**GoPro Social Media Analytics System**

**Implementation Guide**

1. **Introduction**

This guide provides a comprehensive walkthrough for implementing the GoPro Social Media Analytics System and Dashboard, detailing data extraction and visualization steps. The system analyzes data from GoPro's YouTube, TikTok, and Instagram accounts, employing various tools and libraries for data extraction, storage, and analysis. The system is developed using Python3 and uses various open-source libraries, such as Pandas, Matplotlib, Networkx, Text Blob, python-Louvain, dash, etc.

1. **System Architecture Overview**

Components and Modules

* Data Extraction
* Data Storage (MySQL Database)
* Data Retrieval
* Analytics and Prediction
* HTML Dashboard Creation

Integration Points

* Integration of YouTube Data API
* Integration of SmartProxy Social Media API
* Integration of Requests Python Module for Instagram
* Integration of a Dashboard to visualize the outcomes

System Requirements

* Python 3.6 or higher
* MySQL database
* MySQL connector
* Google API Client
* Requests Library
* NetworkX library
* Matplotlib library
* Pandas library
* TextBlob library
* Python-louvain library
* Seaborn Library
* Dash library
* Plotly library

1. **Implementation Steps**

**Data Extraction**

The first step is to extract data from GoPro's YouTube, TikTok, and Instagram accounts. The following steps describe how to extract data from each platform:

YouTube

* Create a Google Developers account and enable the YouTube Data API.
* Generate an API key.
* Use the YouTube Data API to extract the desired data.

TikTok

* Create a SmartProxy account and obtain a social media username and password.
* Use the SmartProxy social media API to extract the desired data.

Instagram

* Install the Requests Python module.
* Use the Requests module to extract the desired data.

**Data Storage**

Once the data is extracted, it is saved in the MySQL database. The following steps describe how to save the data in the database:

* Setting up the MySQL database named 'gopro\_data' to store the extracted social media data.
* Create tables in the database to store the extracted data.
* Use a Python script to insert the data into the database.

**Data Retrieval**

* Install the MySQL connector for Python.
* Creating scripts to retrieve data from the MySQL database for further analysis.

**Social Media Analyses and Predictions**

The system performs various social media analyses on the extracted data, such as:

* User engagement analysis
* Diffusion of information
* Hashtag keyword analysis
* GoPro comments - natural language processing
* Social network analysis
* Content publishing calendar
* Analysis of users who are currently involved with social media content

The following steps describe how to perform each analysis:

### **User Engagement Analysis**

* Analyzing Likes vs. Comments for each GoPro social media post.
* Conducting time series analysis for GoPro posts.

**Diffusion of information**

* Create a graph of the information flow using the NetworkX library.
* Identify the top influential users using the degree centrality values of the nodes.

**Hashtag Keyword Analysis**

* Clean the hashtags and extract the tokens.
* Create a word cloud using the tokens.
* Identify the most popular hashtags using the extracted hashtags.

### **GoPro Comments - Natural Language Processing**

* Employing the TextBlob Library for sentiment analysis of GoPro comments.
* Calculating polarity values and categorizing comments as neutral, positive, or negative.

**Social network analysis**

* Use the python-louvain library to detect social network communities.
* Calculate the degree and closeness centrality for the commented users.

**Content publishing calendars**

* Identify the day of the week and the time of day of the past posts.
* Create content publishing calendars based on the identified days and times.
* Predictive analysis
  + Use the Seaborn library to predict and recommend the best posting days and times from the perspective of views, likes, and comments.

### **Analysis of Currently Involved Users**

* Developing a user engagement hashmap based on views, likes, and comments.
* Analyzing user engagement over time

**HTML Dashboard Creation**

The system uses the Dash and Plotly libraries to create an HTML dashboard to visualize the results. The dashboard can track GoPro's social media performance over time, identify trends, and make informed decisions about their social media strategy.

* **Conclusion**

This guide has instructions on implementing the social media analytics system and dashboard developed for GoPro's social media platforms. By following these instructions, developers can create a powerful tool that GoPro can use to improve its social media presence and reach its target audience more effectively.