

# Title: YouTube Video Summarizer

## Overview

The exponential growth of online video content has amplified the need for effective tools that can distill important information quickly. This project addresses this pressing issue by developing a Python application designed to summarise the content of YouTube videos efficiently. Leveraging the power of OpenAI's GPT-3.5 language model alongside Langchain, this summariser extracts transcriptions provided by YouTube, chunking them for optimal processing and generating coherent summaries. The result is an application that not only saves time for users but also enhances their understanding of video content by presenting key points in a digestible format.

## Aim

The primary aim of this project is to offer a reliable solution for summarising YouTube video content. By automating the extraction and summarisation process, the application seeks to provide users with comprehensive insights without the need to view entire videos. This innovation is particularly beneficial for researchers, students, and professionals who often rely on video content for information but are constrained by time.



## Features

The YouTube Video Summarizer boasts a range of features that collectively enhance its usability and effectiveness:

**Getting Transcriptions from YouTube:** The application seamlessly retrieves transcriptions directly from YouTube, ensuring that users have access to accurate and reliable text versions of the video content.

**Chunking the Transcriptions with Langchain:** Utilizing Langchain's capabilities, the application splits the transcriptions into manageable chunks. This not only facilitates easier processing but also improves the quality of the summary generated, as it allows for a more nuanced understanding of the content.

**Summarising Transcribed Text using OpenAI's GPT-3.5 Model:** The core content is summarised leveraging the state-of-the-art GPT-3.5 model from OpenAI. This model excels in understanding context, thereby generating summaries that are both coherent and reflective of the original content's essence.

**User-friendly Interface Built with Streamlit:** Designed with the end-user in mind, the application features an intuitive web interface via Streamlit. This allows users of varying technical proficiency to easily navigate the summarisation process without facing unnecessary hurdles.

## Purpose

The overarching purpose of the YouTube Video Summarizer is to provide a solution for information overload in the digital age. As video content becomes an increasingly dominant form of communication, the ability to synthesise key information efficiently is of paramount importance. This tool empowers users to rapidly gather insights from video materials, leading to enhanced learning and productivity. By effectively condensing lengthy videos into succinct summaries, the application fosters a more informed and efficient consumption of digital content.

## Procedure

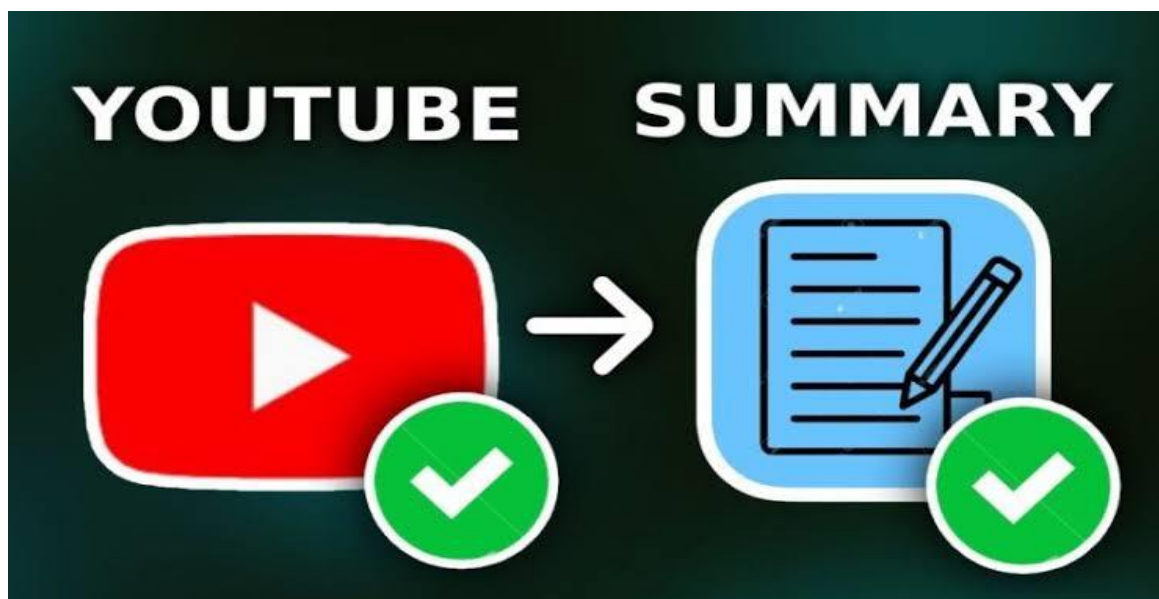
The operation of the YouTube Video Summarizer can be delineated into several key steps:

- 1. Retrieving Video Transcripts:** The user inputs the URL of a YouTube video into the application, which then uses YouTube's API to extract the video's transcription.
- 2. Chunking the Transcriptions:** The transcribed text is divided into smaller, logical chunks using Langchain. This step is crucial as it prepares the data for summarisation and helps maintain the context within smaller segments.

**3. Generating Summaries:** The application then employs the GPT-3.5 model to summarise the chunked transcripts. The advanced language processing capabilities of GPT3.5 ensure that the summary captures the key themes and ideas of the original content effectively.

**4. Displaying Output:** Finally, the concise summary is presented to the user through the user-friendly Streamlit interface, allowing for easy reading and understanding.

This streamlined procedure assures a seamless user experience, transforming complex video content into clear and understandable summaries.



## Code

The implementation of the YouTube Video Summarizer is accomplished using Python alongside relevant libraries such as OpenAI's and Streamlit. A simplified version of the code structure can be illustrated as follows:

## Python

```
import streamlit as st from youtube_transcript_api import
YouTubeTranscriptApi from langchain.text_splitter import
Chunker from openai import OpenAI

def fetch_transcript(video_url): # Extract video ID
    from URL video_id = extract_video_id(video_url)
    return YouTubeTranscriptApi.get_transcript(video_id)

def chunk_transcript(transcript):
    chunker = Chunker() return
    chunker.chunk(transcript)

def generate_summary(chunks):
    summaries = []
    for chunk in chunks:
        summary = OpenAI.Completion.create(engine="gpt-3.5-turbo",
prompt=chunk) summaries.append(summary) return " ".join(summaries)

def main():
    st.title('YouTube Video Summarizer') video_url =
    st.text_input("Enter YouTube video URL:")

    if st.button("Summarize"):
        transcript = fetch_transcript(video_url)
        chunks = chunk_transcript(transcript)
```

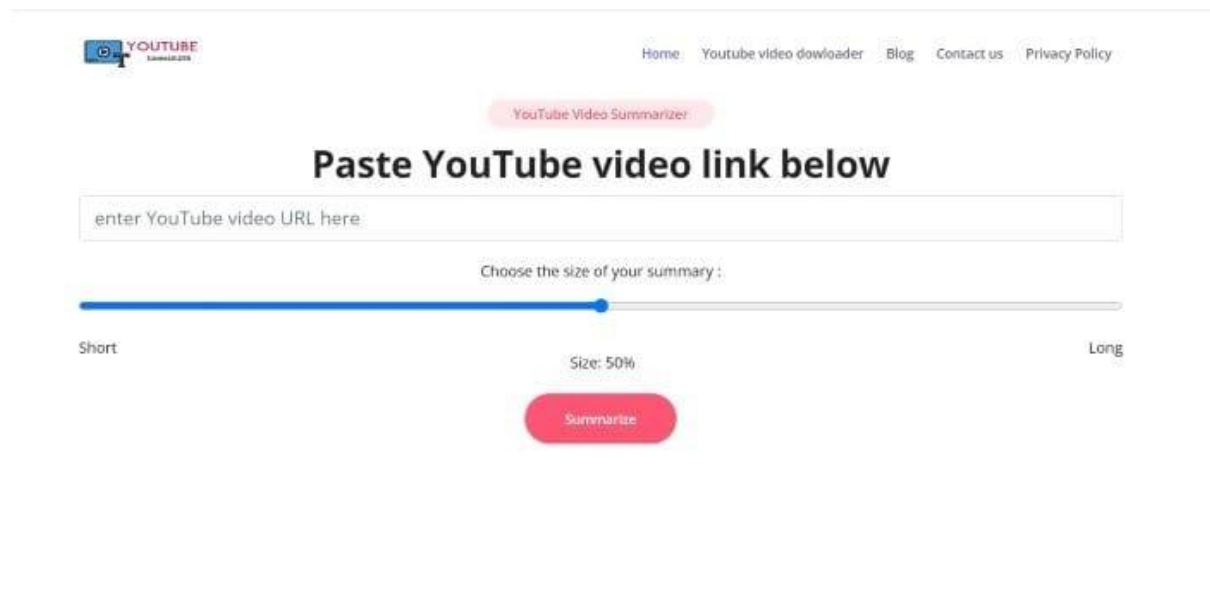
```
summary = generate_summary(chunks)
```

```
st.write(summary)
```

```
if __name__ == '__main__':
```

```
    main()
```

This code snippet showcases the fundamental functionalities of the application. It includes fetching transcriptions, chunking text, and generating summaries, all orchestrated through a simple Streamlit interface.



The screenshot displays the user interface of the 'YouTube Video Summarizer' application. At the top, there is a navigation bar with links for 'Home', 'Youtube video downloader', 'Blog', 'Contact us', and 'Privacy Policy'. The main heading is 'Paste YouTube video link below'. Below this is a text input field with the placeholder 'enter YouTube video URL here'. A slider control allows users to 'Choose the size of your summary', with a range from 'Short' to 'Long' and a current setting of 'Size: 50%'. A red 'Summarize' button is positioned below the slider. The application is branded with a 'YOUTUBE' logo and the text 'Streamlit App' in the top left corner.

## Conclusion

The YouTube Video Summarizer project epitomises an effective approach to tackling the challenges presented by information overload in the digital landscape. By utilising cuttingedge technologies such as OpenAI's GPT-3.5 and Langchain, this application offers users an invaluable tool for condensing video content into essential summaries. The user-friendly interface further enhances its accessibility, making it an ideal solution for a diverse audience seeking to optimise their learning and information consumption processes. As video content continues to proliferate, the need for such summarization tools is set to grow, positioning the YouTube Video Summarizer as an essential resource for the future of digital education and information retrieval.

