# Smart Hotel Booking & Management CRM System

## Project Overview:

A next-generation, Salesforce-powered Smart Hotel Booking & Management CRM System that provides automated customer service, smart room availability predictions, AI-powered price recommendations, and seamless integrations with external platforms for a fully automated hotel experience.

## Smart Features Overview:

• AI-powered Room Price Recommendation based on seasonality, occupancy trends, and competitor rates.

• Predictive Analytics for Room Availability: Predict peak times and suggest customers optimal booking times.

• Chatbot for Customer Queries: Automatically handle room availability, booking status, and FAQs.

• Smart Notifications: Automatically remind customers for upcoming check-in/check-out, special offers, payment due dates.

• Seamless Payment Integration with third-party payment gateways (Stripe/PayPal).

• External Booking Platform Sync: Real-time room availability sync with external OTAs (Online Travel Agencies).

## Phase-wise Smart Implementation:

### Phase 1: Problem Understanding & Industry Analysis

Problem: Manual processes cause poor customer experience, low operational efficiency, and outdated pricing strategies.  
Smart Solution: Automate bookings, enable data-driven decision making, and integrate AI for smart pricing and predictive availability.  
AppExchange Research: Explore existing automation and analytics apps for hotel industry.

### Phase 2: Org Setup & Configuration

Setup Multi-Role Org Structure:  
- Hotel Admin (full access)  
- Front Desk Staff (Booking management)  
- Customer Support Agent (limited access)  
Configure Permission Sets for advanced automation features (e.g., AI price settings).  
Use Sandboxes for development & testing.

### Phase 3: Data Modeling & Relationships

Custom Objects:  
- Room Inventory (Room Number, Type, Status, Base Price, AI Recommended Price)  
- Smart Booking (Customer, Room, Check-in/Check-out, Dynamic Pricing, Status)  
- Customer (Profile, Preferences, Booking History)  
- Payment (Amount, Mode, Status)  
- Price History Log (Track price changes over time)  
Predictive Price History Table to store AI-generated pricing recommendations.

### Phase 4: Process Automation (Admin)

Smart Validation Rules: Prevent overlapping bookings, invalid check-out dates, incorrect payment methods.  
Process Builder + Flow Automation:  
- Auto-assign best available room based on customer preference.  
- AI triggers to auto-suggest price changes based on occupancy data.  
- Auto-schedule check-in reminders (via SMS/Email).  
Approval Process for large group bookings.  
Screen Flows for intuitive front desk booking wizard.

### Phase 5: Apex Programming (Developer)

Apex Classes:  
- Price Recommendation Engine (Call external AI/ML API to compute dynamic room price).  
- Trigger on Booking Insert → Recalculate room availability in real-time.  
- Batch Apex to analyze monthly occupancy trends.  
- Queueable Apex to update price recommendations in bulk during low-traffic hours.  
- Exception Handling: Ensure consistent booking even under high loads.  
- Test Classes covering AI price recommendation logic.

### Phase 6: User Interface Development

Lightning App Builder for customized dashboard:  
- Booking Wizard with LWC and Calendar integration.  
- Price Recommendation display (AI-suggested price vs base price).  
- Visual availability heatmap for room inventory.  
- LWC to display booking history and dynamic graphs (e.g., occupancy rate trends).  
Apex & Wire Adapters for dynamic content.

### Phase 7: Integration & External Access

Named Credentials & OAuth Authentication for secure connection with Payment Gateway API (e.g., Stripe).  
REST API integration with external OTA platforms (Booking.com, Expedia) to synchronize availability.  
Platform Events to notify external systems when booking is created/updated.  
Custom Web Service API (REST) for exposing booking data to hotel website.

### Phase 8: Data Management & Deployment

Data Import Wizard & Data Loader to bulk import room inventory and customers.  
Duplicate Rules to avoid double customer records.  
Change Sets & VS Code + SFDX for automated deployment pipelines.  
Data Backup Strategy using Scheduled Data Exports.

### Phase 9: Reporting, Dashboards & Security Review

Smart Reports:  
- Predicted Peak Occupancy Report.  
- Revenue Forecast Report based on AI Pricing.  
- Booking Source Report (Direct vs OTA).  
Dynamic Dashboards:  
- Real-time room availability status.  
- Graphs for past vs recommended pricing trends.  
Field-Level Security: Hide sensitive data from general users.  
Session Management, Login IP Restrictions.  
Audit Trail for changes in pricing and booking records.

### Phase 10: Final Presentation & Demo Day

Smart Demo Flow:  
1. Show Customer booking process with AI Price Recommendation.  
2. Demonstrate Calendar-based availability view.  
3. Trigger Platform Event → external OTA sync.  
4. Display Predictive Occupancy Report.  
5. Show seamless Payment via Stripe integration.  
6. Highlight custom dashboard widgets.  
Provide complete Handoff Documentation with architecture diagrams, API endpoints, automation flow diagrams.

## Example GitHub Repo URL:

https://github.com/yourusername/smart-hotel-crm

## Demo Video:

Showcase end-to-end smart flow:  
- Booking → AI Pricing → Payment Gateway → Dynamic Reports → OTA Sync.

## Why Smart Hotel Booking CRM Stands Out:

• Uses AI to recommend optimal pricing.  
• Predictive occupancy analytics.  
• Automated integrations with OTA and Payment APIs.  
• User-friendly interactive UI with dynamic data.  
• Highly secure and scalable.