Improved Inventory Management System Documentation (v2.0)

Version Overview

An enhanced version of the inventory management system with improved functionality, performance, and user experience.

New Features

Feature	Description
Search Products	Product lookup by name functionality
Low Stock Alerts	Configurable threshold warnings for low inventory
Enhanced Product Editing	Complete product attribute modification capabilities
Safety Confirmations	Deletion confirmation prompts
Demo Data	Pre-populated product entries for testing

Technical Improvements

- **Performance Enhancement:** Implemented Dictionary data structure for optimized lookups

- **Robust Error Handling:** Enhanced input validation and error prevention

- **UI Enhancement:** Improved table formatting and display

- **Smart Defaults:** Preservation of existing values during partial updates

System Architecture Changes

```
graph TD;
    A["User Input"] → B["Enhanced Menu Interface"];
    B → C["Input Validation"];
    C → D["Dictionary-based Storage"];
    D → E["Product Operations"];
    E → F["Formatted Output"];
    G["Low Stock Monitor"] → F;
    H["Search Engine"] → F;
```

Enhanced Menu System

Option	Function
1-6	Basic Operations (from v1)
7	Low Stock Report
8	Search Products

Feature Details

1. Product Search

Keyword-based product search functionality:

```
Enter search term: mouse
Results:
- Wireless Mouse
- Gaming Mouse
- Mouse Pad
```

2. Low Stock Management

Configurable inventory threshold monitoring:

```
Enter minimum stock level: 10
Low Stock Items:
```

- Keyboard (5 units)
- Mouse (8 units)
- Monitor (3 units)

3. Enhanced Product Updates

Flexible Update Options:

- Name modification

- Price adjustment

- Quantity updates

- Skip unchanged fields (press Enter)

Data Structure Upgrade

```
// Old Version (List-based)
List<Product> products;

// New Version (Dictionary-based)
Dictionary<int, Product> products;
```

Comparison with Version 1

Feature	Version 1	Version 2
Data Structure	List	Dictionary
Search Capability	No	Yes
Stock Monitoring	No	Yes
Update Options	Quantity Only	All Attributes
Data Safety	Basic	Confirmation Required