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AN ENHANCED MODEL OF TEXT SUMMARIZATION OF YOUTUBE TRANSCRIPT

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ABSTRACT

Our project is Youtube Transcript Summarizer using Machine Learning. In this project you will be creating a user interface, where the user can enter the youtube video link and click on the generate button, which will make a request to a backend REST API where it will perform NLP and respond with a summarized version of a youtube transcript.

Enormous numbers of video recordings are being created and shared on the Internet throughout the day. It has become really difficult to spend time in watching such videos which may have a longer duration than expected and sometimes our efforts may become futile if we couldn't find relevant information out of it. Summarizing transcripts of such videos automatically allows us to quickly look out for the important patterns in the video and helps us to save time and efforts to go through the whole content of the video.

INTRODUCTION

Our project is a summary of YouTube transcripts used in machine learning. In this project, we will create a Chrome extension that will make a request to the back-end REST API, which will perform NLP and respond with a short YouTube transcript. 1.1 Rationality creates and shares a large number of video records throughout the day on the Internet. It has become very difficult to spend time watching videos that are longer than expected, and sometimes, if we can't find relevant information in them, our work may be useless. Automatically aggregate the transcripts of these videos, so that we can quickly find important patterns in the video, and help us save time and energy to view all the contents of the video.

Natural language processing

Natural language processing is a technology that is used to help on the computer, and it is a technology to understand the Human natural language.

"The processing of natural language shortened as NLP is the field of artificial intelligence that handles the interaction between the computer and the human being using natural language. The final purpose of the NLP is to read, decipher, understand and sensitize human languages. In a valuable method of the NLP technique, trust the learning of the machine to derive the meaning of human language".

LITERATURE SURVEY

| S.No. | Title | Year | Author | Description |
|-------|--|------|--|--|
| 1. | Extractive Text Summarization Using Sentence Ranking | 2019 | J.N. Madhuri R. Ganesh Kumar | The method extraction of sentences, which gives the idea of the input text in a short form, is presented. |
| 2. | Text Summarization Using NLP | 2021 | M.Monika Rani A.Harika Sweta K Jaswani | Selects the highest frequency words in the paragraph and selects the sentence score and highest sentence score will be selected and generates required summary. |
| 3. | Usage of Text-To-Text Transfer Transformer | 2021 | Antonio Mastropaolo Simone Scalabrino | Natural Language Processing (NLP) field have shown that the Text-To-Text Transfer Transformer (T5) architecture can achieve state-of-the-art performance for a variety of NLP tasks. |

SYSTEM DESIGN

A "System Architecture is a conceptual overview of a project", It clearly defines all the modules that are required for the successful building and development of the project.

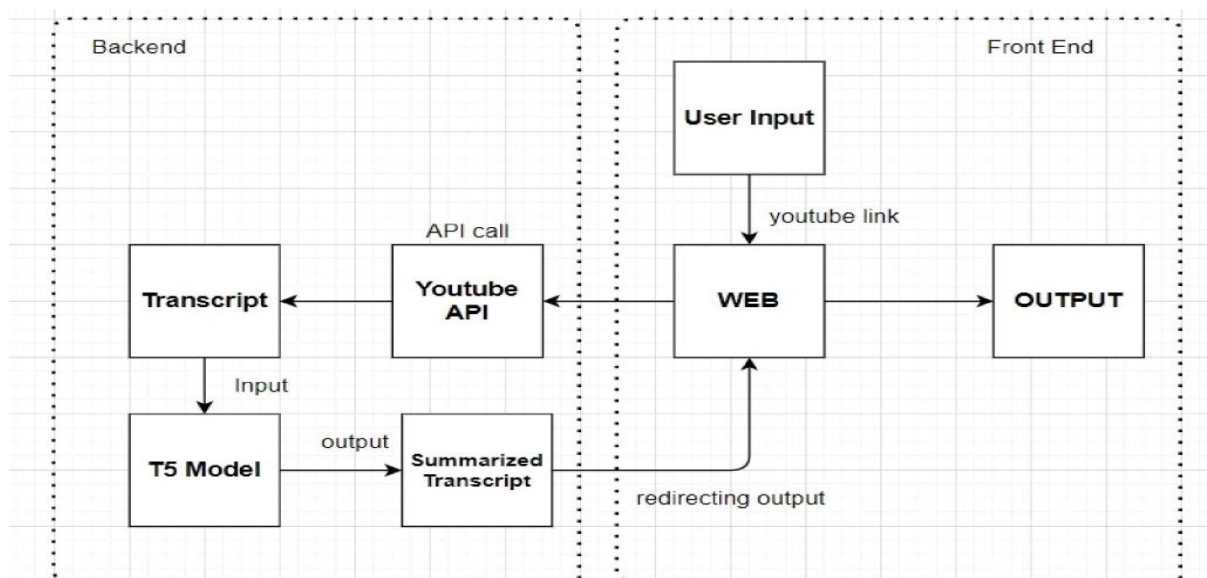


fig.1 Architecture of the system

As shown above our System Architecture is divided into 2 parts:

-> Front-End

-> Back-End

Front-End

It consists of the user interface through which the user can interact with our application. The UI is very user friendly and easy to understand and convenient to the user.

Back-End

Backend contains all the main logic and functionality of the application. First it makes an api call to get the transcript of the video, then we initialise the model and pass the transcript as input to the model to generate the summary, once the summary is generated we pass it to the front end to make it available to the user.

The implementation of the project mainly consists of 5 steps, they are:

1. get the youtube link and extract the video id.
2. make an api call to get the transcript of the video.
3. Initiate the model for text summarization
4. generate the summary of transcript using the model
5. display it to the user.

The idea behind this project is that videos can be just completed within a small amount of time; it just requires being able to get transcript and find patterns to summarize the useful content of the video. This kind of data analysis is impossible few decades ago, but the heat in recent developments in machine learning and natural language processing are up to the task. The utilization of ML and NLP to summarize the video by means of transcript right now exists, is demonstrated to work, and expected to keep on growing. The outcome of this project is a generated summary of the given video link in the webpage. If the video doesn't exist then it displays video doesn't exist, otherwise if the input is not given then it shows enter valid input. If the given youtube video url is correct and has subtitles then the summarized text will be displayed.

RESULTS

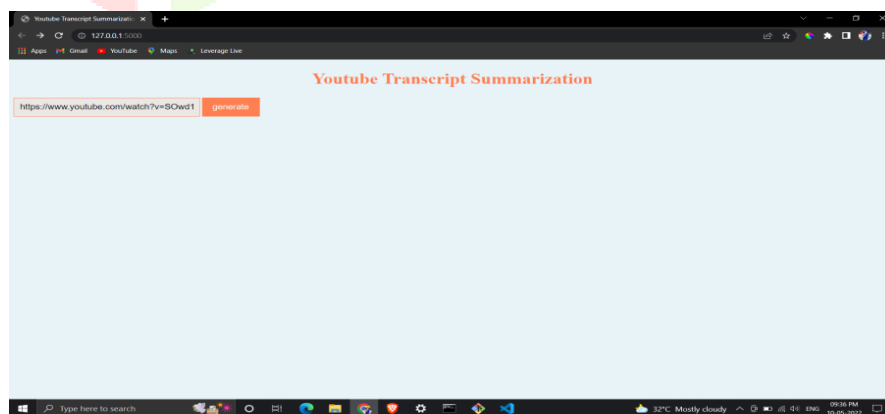


fig 2 :User interface to enter Youtube link

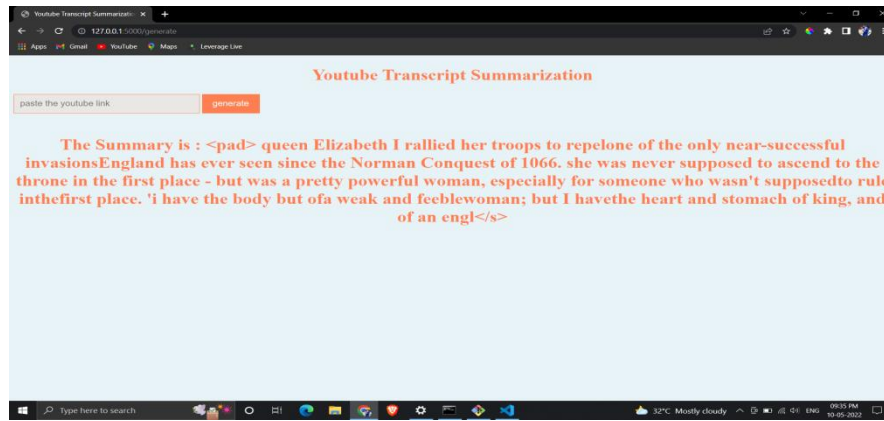


fig 3 : Summarized Text generated

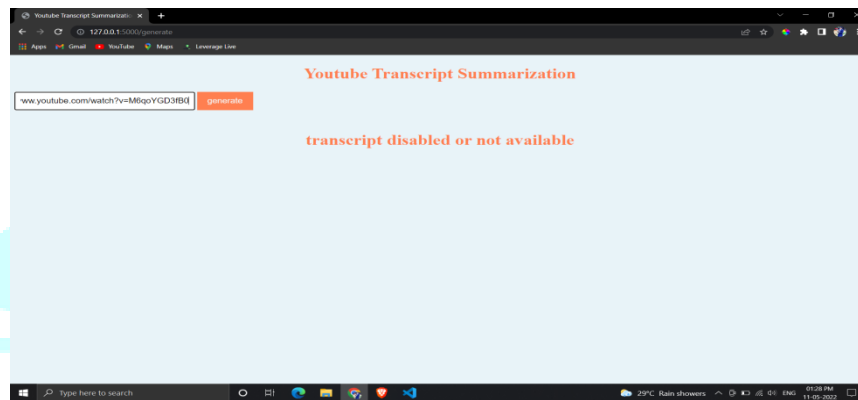


fig 4 : When youtube video does not have Transcripts

CONCLUSION AND FUTURE ENHANCEMENTS

By getting the summary of a YouTube video one can easily understand the important facts or concepts that are present in the video and decide whether to watch it or not, this can save a lot of time for the user. We can add a functionality to summarize very long transcripts using extractive summarization technique (For e.g. using LSA technique). We can add a functionality to summarize transcripts from a non-English video and display it in English language. We can add a functionality to adjust the maximum length of the summarized text.

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