# Inventory Management System

**Case**: Linda has a central warehouse of crochet plushies. Occasionally, she selects a subset of the inventory and sells the plushies on a paid market spot. During a market she tracks the balance, sales and other metrics of the subset. Furthermore, she calculates the goods sold, margin and profit at the end of the market, and she updates the balance of the central warehouse.

**Problem statement:** Linda doesn’t know the inventory of her central warehouse before she selects a subset. She doesn’t know which crochet plushie to produce because of insufficient insight into the inventory. She has a manual way of tracking sales during a market. The sales and inventory calculations are not automated after a market. The central warehouse is not updated after a market.

**Requirements:**

1. Central warehouse management
   * Real-time tracking of inventory levels
   * Detailed records of stock levels for each plushie type
   * Metrics:
     + Total stock count
     + Total value of inventory
     + Value for each plushie
2. Market inventory management
   * Market inventory setup
     + Ability to select and add plushies to market inventory.
     + Add and track the cost of market spot
     + Update Market
     + Delete Market
   * Market inventory balance tracking
     + Increment and decrement balance as sales occur
     + Calculate total sales.
   * Market Closure and Financial Calculations
     + Calculate goods sold, margin, profit and potential theft at the end of each market.
     + Update central warehouse with the remaining market inventory.
     + Display sales figures for each plushie type.
3. Plushie Details Management
   * Images of each plushie
   * Information on raw materials used
   * Price, cost and weight details
   * Classification by price class
   * Central warehouse location details
   * Market participation history
   * Digital labels or identifiers for each plushie
4. Price Management
   * Handle different pricing for plushies based on market conditions
5. Storage
   * Long-term Storage
     + Long term storage capabilities.
     + Frequent access without performance degradation
6. ~~Stock Management and Alerts~~ 
   * ~~Low Stock Alerts~~
     + ~~Automated alerts when stock for any plushie type is low~~
7. ~~Reporting and Analytics~~
   * ~~Sales report~~
     + ~~Generate detailed sales report by~~ **~~market~~** ~~and~~ **~~plushie type~~**
   * ~~Inventory reports~~ 
     + ~~Provide reports on inventory levels, stock movements and stock valuation~~
   * ~~Financial reports~~ 
     + ~~Generate financial reports, including~~ **~~profit~~** ~~and~~ **~~loss statements~~** ~~and~~ **~~margin~~** ~~analysis~~
8. ~~Supplier and Purchase Order Management~~ 
   * ~~Supplier database~~ 
     + ~~Maintain a database of suppliers~~
   * ~~Purchase Orders~~
     + ~~Generate and track purchase orders for raw materials and finished goods~~
9. ~~Security and Authentication~~ 
   * ~~User Authentication~~ 
     + ~~Secure login and user authentication processes~~
   * ~~Role-based access control~~
     + ~~Define user roles and permissions to restrict access to sensitive data~~
10. ~~Web interface~~ 
    * ~~User-friendly interface for easy management and tracking~~
11. ~~Deploy on Cloud (Amazon Web Services)~~
    * ~~Manage files and database~~
    * ~~Set up endpoint for the application~~
    * ~~Accessibility~~ 
      + ~~Accessible from any device (desktop, mobile and tablet)~~

# Execution Plan

4 weeks

Week 1 – Requirements 1, 2, 3 and 4

Week 2 – Requirements 5 and 6

Week 3 – Requirements 7, 8 and 9

Week 4 – Requirements 10 and 11

**Technologies**

* Java
* Spring
* AWS
* Angular