**SDLC for Inventory Management System**

**1️⃣ Planning**

* Identify inventory challenges (stock tracking, low stock alerts, supplier management).
* Define system requirements (automated updates, reports, barcode scanning).
* Conduct feasibility study (budget, technology stack, cloud vs. local storage).

**2️⃣Requirement Analysis**

* Gather input from business owners and staff.
* Define key features:  
  ✅ Product catalog (item details, categories)  
  ✅ Stock level tracking (alerts for low stock)  
  ✅ Supplier & purchase order management  
  ✅ Sales & demand forecasting
* Document in a **Software Requirement Specification (SRS)**.

**3️⃣ Design**

* **Database Design**: Tables for products, suppliers, stock levels, sales.
* **User Interface (UI)**: Simple dashboard for tracking inventory.
* **System Architecture**: Cloud-based or local, integration with POS systems.

**4️⃣ Implementation (Coding)**

* Develop the system using **React (frontend), PHP/MySQL (backend)**.
* Implement user authentication for role-based access (admin, staff).
* Write APIs for stock updates, reports, and order processing.

**5️⃣ Testing**

* **Unit Testing**: Check each feature (adding/deleting items, generating reports).
* **Integration Testing**: Ensure the system syncs with POS and supplier databases.
* **User Acceptance Testing (UAT)**: Owners & staff validate usability.

**6️⃣ Deployment**

* Deploy on a local server or cloud platform (AWS, Firebase).
* Provide user training for smooth operation.
* Set up backup mechanisms to prevent data loss.

**7️⃣ Maintenance & Support**

* Monitor stock accuracy and system performance.
* Release updates for bug fixes and new features.
* Add **AI-based demand prediction** for better stock management.

**Why SDLC is Important for Small Business Inventory Management?**

✅ Prevents **overstocking or stockouts**  
✅ Improves **order accuracy**  
✅ Saves **time and manual effort**  
✅ Reduces **financial losses** from missing stock  
✅ Ensures **scalability** as the business grows

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