Description:

Conventions Used:

Rectangular boxes represent system components or modules, and arrows indicate the direction of data flow or interaction.

D0 - High-Level Overview:

This diagram shows the overall flow of the NARLA system:

- Inputs: User data, inventory updates, chores, bills, groceries, and sensor data.
- NARLA System: The central processing unit that analyzes inputs and applies logic/AI.
- Outputs: Dashboards, alerts, fair bill splits, chore assignments, and notifications.

D1 - Core Modules:

This diagram breaks the system into functional modules:

- Mobile App UI: The user interface.
- Inventory Tracker, Chore Manager, Bill Splitter, Receipt Scanner, Hardware Sensors: Core modules handling specific tasks.
- SQL Database: Stores all user, inventory, bill, and chore data.
- AI & Smart Reminders: Generates reminders and predictions.
- Dashboard & Notifications: Displays results and alerts.

D2 - Detailed Backend Architecture:

This diagram shows how backend, AI, and hardware components interact:

- User & Mobile App UI: Send requests to the backend.
- Backend Server (Python): Main logic layer connecting the app, AI modules, sensors, and database.
- AI Prediction Engine, Chore Manager, Bill Splitter, Inventory Tracker: Backend modules performing core functions.
- OCR Receipt Scanning: Extracts data from receipts.
- Weight Sensors: Provide automatic inventory updates.
- Automatic Updates: Uses AI + sensor data for automation.
- SQL Database: Stores all system data.