**Title: Analysis of YouTube Video Frames and Comments Extraction**

**Introduction**

In this report, I have documented the process of extracting frames from YouTube videos and comments from video comments using various tools and automation techniques. The goal is to uniformly distribute the frames and comments from multiple videos for further analysis. The process involves the use of Google API, PyTube, and automation scripts.

**Method Used**

**1. Extracting Comments using Google API**

I initiated the data extraction process by reading YouTube videos and extracting comments using the Google API Python client. This step allowed me to gather comment data for analysis.

**2. Downloading Videos using PyTube**

Next, I utilized the PyTube library to download the YouTube videos for further processing. PyTube provided a convenient way to access and download videos from YouTube.

**3. Extracting Video Frames**

To extract frames from the downloaded videos, I employed the use of ipywidgets to automate the process. I chose a uniform interval of 2 seconds to capture frames. This automation ensured that frames were extracted consistently from the videos.

**4. Automation of Data Extraction**

To scale the data extraction process, I developed scripts to automate the extraction of frames and comments from multiple videos. These scripts read URLs from individual Excel sheets and applied the same automation process for each video in the Excel files.

**5. Handling Errors**

During the extraction process, I encountered issues with some URLs, such as age restrictions, which prevented from extracting frames. In such cases, we documented the errors and attached screenshots for reference(in appendix).

**Conclusion/Results**

I have successfully completed the data extraction process for seven Excel files, extracting frames and comments from YouTube videos. The use of automation and uniform interval selection ensured that the data was collected efficiently and uniformly.

**Appendix**

In the coming weeks I plan to continue this data extraction process incrementally, working on the remaining Excel files and further refining methods for more comprehensive analysis.

Fig: Error while download of few url

