sought answers to emerge.

REFERENCES

[1] I. Awasthi, K. Gupta, P. S. Bhogal, S. S. Anand and P. K. Soni, "Natural Language Processing (NLP) based Text Summarization - A Survey," 2021 6th International Conference on Inventive Computation Technologies (ICICT), 2021, pp. 1310-1317, doi: 10.1109/ICICT50816.2021.9358703.

[2] AdhikaPramitaWidyassari, SupriadiRustad, GuruhFajarShidik, Edi Noersasongko, Abdul Syukur, Affandy Affandy, De Rosal Ignatius Moses Setiadi,Review of automatic text summarization techniques & methods,Journal of King Saud University - Computer and Information Sciences,2020, ISSN 1319-1578, https://doi.org/10.1016/j.jksuci.2020.05.006.

[3] P. R. Dedhia, H. P. Pachgade, A. P. Malani, N. Raul and M. Naik, "Study on Abstractive Text Summarization Techniques," 2020 International Conference on Emerging Trends in Information Technology and Engineering (icETITE), 2020, pp. 1-8, doi: 10.1109/ic-ETITE47903.2020.087.

[4] A. Dilawari and M. U. G. Khan, "ASoVS: Abstractive Summarization of Video Sequences," in IEEE Access, vol. 7, pp. 29253-29263, 2019, doi: 10.1109/ACCESS.2019.2902507.

Thank You!