Parking Slot Reservation System

# Problem Statement:

# In many companies, employees face daily challenges in finding available parking spaces. This leads to wasted time, employee frustration, and inefficiencies in managing parking resources. Currently, there is no automated way to check slot availability or reserve a space in advance.

# To solve this, we will implement a Salesforce-based Parking Slot Reservation System that allows employees to easily book a parking slot, automatically update its availability, and provide management with real-time dashboards for monitoring utilization.

# Project Implementation Phases

# Phase 1: Problem Understanding & Industry Analysis

# Gather requirements from employees and facilities management.

# Identify key stakeholders (employees, facilities/admin team, Salesforce admins).

# Map current process (manual parking) vs future process (automated booking).

# Explore similar solutions on Salesforce AppExchange.

# Phase 2: Org Setup & Configuration

* Select Salesforce edition (Developer/Enterprise org for implementation).
* Setup company profile, business hours, and holidays.
* Create users, roles, and permission sets for employees and admins.
* Setup sandbox for testing and future deployments.

# Phase 3: Data Modeling & Relationships

# Custom Object: Parking Slot → Fields: Slot Number, Location, Availability Status.

# Reservation Object (optional) → Fields: Employee (lookup to Contact), Slot (lookup to Parking Slot), Date/Time.

# Define relationships: Employee ↔ Reservation ↔ Parking Slot.

# Use Page Layouts and Compact Layouts for easy booking interface.

# Phase 4: Process Automation (Admin)

* Build **Flows** to automate booking:
  + When employee reserves → mark slot as **Booked**.
  + When employee cancels → mark slot as **Available**.
* Add **Validation Rules** to prevent double-booking.
* Configure email/SMS/notification alerts for reservations.

# Phase 5: Apex Programming (Developer– Advanced Logic)

# Write Apex Triggers: Ensure one active reservation per employee.

# Use Batch Apex to reset all slots daily (optional).

# Implement Test Classes to validate functionality.

# Phase 6: User Interface Development

# Create a Lightning App called “Parking Reservation.”

# Build a Home Page showing “Available Slots” and a Book Now button.

# Use Lightning Web Components (LWC) for a calendar/grid view of slots.

# Create tabs for Parking Slots and Reservations.

# Phase 7: Integration & External Access

* (Optional) Integrate with **Google Maps API** to show slot locations.
* Enable **Salesforce Mobile App** access for employees to reserve on the go.
* Configure authentication & security for external access (if needed).

# Phase 8: Data Management & Deployment

# Use Data Import Wizard to upload all parking slots initially.

# Maintain data accuracy with duplicate rules.

# Use Change Sets or SFDX for moving from Sandbox → Production.

# Schedule regular backups of reservation and slot data.

# Phase 9: Reporting, Dashboards & Security Review

# Reports: Track reservation history, usage patterns, and employee bookings.

# Dashboards:

# Pie chart: Reserved vs Available slots.

# Bar chart: Slot usage trends over time.

# Apply Security Reviews: Field-level security, login IP ranges, audit trail.

# Phase 10: Final Presentation & Demo Day

# Demonstrate the system:

# Employee reserves a slot.

# Slot status changes to “Booked.”

# Dashboard updates instantly.

# Collect feedback from employees and facilities team.

# Deliver documentation and admin training.

# Showcase the project on LinkedIn/Portfolio.

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