



# Rental Management System

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## Problem Overview

Build a **Rental Management System** that enables businesses to rent products online while managing quotations, rental orders, inventory, invoicing, and returns.

The system must support **Customers, Vendors, and Admins**, and should follow a **complete rental lifecycle**, from product browsing and quotation creation to payment, invoicing, pickup, return, and reporting.

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## Objectives

- Implement an end-to-end rental flow
  - Prevent overbooking through reservation logic
  - Support flexible rental durations and time-based pricing
  - Generate invoices with partial or full payments
  - Provide dashboards and reports for business insights
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## User Roles

### 1. Customer (End User)

- Accesses the website portal
- Browses rentable products
- Creates rental quotations
- Confirms orders and makes payments
- Views invoices and order history

### 2. Vendor (Internal User)

- Manages rental products
- Views and processes rental orders
- Creates invoices
- Tracks pickups, returns, and earnings

### 3. Admin (System Administrator)

- Full access to backend (Settings, Users, Reports)
  - Manages vendors, products, and configurations
  - Views global analytics and reports
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## *Core Functional Modules*

### 1. Authentication & User Management

#### Features:

- Login using email and password
  - Signup via website with:
    - Name
    - Email
    - Company Name
    - GSTIN (mandatory for invoicing)
    - Password & confirmation
  - Forgot password with email verification
  - Coupon code support during signup
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### 2. Rental Product Management

#### Product Configuration:

- Products marked as **Rentable**
- Rental pricing per:
  - Hour
  - Day
  - Week
  - Custom period
- Quantity on hand
- Cost price & sales price
- Publish / Unpublish on website

### **Attributes & Variants:**

- Product attributes (e.g., Brand, Color)
  - Variant-based pricing
  - Attribute values configurable from Settings
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## **3. Rental Quotations & Orders**

### **Rental Flow:**

1. **Quotation**
  - Created when customer adds products to cart
  - Editable until confirmation
2. **Rental Order**
  - Created when quotation is confirmed
  - Automatically reserves stock
3. **Sales Order Status**
  - Draft → Sent → Confirmed

### **Key Rules:**

- Reserved products cannot be double-booked
  - Rental period blocks availability
  - Order lines include rental start & end dates
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## **4. Pickup, Delivery & Return Flow**

### **Pickup:**

- Pickup document generated on order confirmation
- Stock moved to “With Customer”
- Pickup instructions visible to vendor

### **Return:**

- Return document generated when rental ends
- Stock restored after return
- Late return fees applied automatically

## **Notifications:**

- Automated reminders before return date
  - Alerts for delayed returns
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## **5. Invoicing & Payments**

### **Invoice Features:**

- Draft invoice created from rental order
- Supports:
  - Full upfront payment
  - Partial payment / security deposit
- Taxes calculated automatically
- Print & export invoice

### **Payment:**

- Online payment gateway integration
  - Payment confirmation updates invoice state
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## **6. Website & Customer Portal**

### **Website Features:**

- Product listing with filters
- Product detail page with rental configuration
- Cart and checkout flow
- Address & payment selection

### **Portal Features:**

- View rental orders
- Download invoices
- Order status tracking

## 7. Settings & Configuration

### Admin Settings:

- Rental periods (Hourly, Daily, Weekly)
- Product attributes & values
- User roles (Admin / Vendor / Customer)
- GST and company details

### User Profile:

- Company information
  - GSTIN
  - Password change
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## 8. Reports & Dashboards

### Dashboards:

- Total rental revenue
- Most rented products
- Vendor-wise performance
- Order trends over time

### Reports:

- Exportable reports (PDF, XLSX, CSV)
  - Date-range filters
  - Separate views for Admin and Vendor
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## *Terminology & Document Reference*

- **Quotation:** It is a **price proposal** sent to a customer before an order is confirmed.
- **Rental Order:** It is a confirmed agreement that products will be rented for a specific period.
- **Reservation:** It ensures that a product **cannot be rented by multiple customers at the same time**.
- **Invoice:** It is a legal financial document requesting payment from the customer.

- **Security deposit:** It is an amount collected upfront to protect against damage or late returns.
  - **Vendor:** A vendor is a business user who owns rental products.
  - **Admin:** It is the **super user** of the system.
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## *Deliverables (Hackathon Evaluation)*

Participants must deliver:

- Functional rental flow (Quotation → Order → Invoice → Return)
  - Website + backend integration
  - Role-based access implementation
  - At least one dashboard or report
  - Clean UI aligned with business flow
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## *Learning Outcomes*

By completing this problem statement, students will demonstrate:

- Practical understanding of **ERP workflows**
- Ability to model real-world rental businesses
- Full-stack thinking

**Mockup:** <https://link.excalidraw.com/l/65VNwvy7c4X/3tAPpfIFLrG>