**Video Streaming Platform: Project Outline**

Summary

Develop a scalable and robust video streaming platform featuring a modern frontend, RESTful backend API, real-time analytics, and flexible video storage options.

**Scope**

1. Video uploading and streaming.
2. User authentication and authorization.
3. Real-time analytics for video playback events.
4. Designed for both local and cloud-based deployment.

**Challenges**

1. Achieving low-latency video streaming.
2. Scaling components independently based on load.
3. Secure storage and transmission of video data.
4. Real-time analytics with Kafka integration.

**Tech Stack**

1. **Frontend**: Vanilla JS and HTML
2. **Backend API**: NodeJS with Express
3. **Streaming Service**: ??
4. **Database**: MongoDB
5. **File Storage**: Local filesystem
6. **Analytics**: Apache Kafka
7. **Containerization**: Docker
8. **Orchestration**: Kubernetes

**Basic Architecture**

* **Frontend Pod**: UI for video playback and user interactions.
* **Backend API Pod**: Manages user authentication and other API needs.
* **Streaming Service Pod**: Serves video content in chunks.
* **Database Pod**: Handles metadata and user information.
* **File Storage Pod**: Stores video files.
* **Kafka Pod**: Ingests analytics data.

**Extra Features**

1. Adaptive bitrate streaming.
2. Content recommendation based on user behavior.
3. Kafka-based real-time analytics dashboard.