The Inventory Analytics Dashboard is a Streamlit-based application designed to provide comprehensive inventory and sales analytics.

Key Features

1. Data Upload and Processing

Supports CSV file upload for inventory and sales data

Performs data cleaning and validation

Handles multi-location data for comprehensive analysis

Custom data preprocessing for various data formats

Attributes/columns matching

A simple module that reads all columns in uploaded file, and enable the user to match them to the predefined columns of the app (using dropdown selection) to assure attributes are matched correctly.

3. HBT (Head-Belly-Tail) Analysis

Purpose: Categorize products based on their sales contribution (sales rate \* price) to identify top performers, middle performers, and slow movers.

Head: Top 20% of products by count

Tail: Products that contribute to the bottom 5% of total sales value

Belly: Everything in between

Sales rate is calculated based on 30-60-90 days sales with weighted recency emphasis

The HBT analysis tab will show:

Components:

Cumulative Graph: Shows the relationship between cumulative sales percentage and cumulative inventory percentage

Key Performance Indicators:

Head Contribution: Percentage of total sales value from Head products

Tail Inventory Cost: Dollar value of slow-moving inventory

Head Availability: Percentage of Head products with inventory

HBT Distribution Visualizations:

Sales vs Inventory Distribution Bar Chart: Compares sales percentage to inventory percentage by HBT class

Product-level Table: Detailed classification of each product with sales value and inventory data

6. Search and Filtering

Product search functionality

Multi-level filtering by product categories, locations,

Ability to focus analysis on specific product segments

Export: Download capabilities for reports and data in CSV format

Data Requirements

The system requires the following data fields:

Product identifiers (product\_id or sku\_id)

Sales data (30, 60, 90 days periods)

Inventory data (current inventory levels across locations)

Product information (name, category, cost, price)

Optional: Location details for multi-location analysis

Display Specifications

Responsive layout that adjusts to different screen sizes

Interactive elements for exploring data at different levels of detail

Clear labeling and intuitive navigation between analysis component

Very modern UI, with AI sense.