**Documentation**

**Milestone 1**

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**Project Title:**

**AI-Driven Supply Chain Disruption Predictor and Inventory Optimization System**

**Understanding of the Project**

The "AI-Driven Supply Chain Disruption Predictor and Inventory Optimization System" aims to transform supply chain management by using AI for real-time monitoring, prediction, and optimization. By leveraging LLMs like **OpenAI GPT and Meta LLAMA**, the system will analyse global supply chain data, forecast potential disruptions, and adjust inventory dynamically. It integrates with ERP systems and provides real-time notifications through platforms like Slack or Email to improve decision-making and operational efficiency.

**Milestone 1: Product Backlog, Sprint Backlog, and Data Collection**

**Product Backlog**

The product backlog includes high-level user stories that define the system's core functionalities:

1. **Data Monitoring and Analysis Engine:**
   * "As a supply chain manager, I want to monitor news, supplier updates, and transportation trends to identify potential risks."
   * "As a system administrator, I want to integrate APIs for global data collection to ensure real-time updates."
2. **Predictive Disruption Modelling System:**
   * "As a risk analyst, I want the system to provide disruption probability scores to prioritize mitigation strategies."
   * "As a supply chain planner, I want forecasts of disruption impact to optimize my inventory planning."
3. **ERP Integration and Inventory Adjustment:**
   * "As an inventory manager, I want the system to recommend reorder points based on risk predictions to minimize stockouts."
   * "As an IT manager, I want the system to seamlessly integrate with our ERP to automate inventory adjustments."
4. **Real-Time Alerts and Reporting:**
   * "As a supply chain executive, I want to receive notifications for critical risks through Slack or Email."
   * "As a decision-maker, I want a dashboard with visualizations of risks and inventory status to support informed decisions."

**Sprint Backlog**

The sprint backlog focuses on actionable tasks for the first sprint:

1. **Global Data Collection and API Integration:**
   * Research and identify APIs for news, supplier, and transportation data.
   * Test integration with sample APIs (e.g., Google News API, supplier database APIs).
   * Develop a pipeline to preprocess and store the collected data.
2. **LLM Evaluation and Decision:**
   * Compare OpenAI GPT and Meta Llama for disruption prediction accuracy and feasibility.
   * Fine-tune the selected LLM on supply chain datasets.
   * Build a prototype for risk scoring using historical data.
3. **Prototype Dashboard and Notification System:**
   * Create a basic dashboard layout to display risk scores and inventory levels.
   * Configure Slack and Email APIs for sending test notifications.

**Diagram**

**Milestone Workflow Diagram:**

A screenshot of a computer

Description automatically generated

**Conclusion** Milestone 1 involves creating a structured product and sprint backlog while setting up data collection mechanisms and selecting the appropriate LLM model. This foundation ensures a clear path forward for predictive disruption analysis and inventory optimization.