Project Design Phase-II

**Technology Stack (Architecture & Stack)**

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| **Date** | **26-05-2025** |
| **Team ID** | PNT2025TMID09488 |
| **Project Name** | Groceries Site Using MERN Stack |
| **Marks** | 4 Marks |

**Technical Architecture:**

The **Grocery Web App** is built using a **3-tier scalable architecture**, ensuring clean separation between the presentation layer (frontend), application logic (backend), and data storage (database). This architecture supports performance, modularity, and easy integration with third-party services like Razorpay for payments and MongoDB Atlas for cloud storage.

| **S.No** | **Component** | **Description** | **Technology** |
| --- | --- | --- | --- |
|  | User Interface | Web-based shopping interface for customers and seller dashboards | HTML, CSS, JavaScript, Angular, Bootstrap |
|  | Application Logic-1 | Product listing, cart handling, order flow, customer interactions | Node.js, Express.js |
|  | Application Logic-2 | |  | | --- | |  |  |  | | --- | | Seller inventory dashboard, admin panel, real-time status updates | | **Angular**, **Node.js** |
|  | Database | Stores user data, products, orders, reviews, and payment logs | **MongoDB** (with Mongoose ODM) |

**Table-1 : Components & Technologies:**

**Table-2: Application Characteristics:**

| **S.No** | **Characteristics** | **Description** | **Technology** |
| --- | --- | --- | --- |
|  | Open-Source Frameworks | Frontend and backend built using powerful JS frameworks | Angular, Node.js, Bootstrap |
|  | Scalable Architecture | Clean 3-tier architecture for future expansion | MVC + RESTful APIs |
|  | Responsive Design | Mobile-first UI for consistent experience across devices | Bootstrap, Angular Material |
|  | |  | | --- | |  |  |  | | --- | | Secure Authentication | | Token-based login with role-based access | JWT, Express middleware |
|  | Cloud-Ready Hosting | Frontend and backend hosted separately on scalable platforms | Vercel / Netlify (Frontend), Render / Railway (Backend) |

**References:**

* Angular Documentation
* [Node.js Best Practices](https://github.com/goldbergyoni/nodebestpractices)
* [MongoDB Docs](https://www.mongodb.com/docs/)
* Razorpay Integration Guide
* [Technical Architecture Diagram Tips](https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d)