Kitchen Heaven - Quotation System

1. Business Concept

Kitchen Heaven is a quotation generation system for kitchen product items. The system calculates the total price based on various kitchen components such as carcase (box), acrylic, exposed sides, labor, and other additional charges. The system ensures accurate pricing based on dimensions, material selection, and additional costs.

2. Key Words

- **Carcase (Box)** – The main structural unit consisting of height, width, depth.
- **Expose Side** – The visible sides of the carcase, including left, right, and bottom.
- **Width (W)** – Horizontal measurement of the carcase.
- **Depth (D)** – Measurement from front to back of the carcase.
- **Height (H)** – Vertical measurement of the carcase.
- **Self** – Internal shelving within the carcase.
- **Acrylic** – Aesthetic paneling applied to the carcase, front side of carcase. May has different prices.
- **Labour** – Cost associated with construction and assembly.
- **WD** – Width * Depth calculation component.
- **DH** – Depth * Height calculation component.
- **Back** – Back panel calculation.
- **Quantity** – Number of units considered for calculation.
- **Total** – Sum of all calculated values.
- **Sq Ft** – Square footage measurement for pricing.

- **Price** – Cost per square foot for each component.
- **MRP** – Maximum Retail Price after all calculations.
- **Interior Charge** – Charge applied based on percentage and fixed amount.
- **Discount** – Reduction applied based on percentage and fixed amount.
- **Additional Charges** – Extra charges applied for specific conditions.
- **Service & Transportation** – Logistics costs applied to the final quotation.

3. Core Business Logic

Carcase Calculation

1. **Main Carcase Calculation:**
    - **WD =** carcaseWidth * carcaseDepth * 2
    - **DH =** carcaseDepth * carcaseHeight * 2
    - **Back =** carcaseWidth * carcaseHeight
    - **Total Area =** WD + DH + Back
    - **Total Sq Ft =** Total Area / 92903
    - **MRP =** carcaseUnitPrice * Total Sq Ft

Self Calculation

- **Self Sq Ft =** (carcaseWidth * carcaseDepth / 92903) * carcaseSelfQuantity
- **Self MRP =** carcaseSelfPrice * Self Sq Ft
- **Total Price +=** Self MRP

Acrylic Calculation

- **Acrylic Sq Ft =** (carcaseWidth * carcaseHeight / 92903) * carcaseAcrylicQuantity
- **Acrylic MRP =** carcaseAcrylicPrice * Acrylic Sq Ft
- **Total Price +=** Acrylic MRP

Expose Side Calculation

- **Left Side:** (carcaseExposeDepth * carcaseExposeHeight / 92903) * carcaseExposeQuantity
- **Right Side:** (carcaseExposeDepth * carcaseExposeHeight / 92903) * carcaseExposeQuantity
- **Bottom Side:** (carcaseExposeDepth * carcaseExposeHeight / 92903) * carcaseExposeQuantity
- **Expose MRP =** Expose Side Sq Ft * Expose Product Price

Additional Calculations

- **Labour Charge:** Total SQFT * Labour Price
- **Interior Charge:** Percentage-based + Fixed Amount
- **Discount:** Percentage-based + Fixed Amount
- **Additional Charges:** Percentage-based + Fixed Amount
- **Service & Transportation:** Percentage-based + Fixed Amount

4. Core Technical Aspects

- **Technology Stack:**
    - Backend: ASP.NET MVC
    - Database: MS SQL
- **Dynamic Quotation Generation**

- **Integration with Pricing & Product Catalog**
- **Real-time Calculations & Updates**
- **User Authentication & Authorization**
- **Reporting & Exporting Quotation PDFs**

5. Security Parameters

- **Authentication:** Role-based authentication using Identity Framework.
- **Authorization:** User-based access control for quotation generation.
- **Data Encryption:** Secure storage for sensitive data.
- **Audit Logs:** Maintain logs for all quotation modifications.

6. Absolute To-Do

- Develop the core calculation logic for pricing.
- Optimize the calculation algorithms for performance.
- Validate user inputs for accurate data entry.
- Integrate with MS SQL to store quotations.

7. Error Handling

- **Invalid Data Input:** Provide clear validation messages for missing or incorrect values.
- **Calculation Errors:** Log all errors and notify users of calculation failures.
- **Database Connection Issues:** Implement retry mechanisms for connectivity issues.
- **Unauthorized Access:** Restrict actions based on user roles.