# *Inventory Management System in an E-commerce Platform*

**User Story:**

The store manager wants a computer system to manage inventory (stock) that automatically updates when customers place orders. This helps ensure:

1. Accurate stock counting.
2. Timely order fulfillment.
3. Minimal disruptions.

**Acceptance Criteria:**

**Must-Have Features:**

1. **Real-Time Updates**: Stock levels change instantly when orders are placed.
2. **Low Stock Alerts**: System notifies manager when stock falls below a certain level.
3. **Out-of-Stock Control**: Prevents orders for items that are no longer in stock.
4. **Seamless Integration**: Works smoothly with existing sales processes.
5. **Live Reports**: Provides up-to-date inventory information.

**Desirable Features:**

1. **Alternative Product Suggestions**: Offers substitute products when items are out of stock.
2. **Multi-Location Support**: Manages inventory across multiple storage locations.
3. **Manual Adjustments**: Allows managers to make manual changes to inventory.

**Optional Features:**

1. **Inventory Forecasting**: Predicts future inventory needs.
2. **Auto-Reordering**: Automatically places orders for replenishment.

**What This Means:**

The inventory system must meet the "Must-Have" requirements to work correctly. The "Desirable" features enhance its functionality, while the "Optional" features provide additional benefits.

**Why It Matters:**

This system helps the store manager:

1. Save time and reduce errors.
2. Improve customer satisfaction.
3. Optimize inventory levels.
4. Make informed business decisions.

By meeting these requirements, the inventory system supports the store's efficiency, productivity, and growth.

**Inventory Management System Workflow:**

1. Customer places order.
2. System checks order and inventory.
3. If available, system confirms order.
4. Warehouse staff picks and packs order.
5. Order is shipped to customer.
6. System updates inventory and order status.

**How it Works:**

1. Customer orders → System checks inventory → Order confirmed
2. Warehouse staff picks/packs order → System updates inventory
3. Order shipped → System updates order status
4. System generates inventory reports

**Technical Requirements:**

1. Fast and reliable system
2. Secure data storage
3. Easy-to-use interface
4. Integration with existing systems
5. Real-time updates

Sequence Diagram containing all the elements

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| Customer |

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| 1. Place Order

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| Sales Order |

| Module |

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| 2. Validate Order

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| Inventory |

| Database |

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| 3. Check Inventory

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| Warehouse |

| Management |

| System (WMS) |

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| 4. Pick and Pack

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| Shipping |

| Integration |

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| 5. Ship Order

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| Order |

| Fulfillment |

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| 6. Update Order

| Status

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| Inventory |

| Reporting |

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| 7. Generate Report

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**Sequence Diagram Elements:**

1. **Customer**: Places order.
2. **Sales Order Module**: Validates order.
3. **Inventory Database**: Checks inventory.
4. **Warehouse Management System (WMS)**: Picks and packs order.
5. **Shipping Integration**: Ships order.
6. **Order Fulfillment**: Updates order status.
7. **Inventory Reporting**: Generates inventory report.