Release Notes for the Vehicles Leased Manager

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Prepared by: Okuhle Mbongwe

Table of Contents

Summary

The core modules for overseeing car leasing operations are included in this release. It includes the Entity Framework DbContext setup, database schema creation and seed data, and CRUD functionality for key entities. With complete relational integrity, the system facilitates the management of branches, clients, drivers, suppliers, and vehicles.

Implemented Modules

Branches Module

- Controller: BranchesController.cs
- Model: Branch
- Features: Create, list, edit, delete branches
- Details: Each branch has an ID, name, and location. Branches have a one-to-many relationship with vehicles.

Clients Module

- Controller: ClientsController.cs
- Model: Client
- Features: Create, list, edit, delete clients
- Details: Clients have company name and contact details. They relate to vehicles.

Drivers Module

- Controller: DriversController.cs
- Model: Driver
- Features: Create, list, edit, delete drivers
- Details: Drivers have full name, license number, and phone. Related to vehicles.

Suppliers Module

- Controller: SuppliersController.cs

- Model: Supplier
- Features: Create, list, edit, delete suppliers
- Details: Suppliers have name and contact info, supplying vehicles.

Vehicles Module

- Controller: VehiclesController.cs
- Model: Vehicle
- Features: Create, list, edit, delete vehicles
- Details: Vehicles link to a supplier, branch, client, and driver. Includes manufacturer, model, year, and registration number.

Database Schema & Migration

- Migration Class: InitialCreate
- Creates tables: Branches, Clients, Drivers, Suppliers, and Vehicles.

Relationships:

- Vehicles table has foreign keys referencing Branches, Clients, Drivers, and Suppliers.
- Cascading deletes enabled for related records.

Indexes on all foreign key columns in the Vehicles table for query optimization.

Seed Data

Initial seed data populates:

- 3 Suppliers (e.g., Audi South Africa, VW South Africa, Chery South Africa)
- 3 Branches (locations include Mthatha, East London, Johannesburg)
- 3 Clients (e.g., Mdingi Industrial Design Technologies, Zebros, Nandos)
- 3 Drivers (with names, license numbers, phone numbers)
- 3 Vehicles linked to the above entities (BYD, Ranger, Polo)

Data Models

Each entity class supports navigation properties for ORM relationships:

- Branch with collection of Vehicles
- Client with collection of Vehicles
- Driver with collection of Vehicles
- Supplier with collection of Vehicles
- Vehicle with references to Branch, Client, Driver, and Supplier

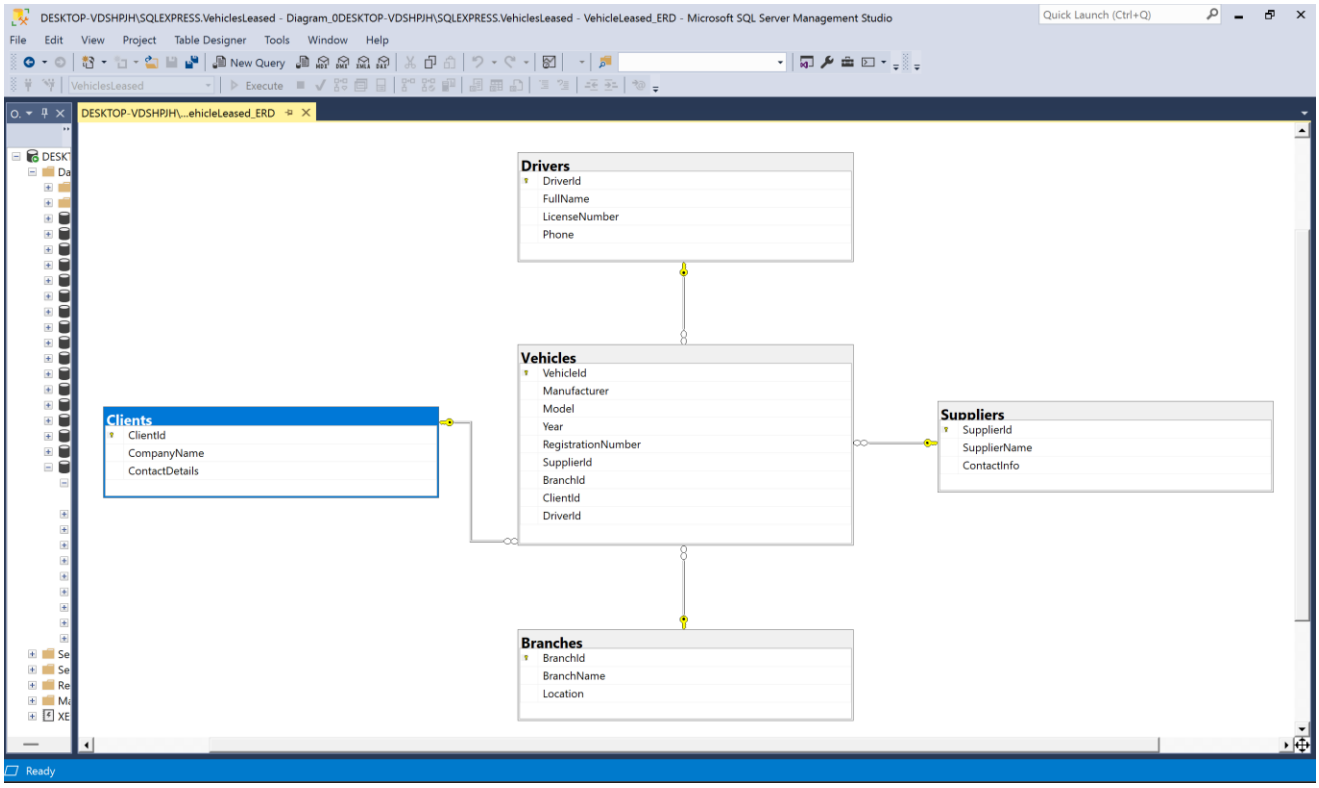
Additional model for reporting:

- SummaryReport class aggregates statistics by supplier, branch, and client.

Application Architecture

- Technology stack: ASP.NET MVC 5, Entity Framework 6 (Code First Migrations)
- Data Access: EF DbContext (VehicleLeasingContext) manages DbSets for all entities.
- Validation: Server-side model validation with anti-forgery tokens on create/edit/delete actions.
- Error Handling: Returns appropriate HTTP status codes for invalid requests or missing data.
- View Models: Basic usage of entity models directly with Razor views.

Entity Relationship Diagram (ERD)



The ERD visually represents the following relationships:

- One-to-many from Branch to Vehicle
- One-to-many from Client to Vehicle
- One-to-many from Driver to Vehicle
- One-to-many from Supplier to Vehicle

Each table uses a GUID primary key. Vehicles reference other entities by foreign keys.