

Milestone 1: Topic Selection and Problem Statement

CNIT 37200

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Domain Selection

We have selected Option 1: Working with a client (Walmart) to improve their data management on their inventory. Our group has decided to work on a retail inventory management problem, specifically focusing on Walmart. Walmart is one of the largest retail companies worldwide and efficiently managing its inventory is important to its operation. The project aims to improve Walmart's data management system for its inventory, ensuring that the company can maintain optimal stock levels and minimize overstock and stockouts.

Problem Context

Walmart's inventory management is an essential aspect of its supply chain. The current system faces challenges in managing large volumes of data across thousands of stores and distribution centers. These challenges can result in inaccurate stock levels, leading to overstock or stockouts, which negatively impacts sales, customer satisfaction, and operational efficiency. Improving the data management system will help Walmart streamline its inventory processes, enabling better decision-making and a more efficient supply chain.

Question Development

Effective inventory management is crucial for large retailers like Walmart, where the balance between supply and demand can significantly impact operational efficiency and customer satisfaction. To explore this complexity, a series of questions have been formulated to delve into various aspects of inventory tracking, demand forecasting, and data management. These questions aim to uncover patterns in product demand, identify factors leading to overstock and stock shortages, and analyze the implications of inaccurate inventory data. What are the patterns in product demand across different regions and seasons?

- How can Walmart track inventory levels across all stores and distribution centers?
- What are the patterns in product demand across different regions and seasons?
- How can data management help predict stock shortages before they occur?
- What factors contribute to overstock situations, and how can they be minimized?
- How can Walmart optimize reorder points for different product categories?
- What is the impact of inaccurate inventory data on sales performance?
- How can data analysis improve supplier lead time estimates for better stock replenishment?
- What products have the highest return rates, and how does this affect inventory management?
- How can Walmart reduce the time it takes to restock shelves after an item is sold out?
- How can the system identify slow-moving items and adjust stock levels accordingly?