



# **ClasifAi**

## **Smart Retail Operations Platform**

### **AI-Powered ABC Inventory Classification Tool**

Transforming warehouse inventory management through intelligent, AI-driven classification that simplifies prioritization and maximizes operational efficiency.

# Understanding the User Need



## The Challenge

**Role:** Warehouse Supervisor at a retail company managing thousands of SKUs daily

**Pain Point:** Needs a simple, intuitive tool to classify inventory items into A/B/C categories based on their value contribution to the business

**Goal:** Focus team resources on high-value items without requiring deep analytics expertise or complex spreadsheet manipulation

**Current Reality:** Manual classification consumes hours weekly and leads to inconsistent prioritization decisions

# Problem Statement



## Objective

Develop an intelligent software module that automates ABC analysis for retail inventory management with minimal user training required



## Problem

Manual classification is time-consuming, error-prone, and inconsistent across teams, leading to misallocated resources and inventory inefficiencies



## Outcome

AI automates the entire classification process, ensuring accuracy, consistency, and enabling better strategic decision-making across operations





# Our Solution: AI-Powered Automation

1

## Intelligent Classification

Automatically groups inventory items based on value contribution using advanced AI algorithms and business rules.

2

## Real-Time Dashboards

Provides intuitive visual dashboards with customizable thresholds for smart, data-driven stock control decisions.

3

## Strategic Focus

Enables teams to concentrate resources on high-impact items that drive the most business value and revenue.

# ABC Classification Logic



## A Items

High-value, low-quantity products requiring tight control and frequent review cycles



## B Items

Medium value and quantity items needing regular monitoring and balanced attention



## C Items

Low-value, high-quantity products requiring minimal oversight and basic tracking

## The Pareto Principle

ABC analysis applies the 80/20 rule to inventory management:

- **A items:** ~20% of inventory, ~80% of value
- **B items:** ~30% of inventory, ~15% of value
- **C items:** ~50% of inventory, ~5% of value

Our AI engine automatically calculates these breakpoints based on your unique inventory profile and business rules.

# Powerful Features for Smart Management



## Flexible Rule Engine

Configure custom classification rules based on your business logic, value thresholds, and operational priorities



## Simple Data Entry

Intuitive interface for manual input of item name, quantity, and cost—no technical knowledge required



## AI Classification

Intelligent engine automatically assigns optimal category based on value contribution and usage patterns



## Smart Thresholds

Set minimum and maximum reorder levels for each category to automate inventory replenishment decisions



## Visual Dashboard

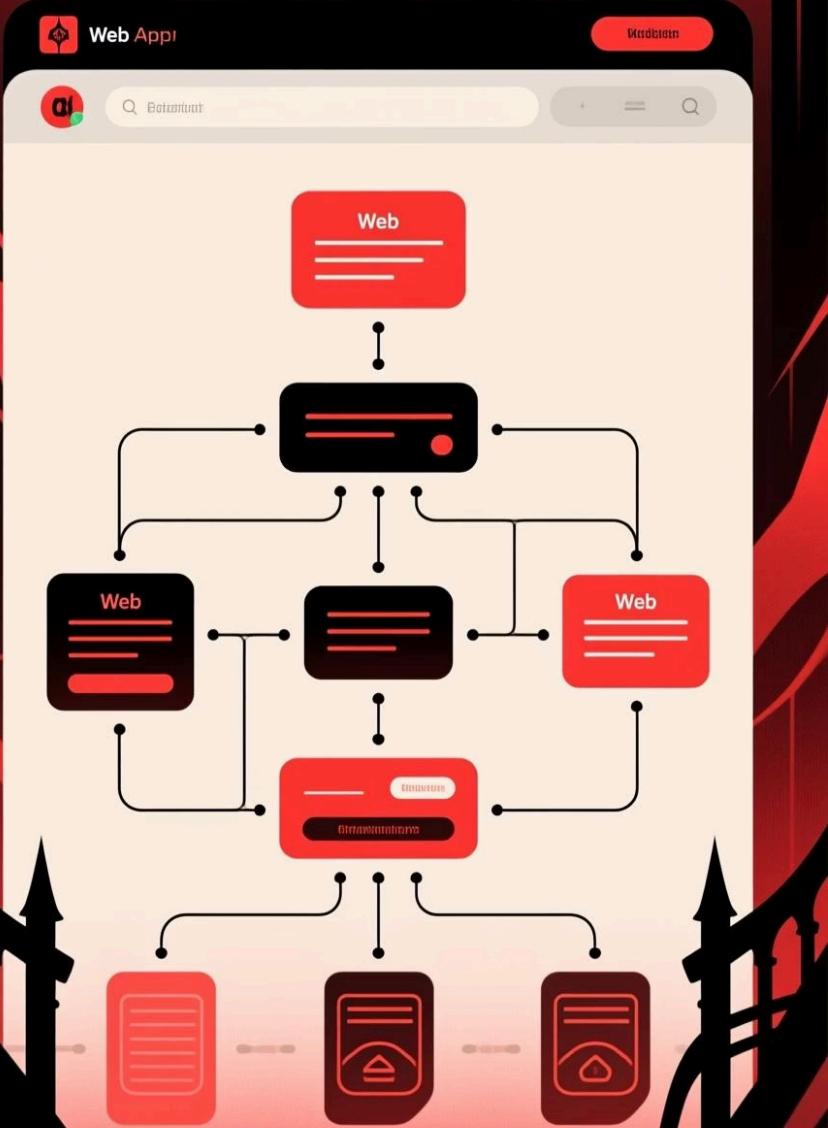
Interactive filters and real-time summaries provide instant insights into inventory distribution and value concentration



## Easy Export

Generate professional reports in CSV or PDF format for sharing with stakeholders and integration with existing systems

# System Architecture Overview



## User Interface

React/Vue web application with responsive design

## REST API Layer

FastAPI backend handling business logic

## Data Layer

SQLite database with SQLAlchemy ORM

## Analytics Dashboard

Real-time visualization and reporting

# Technical Architecture Deep Dive

## Core Technology Stack

### Frontend Layer

**React.js** with modern component architecture for responsive, dynamic user interfaces

### Backend Layer

**FastAPI (Python)** for high-performance async API endpoints with automatic OpenAPI documentation

### Data Layer

**SQLAlchemy ORM** with SQLite providing flexible, schema-driven data management

### Server

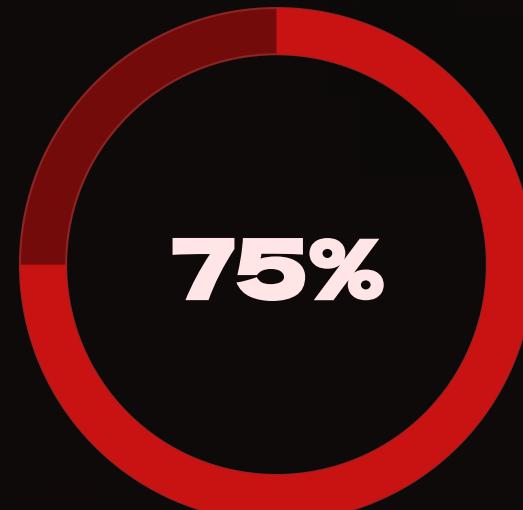
**Uvicorn ASGI** server ensuring fast, concurrent request handling

## Key Technical Features

- **CORS Configuration:** Secure cross-origin resource sharing for frontend-backend communication
- **Modular Design:** Clean separation with dedicated routes, models, and schemas
- **Pydantic Validation:** Schema-based request/response validation ensuring data integrity
- **RESTful Standards:** Following industry best practices for API design and documentation

- **AI-Powered Development:** Entire codebase generated and optimized using advanced AI assistants, ensuring modern patterns and comprehensive documentation

# Measurable Business Impact



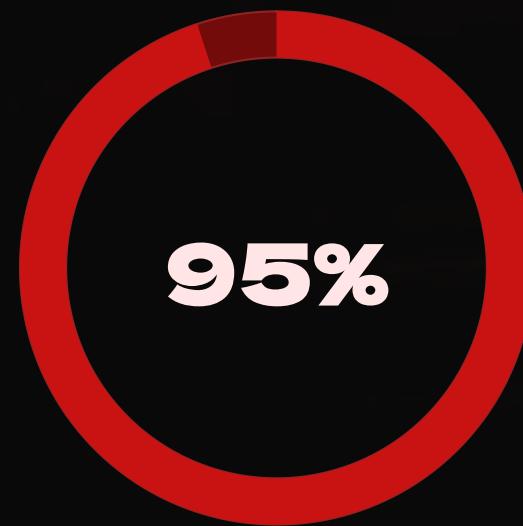
## Time Savings

Reduction in classification time



## Cost Reduction

Decrease in overstock costs



## Accuracy

Classification consistency rate

### Prioritized Control

Focus resources on high-value inventory items that drive the most revenue

### Optimized Stock Levels

Eliminate overstocking of low-value items, freeing up capital and warehouse space

### Enhanced Accuracy

AI-powered decisions eliminate human error and ensure consistent classification

### Operational Efficiency

Streamlined workflows enable teams to focus on strategic decisions rather than manual analysis



**THANK YOU**  
**PRESENTED BY**  
**TEAM #1 - AI WARRIORS**