



Parshvanath Charitable Trust's  
**A. P. SHAH INSTITUTE OF TECHNOLOGY**  
(Approved by AICTE New Delhi & Govt. of Maharashtra, Affiliated to University of Mumbai)  
(Religious Jain Minority)



**Department of Computer Science & Engineering (AI & ML)**

# **Social Media Trend Analysis**

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**Project Guide**  
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# Outline

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# Introduction

- The exponential growth of social media platforms like Facebook, Instagram, YouTube and LinkedIn has generated vast user data, offering valuable insights into consumer behavior and preferences.
- Real-time trend analysis is crucial for businesses to adapt strategies, optimize marketing initiatives, and gain a competitive edge by identifying emerging patterns. However, challenges such as distinguishing meaningful trends from noise and addressing data bias complicate the process.
- Effective data visualization is key to making insights actionable. As social media evolves with trends like video content, ephemeral stories, and influencer marketing, leveraging trend analysis becomes vital for enhancing engagement and strategy development.

# Literature survey of Social media trend Analysis

Published by	Publication History/Date	Authors	Summary
YouTube Trend analysis .	December 2022	Arushi Pathik, Saumya Patni, Vaibhav Patel, Jash Patel	This study analyzes factors influencing the popularity of YouTube videos, including the relationship between likes and views, average time for different categories to trend, popular tags, ideal title length, and optimal days for videos to become popular.
Trending YouTube Video Analysis	February 2023	Md Sakibur Hasan, Bishal Sarker, Diksha Shrestha, Roshan Shrestha, Sajal N. Shrestha	The research aims to analyze factors that influence the popularity of YouTube videos by examining the correlation between likes and views, time taken for different categories to trend, popular tags, ideal title length, and the best day for a video to become popular.

Published by	Publication History /Date	Authors	Summary
The Research of the Factors That Influence the Popularity of YouTube Videos	November 2024	Arushi Pathik, Saumya Patni, Vaibhav Patel, Jash Patel.	This study examines critical factors influencing the popularity of YouTube videos, including thumbnail design, video content, title and description optimization, audience participation, and social media marketing, offering practical recommendations for enhancing video performance.
YouTube Trending Videos' Prediction & Analysis	May 2023	Md Sakibur Hasan, Bishal Sarker, Diksha Shrestha, Roshan Shrestha	This study evaluates user comments to identify requirements and provides recommendations to YouTubers on increasing video popularity. It employs sentiment analysis and feature extraction methods to determine features necessary for developing popular YouTube videos.
Shorts vs. Regular Videos on YouTube: A Comparative Analysis of User Engagement and Content Creation Trends	May 2024	Caroline Violot, Tuğrulcan Elmas, Igor Bilogrevic, Mathias Humbert	This paper presents a comparative analysis of YouTube Shorts versus regular videos concerning user engagement (views, likes, comments), content creation frequency, and video categories, providing insights into the evolving YouTube ecosystem.

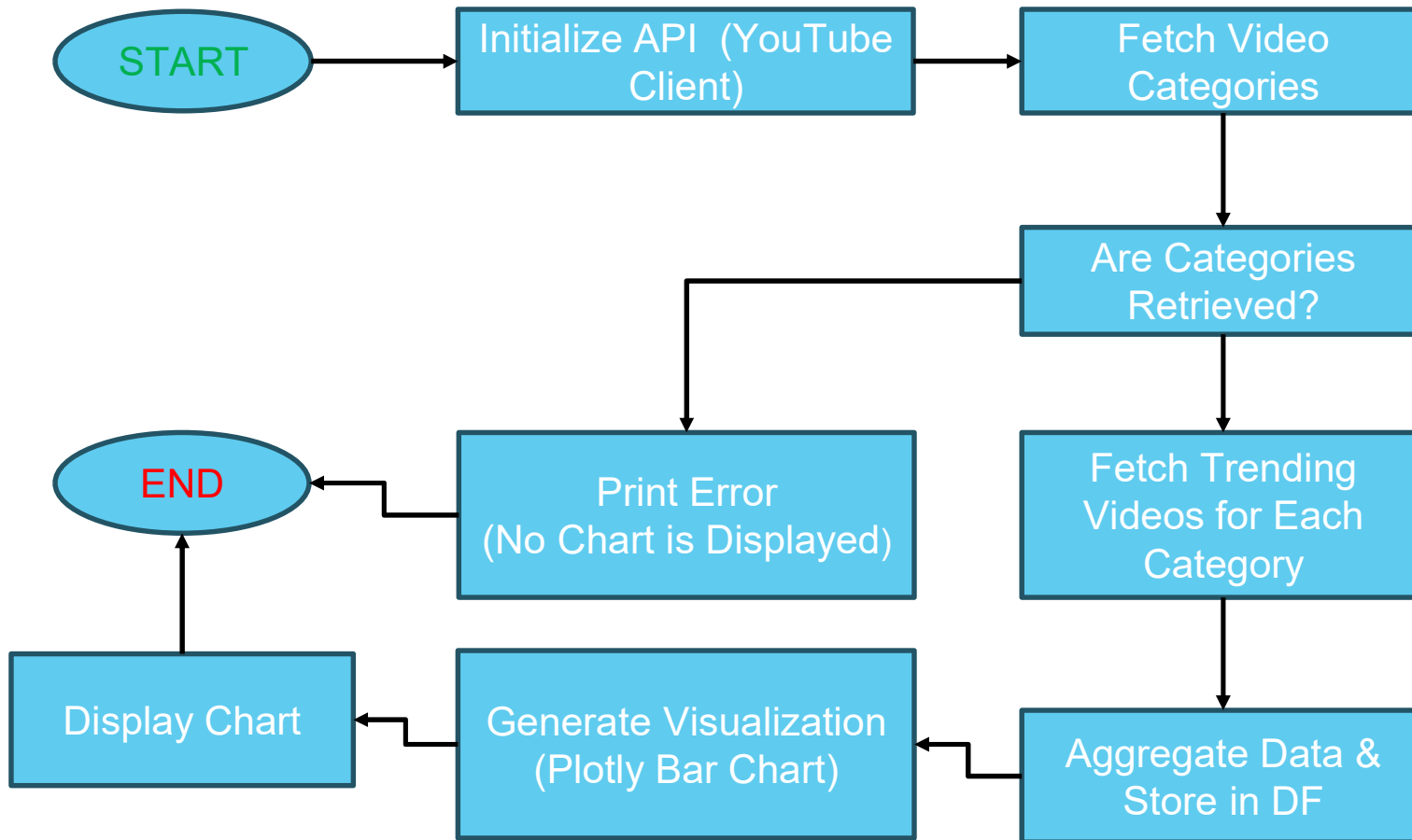
# Problem statement

Marketers and content creators face challenges in effectively identifying and responding to rapidly evolving trends on YouTube due to the vast volume of video data and the lack of an automated analysis platform. This results in time-consuming manual analysis, missed opportunities to capitalize on trending topics, and a limited understanding of audience sentiment and engagement.

# Overview of System Design

- The system design for the Social Media Trend Analysis Website is structured to efficiently collect, process, analyze, and visualize social media data.
- The architecture is divided into three main components: the frontend, backend, and database.
- Website Purpose: To provide comprehensive analysis and visualization of social media trends.
- Target Users: Marketers, researchers, social media managers, Influencers, Advertisers and businesses looking for data-driven insights.
- Key Outcomes: Enhanced understanding of user sentiment, content performance, and engagement rate.

# Flowchart of Trend Analysis:





# Technologies and Methodologies

- **Python Libraries (Backend):**

- Flask: For building the web API.
- Google API Client Library for Python (google-api-python-client): For interacting with the YouTube Data API v3.
- Pandas: For data manipulation and analysis.
- VADER Sentiment Analysis (vaderSentiment): For sentiment analysis of video titles.
- datetime: for date and time manipulation.
- Any other required python library.

- **Database :**

- MySQL: For storing user data, cached results, or historical data if needed.

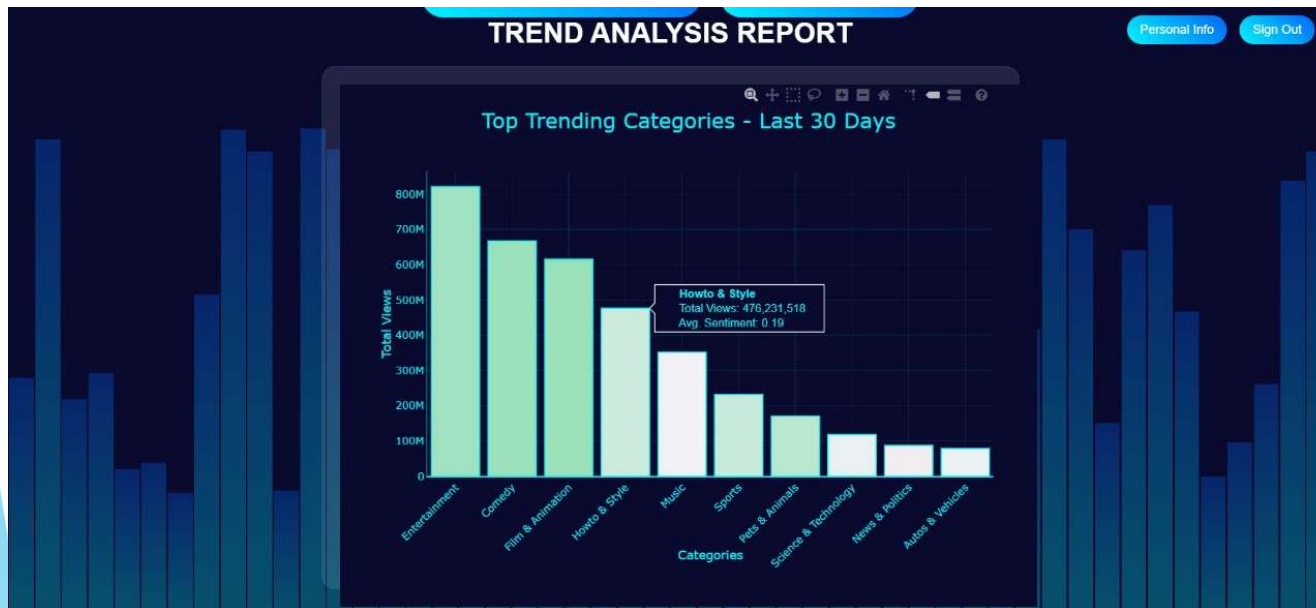
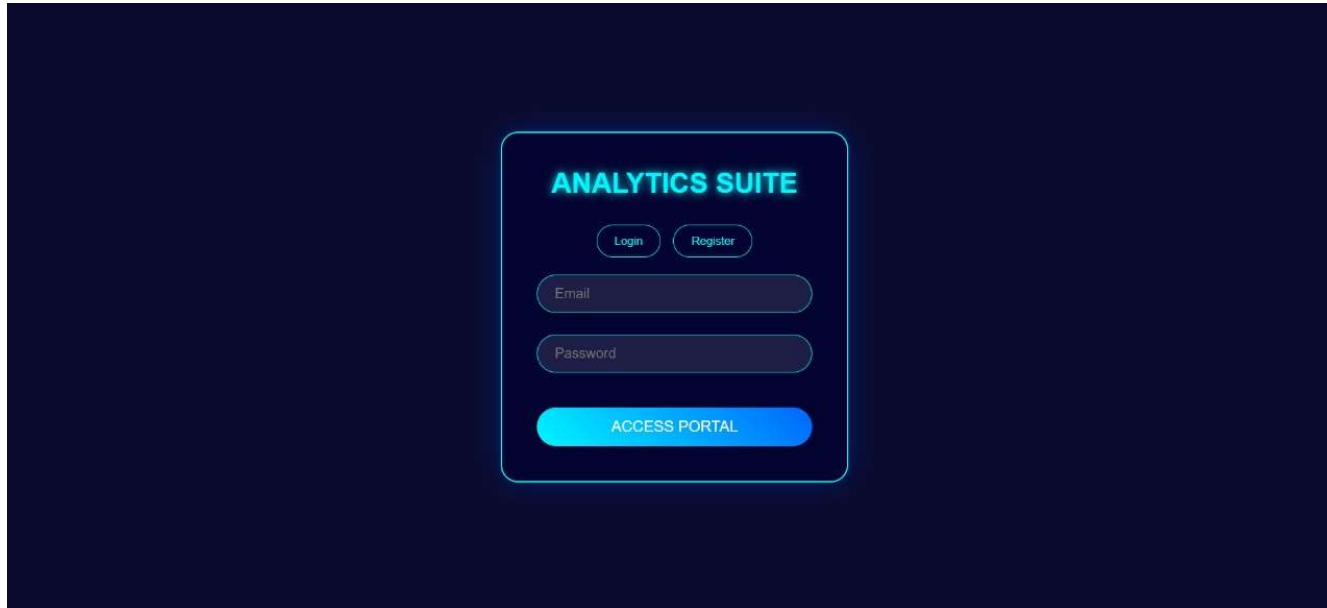
- **Frontend Technologies:**

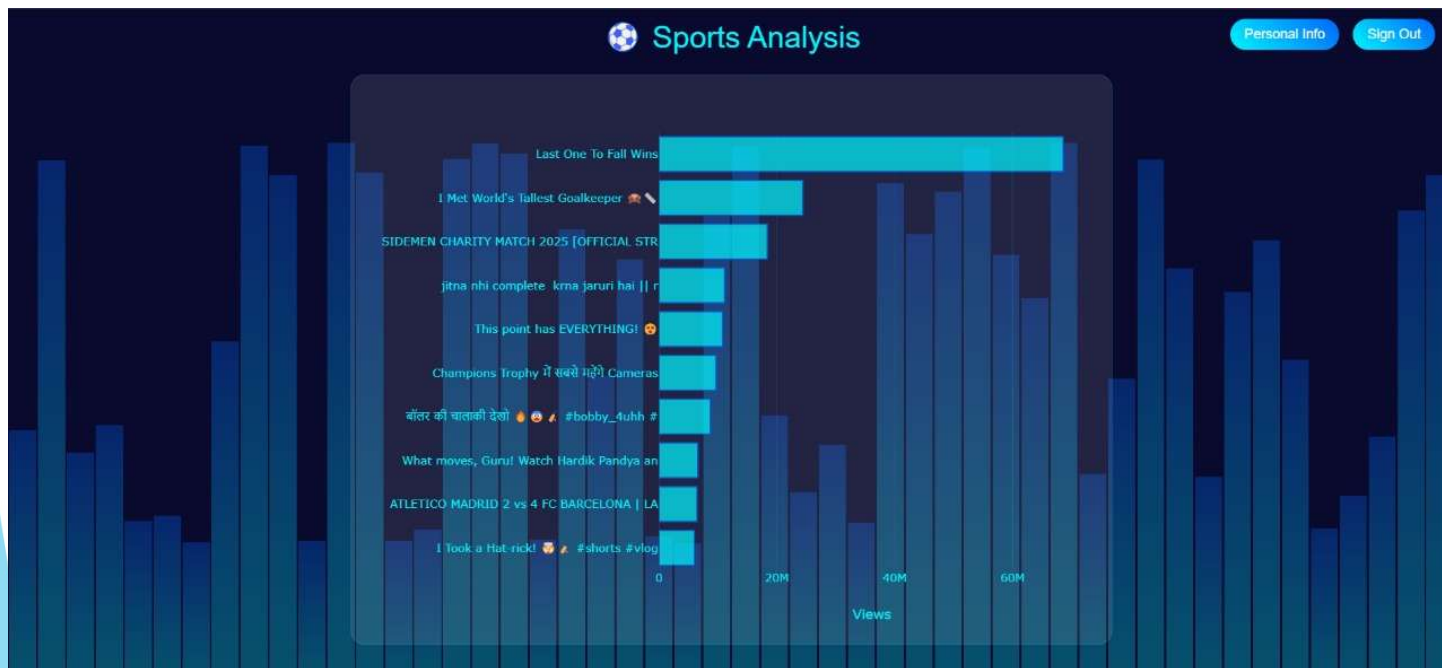
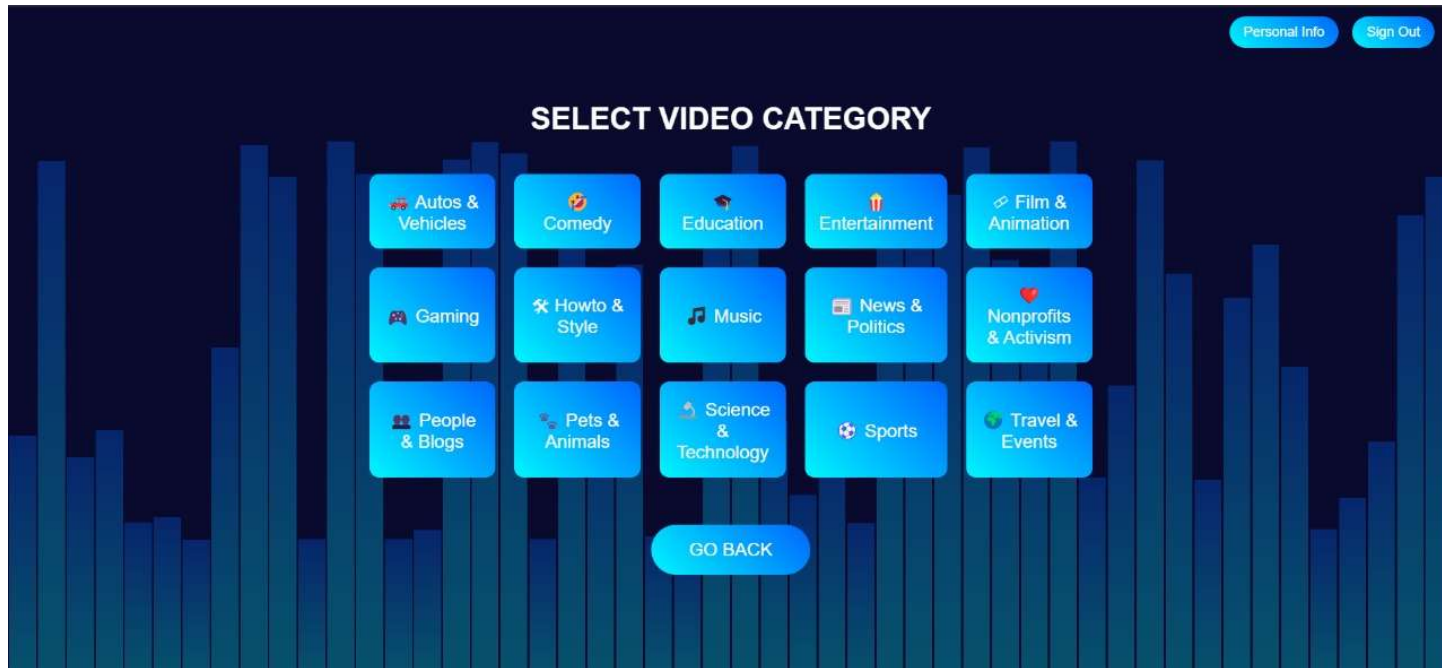
- HTML, CSS, JavaScript: For building the user interface.
- JavaScript libraries/frameworks (e.g., React, Angular, Vue.js): For building interactive components (optional, but recommended for complex UIs).
- Chart.js or D3.js for data visualization.

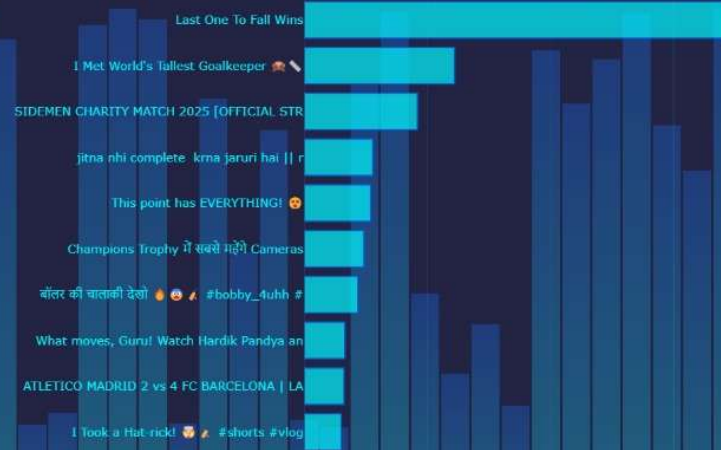
- **API Key:**

- A valid Google YouTube Data API v3 key.

# Implementation:







# Conclusion:

Social media trend analysis is a crucial practice for businesses and marketers, enabling them to gain real-time insights into consumer behavior and preferences by monitoring online interactions. By leveraging data from various platforms, organizations can make informed decisions, enhance engagement, and stay ahead of competitors through data-driven strategies. This analysis not only helps in tailoring content to align with current trends but also allows for quick responses to changes in the market. Overall, effective social media trend analysis is essential for maintaining relevance and driving growth in a rapidly evolving digital landscape.

# References

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**Thank You...!!**