Storing and Retrieving Data - Project Report

Developing a database for Turbo Empire

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2021/2022

1. Description of Turbo Empire

This project will be focused on a fictitious car stand, Turbo Empire. The owners started their company in 2020.

The business concept revolves around selling new and used cars, to individuals and companies for a profit. Turbo Empire stands are in Carcavelos, Santarém and Leiria (where the headquarters are located). Currently, the company has 12 employees.

In the beginning of 2020, the company had a total of 60 cars (20 in Carcavelos, 20 in Santarém and 20 in Leiria).

Turbo Empire sets a sell price for each car (the price already includes VAT), but the final price is negotiable. After the purchase, the employee asks the customer to rate the service of the company (it is not mandatory to rate the service).

The clients also have the possibility to pay in multiple monthly instalments or prompt payment.

The log table consists of a summary of sales.

An invoice is issued for each car that the company sells, so even if a person buys 2 cars in the same day, at the same time, he will receive 2 invoices (for the purpose of example we only created one invoice).

Location	Address	Email	Phone Number	Responsible Person
Carcavelos	Rotunda Nossa Senhora dos Remédios, nº15	turboempirecarcavelos@turboempire.pt	214456234	Carla Albuquerque
Santarém	Largo do Infante Santo, nº13	turboempiresantarem@turboempire.pt	243446274	Bruna Albuquerque
Leiria (HQ)	Rua Francisco Clemente, nº10	turboempireleiria@turboempire.pt	244457248	Nuno Costa

General information about Turbo Empire:

- Registered company name: TurboEmpire
- Company website: www.turboempirecars.pt

Addresses
- 🔑 Address_ID INT
- ◇ address VARCHAR(60)
- ◇ city VARCHAR(30)
- ◇ county VARCHAR(35)
- ◇ district VARCHAR(20)
- ◇ zip_code VARCHAR(8)

Indexes

Stands
- 🔑 Stand_ID INT
- 🔷 Address_ID INT
- ◇ name VARCHAR(30)
- ◇ email VARCHAR(50)
- ◇ phone_number INT
- ◇ nif INT
- ◇ employee_number INT

Indexes

Cars_for_sale_has_Car_features
- ❗ Car_for_sale_ID INT
- ❗ Car_features_ID INT

Indexes

Car_features
- 🔑 Car_features_ID INT
- ◇ air_conditioning TINYINT
- ◇ parking_sensors TINYINT
- ◇ bluetooth TINYINT
- ◇ radio TINYINT
- ◇ gps TINYINT

Indexes

Employees
- 🔑 Employee_ID INT
- 🔷 Address_ID INT
- 🔷 Stand_ID INT
- ◇ first_name VARCHAR(15)
- ◇ last_name VARCHAR(15)
- ◇ email VARCHAR(50)
- ◇ phone_number INT
- ◇ nif INT
- ◇ job_title VARCHAR(20)
- ◇ salary INT
- ◇ seniority INT

Indexes

Cars_for_sale
- 🔑 Car_for_sale_ID INT
- 🔷 Model_ID INT
- 🔷 Stand_ID INT
- ◇ hp INT
- ◇ state VARCHAR(5)
- ◇ type_of_fuel VARCHAR(15)
- ◇ color VARCHAR(10)
- ◇ number_doors INT
- ◇ number_seats INT
- ◇ registration_year INT
- ◇ price INT
- ◇ current_mileage INT

Indexes
Triggers

Car_models
- 🔑 Model_ID INT
- ◇ manufacturer_name VARCHAR(15)
- ◇ model_name VARCHAR(15)
- ◇ category VARCHAR(20)

Indexes

Customers
- 🔑 Customer_ID INT
- 🔷 Address_ID INT
- ◇ first_name VARCHAR(15)
- ◇ last_name VARCHAR(15)
- ◇ phone_number INT
- ◇ email VARCHAR(45)
- ◇ nif INT
- ◇ singular TINYINT

Indexes

log
- 🔑 ID INT
- ◇ Car_sold_ID INT
- ◇ Stand_ID INT
- ◇ state VARCHAR(5)
- ◇ type_of_fuel VARCHAR(15)
- ◇ registration_year INT
- ◇ current_mileage INT
- ◇ manufacturer_name VARCHAR(15)
- ◇ model_name VARCHAR(15)
- ◇ category VARCHAR(20)
- ◇ price INT
- ◇ agreed_price INT

Indexes
Triggers

Cars_sold
- 🔑 Car_sold_ID INT
- 🔷 Customer_ID INT
- 🔷 Employee_ID INT
- 🔷 Car_for_sale_ID INT
- ◇ agreed_price INT
- ◇ date_sold DATE
- ◇ prompt_payment TINYINT
- ◇ monthly_payment_amount FLOAT
- ◇ number_due_payments INT
- ◇ paid TINYINT
- ◇ total_amount_paid FLOAT
- ◇ service_rating TINYINT

Indexes
Triggers

Customer_Payments
- 🔑 Customer_Payments_ID INT
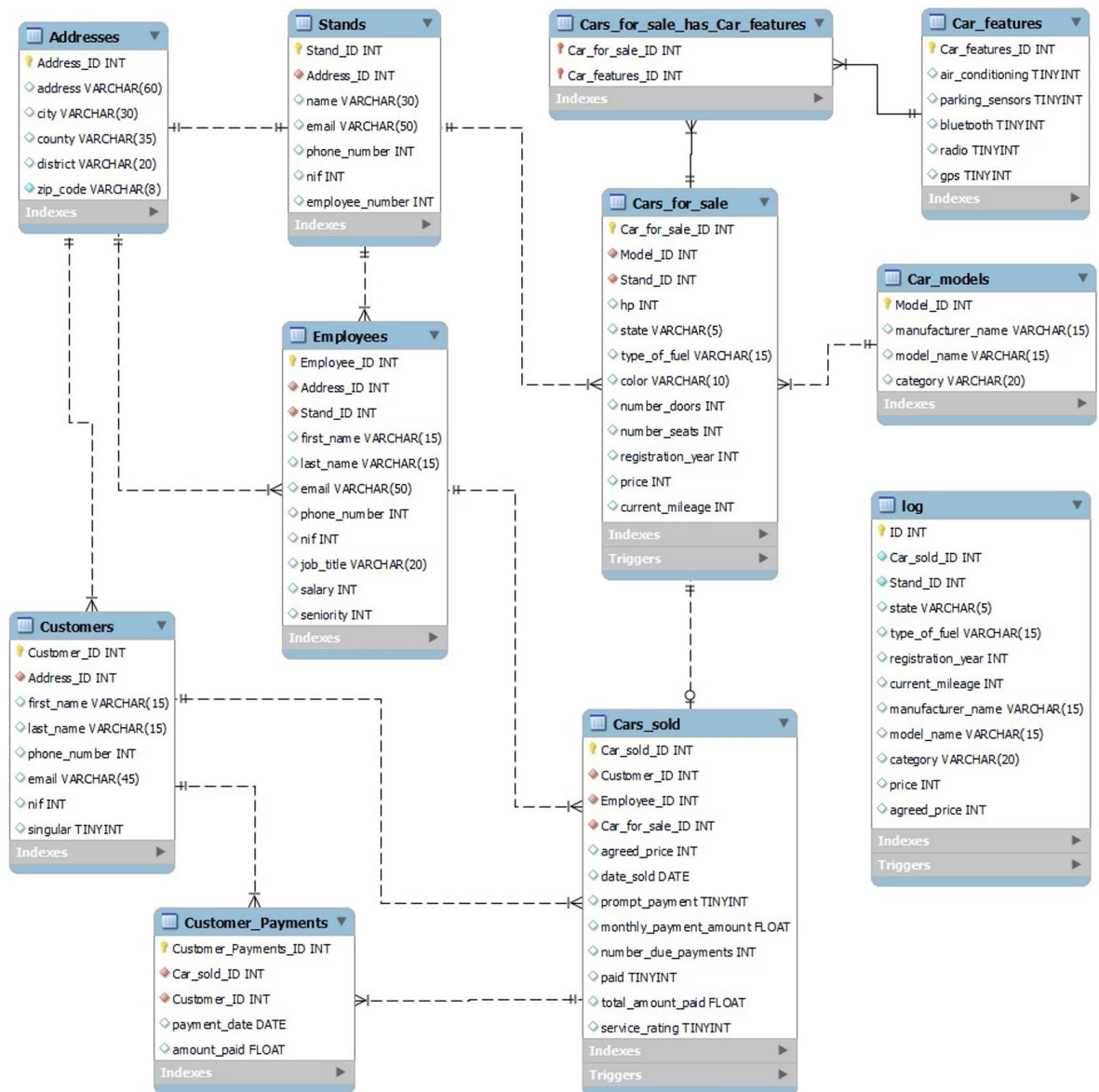- 🔷 Car_sold_ID INT
- 🔷 Customer_ID INT
- ◇ payment_date DATE
- ◇ amount_paid FLOAT

Indexes

Figure 1: ERD Turbo Empire