EcoRide CRM – Electric Vehicle Ride-Hailing & Fleet Management

EcoRide CRM is a Salesforce-based solution designed to streamline the operations of an electric vehicle (EV) ride-hailing company. The system provides an end-to-end framework covering customers, drivers, vehicles, rides, fleet maintenance, invoicing, and reporting—all within a single Salesforce environment.  
  
By integrating advanced automation, data-driven dashboards, and EV-specific features (such as battery health tracking), EcoRide CRM aims to deliver operational efficiency, sustainability, and superior customer experience.

# 📌 Phase 1: Problem Understanding & Industry Analysis

Requirement Gathering:

EV ride-hailing companies face several challenges:

- Decentralized data management.

- Inefficient fleet utilization.

- Limited EV battery & maintenance tracking.

- Manual invoicing processes.

- Absence of real-time dashboards.

Stakeholder Analysis: Customers, Drivers, Fleet Managers, Administrators, Corporate Clients.

Business Process Mapping:

1. Customer books ride → Pickup & Drop.

2. Dispatcher assigns driver & vehicle.

3. Driver completes ride.

4. System generates invoice.

5. Fleet updates battery/maintenance logs.

# 📌 Phase 2: Org Setup & Configuration

- Salesforce Editions: Developer (project), Enterprise (production).

- Company Profile: EcoRide Pvt Ltd, IST, INR, 24x7 operations.

- User Setup: Admin, Dispatcher, Driver, Corporate Client.

- Profiles & Roles: Admin > Dispatcher > Driver > Customer.

- Permission Sets: Fleet\_Reports\_Access, EV\_API\_Access.

- OWD & Sharing: Private records, shared with relevant stakeholders.

- Login Policies: Restricted driver access, full admin access.

- Deployment Strategy: Developer Org → Sandbox → Production via Change Sets/SFDX.

# 📌 Phase 3: Data Modeling & Relationships

Custom Objects: Customer\_\_c, Driver\_\_c, Vehicle\_\_c, Ride\_\_c, Invoice\_\_c.

Relationships: Ride ↔ Customer (Lookup), Ride ↔ Driver (Lookup), Vehicle ↔ Driver (Lookup), Invoice ↔ Ride (Master-Detail).

Record Types & Layouts: Ride (Standard, Premium), Vehicle (Sedan, SUV).

Schema Builder used for entity relationship visualization.

# 📌 Phase 4: Process Automation (Admin)

- Validation Rules: Ensure driver/vehicle assignment before ride completion, battery % within 0–100.

- Approval Processes: High-fare rides require approval, maintenance requests routed to manager.

- Flows: Auto-assign driver (record-triggered), Dispatcher update (screen flow), Scheduled reminders, Auto invoice (auto-launched).

- Email Alerts & Tasks: Ride confirmation, maintenance alerts, driver task creation.

- Custom Notifications: Customer ride confirmation, Driver ride notification.

# 📌 Phase 5: Apex Programming (Developer)

- Service Classes: RideService, VehicleService, DriverService, InvoiceService.

- Triggers: RideTrigger, VehicleTrigger, InvoiceTrigger.

- Best Practices: Bulkified triggers, reusable service classes, no SOQL/DML in loops.

- Async Apex: Batch Apex (performance), Queueable (notifications), Scheduled (weekly reports).

- Error Handling: try/catch blocks with Ride\_Error\_Log\_\_c.

- Test Classes: Achieved >85% coverage.

# 📌 Phase 6: User Interface Development

- Lightning App: EcoRide CRM with navigation bar.

- Record Pages: Tailored layouts for Customers, Drivers, Vehicles, Rides, Invoices.

- Utility Bar: Quick access to dashboards.

- LWCs: Ride Summary Dashboard, Driver Load Visualization, Fleet Tracker.

- Navigation Service for smooth transitions.

# 📌 Phase 7: Integration & External Access

- External APIs: GPS tracking integration.

- Named Credentials: Secure callouts.

- REST API: Ride & Invoice data access.

- Platform Events: Real-time ride updates.

- Salesforce Connect: Fleet telemetry integration.

- OAuth 2.0: Secure authentication.

# 📌 Phase 8: Data Management & Deployment

- Data Import Wizard: Initial customer/driver/vehicle data.

- Data Loader: Bulk ride & invoice uploads.

- Duplicate Rules: Prevent redundancy.

- Data Export: Weekly backups.

- Deployment: Change Sets/SFDX with GitHub integration.

# 📌 Phase 9: Reporting, Dashboards & Security

Reports: Ride bookings by Driver/Vehicle, Fleet utilization, Customer ride history.

Dashboards: Management (revenue/utilization), Dispatcher (ride assignments), Driver (workload/schedule).

Security: Role hierarchy, Field-level restrictions, Strict login/session settings.

# 📌 Phase 10: Final Presentation & Demo Day

- PowerPoint presentation highlighting EcoRide CRM benefits.

- Live Demo: Booking → Assignment → Completion → Invoice → Dashboard.

- Stakeholder feedback collection.

- Documentation handover + Architecture diagrams.

- Repository published on GitHub.

# 🛠️ Tech Stack

- Platform: Salesforce CRM

- Development Tools: Apex, Flows, LWC

- Reporting Tools: Reports & Dashboards

- Deployment Tools: Change Sets, SFDX, GitHub

- Integration Tools: REST API, Named Credentials, Platform Events

# 📌 Outcomes

- Centralized EV ride & fleet management.

- Optimized driver/vehicle allocation.

- Automated invoicing & revenue tracking.

- Real-time insights via dashboards.

- Sustainability tracking for EV battery & maintenance.

- Enhanced customer satisfaction & efficiency.