**Intelligent Event Processing and Analytics Platform**

**Overview:**

Build a **scalable backend system** that ingests real-time event data, processes it with AI models, stores enriched data with relationships, and exposes powerful APIs for analytics and insights.

**Core Technologies:**

* **Apache Kafka** for real-time event streaming
* **Neural Network (CNN or Transformer)** model service for event classification or anomaly detection
* **Neo4j** as a knowledge graph to capture relationships and event sequences
* **REST API (FastAPI/Express.js)** for client interaction

**Project Flow:**

1. **Event Ingestion:**  
   Various clients or sensors send event data (e.g., logs, user actions, IoT events) to Kafka topics.
2. **AI Processing:**  
   A backend microservice consumes these events, runs them through a neural network model to classify or detect anomalies, and enriches the event with AI-driven metadata.
3. **Graph Storage:**  
   Enriched events are stored in Neo4j, modeling entities (users, devices, locations) and their relationships (actions, co-occurrences, causality).
4. **API Layer:**  
   Build REST endpoints to:
   * Query event timelines and related entities
   * Search for patterns or anomalies in the graph
   * Fetch analytics dashboards or summaries

**Why this project?**

* **Backend-heavy:** Focus on event streaming, microservices, graph data modeling, and API design.
* **Realistic scope:** Combines streaming, AI inference, graph DB, and REST APIs with clean separation of concerns.
* **Extensible:** Easy to add more features like alerting, dashboard, or NLP querying later.

**Example Use Case:**

A **cybersecurity monitoring platform** that tracks login attempts, file accesses, and network events to detect suspicious activity and correlate alerts via graph queries.