PURDUE UNIVERSITY® | Mitchell E. Daniels, Jr. School of Business

Fall 2023 – Module 1

Group Project

Client: Myofficecab

Course: MGMT58200

Management of Organizational Data

Group 8

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CLIENT DETAILS

Client Name

Myofficecab

Website: https://www.myofficecab.in/

LinkedIn: https://www.linkedin.com/company/myofficecab-in/about/

Client Background

Established in 2015, "myofficecab" is a pioneering eco-transportation company based in India. With a compact yet dedicated team of 7 employees, the company specializes in offering comprehensive employee transportation solutions to corporations. Their fleet comprises Hatchback Cars, Sedans, MUVs, and Buses in many sizes. The company's inception was driven by a strong commitment to offering eco-conscious solutions, particularly in the realms of ride-sharing services and the adoption of environmentally friendly fuels. All the vehicles in their fleet are powered exclusively by eco-friendly fuels such as LPG, CNG, and electricity. Such initiatives play a crucial role in addressing environmental challenges and promoting sustainability.

Description of Data Set

The dataset is formatted in six CSV files with the main tables being: customers.csv (71 rows × 6 columns), drivers.csv (403 rows × 9 columns), employee_offices.csv (2863 rows × 2 columns), employees.csv (2283 rows x 6 columns), trips.csv (14613 rows x 6 columns), and vehicles.csv (210 rows x 12 columns). The dataset contains details about customers, vehicles, drivers, trips, employees, and employee offices. The data spans from January 1st, 2022, to May 31st, 2023.

INTRODUCTION

Business Problem

The business lacks both digitally recorded data and a centralized database. It relies heavily on offline methods of keeping data. This impacts their ability to easily access, analyze, and utilize the data for taking data-driven decisions. This also makes it difficult to update historical data consistently.

Project Scope and Objectives

The central aim of this project is to assist "myofficecab" in developing a more structured and centralized Database Management System (DBMS) facilitated through MySQL. The initiative encompasses the creation of tables for employee details, trips, vehicle details, driver details, and customers. By implementing an optimized DBMS architecture, we aim to enhance information management, streamline ETL processes, and potentially unlock valuable insights for understanding key metrics such as month-on-month trips, top drivers' month on month, busiest days of the week, busiest times of the day, most

frequently traveling employees in a month, and identifying high-profit segments and channels. We expect that the client will efficiently manage data related to customers, transactions, fleet management, and employee details.

Table Names- Fields and Columns

1. *Employees:* This table stores employee details such as ID, employee ID, employee name consisting of first name and last name, gender, email address, primary contact, emergency contact, and is active
2. *Employee_offices:* This table stores employee ID and office ID
3. *Vehicles:* The vehicles table consists of id, model id of vehicle, registration number of vehicle, electrics, route number, status, tracking status, off duty start time, off duty end time, insurance expiry date, insurance type, insurance company name, and driver ID
4. *Trips:* The trips table consists of ID, trip date, vehicle ID, driver ID, and identifier
5. *Drivers:* The driver table consists of ID, driver name consisting of first name and last name, DOB, gender, contact number, status, and driving license expiry date, and badge expiry date
6. *Customers:* This table consists of ID, name, contact number, status, area, and total carbon dioxide reduced
7. *Employee_Trips:* This table is an associate entity between the trips and employees, consisting of columns ID, employee ID, trip ID, pick up time and pick up date.
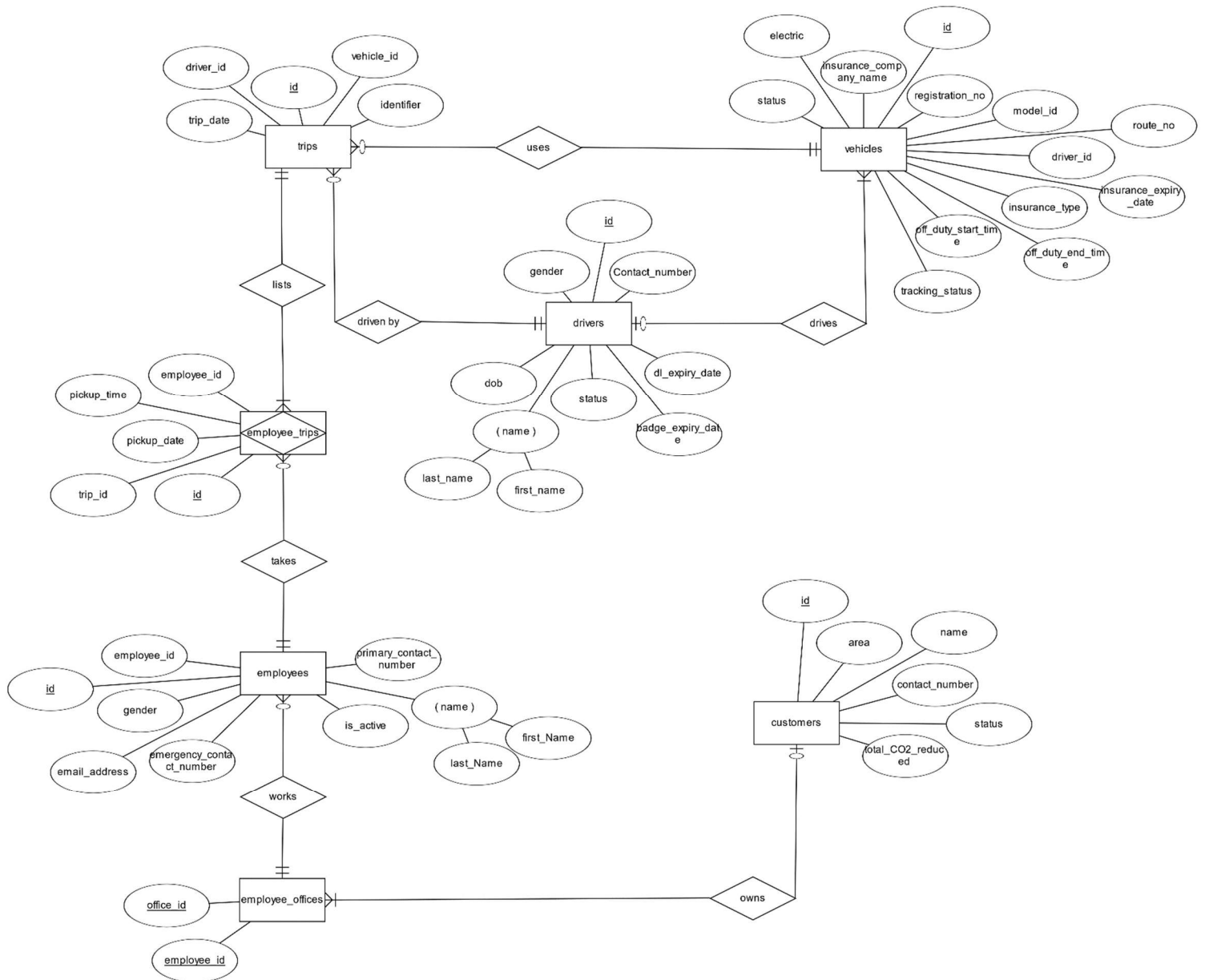
(Note:

1. *Please ensure to run the schema SQL scripts before running the queries script. If any issues, data sources will need to be imported from csv files.*
2. *Please ensure all date fields are in mm/dd/yyyy format during upload to use the queries in their current format)*
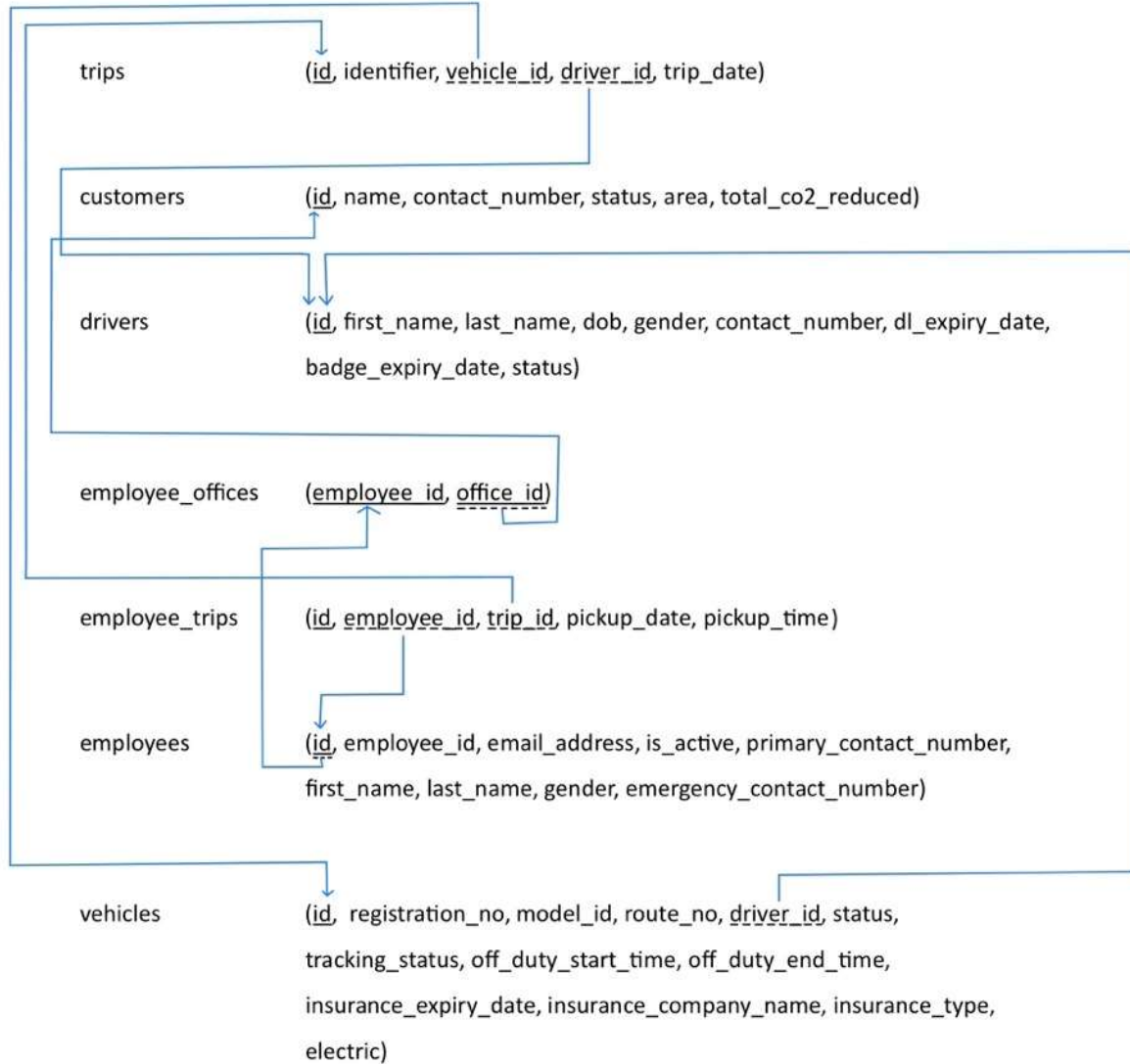
Relationship between Tables

Each employee can take zero or many trips depending on the day of the week and time of their commute. Each trip can be taken by one or many employees and each trip can be completed by one and only one driver. However, a driver can be tagged to zero or more trips and can drive one or more vehicles. Each trip can be completed by using only one vehicle and each vehicle can either be tagged to no trips or many trips. A single vehicle can either have no drivers associated with or a single driver. Each employee can work in one and only one office at a time and each office can have none or many employees. Each office can have either zero or one customer only and each customer can be associated with one or many employees' office.

CONCEPTUAL DATA MODELLING (ERD)

RELATIONAL DATA MODEL

trips   (id, identifier, vehicle_id, driver_id, trip_date)

customers   (id, name, contact_number, status, area, total_co2_reduced)

drivers   (id, first_name, last_name, dob, gender, contact_number, dl_expiry_date, badge_expiry_date, status)

employee_offices   (employee_id, office_id)

employee_trips   (id, employee_id, trip_id, pickup_date, pickup_time)

employees   (id, employee_id, email_address, is_active, primary_contact_number, first_name, last_name, gender, emergency_contact_number)

vehicles   (id, registration_no, model_id, route_no, driver_id, status, tracking_status, off_duty_start_time, off_duty_end_time, insurance_expiry_date, insurance_company_name, insurance_type, electric)

QUERIES

1. Month on month trips:
   This query gives the details about the number of trips taken every month of the year.

2. Month on month number of employees:
   This query gives the details about the number of employees taking trips every month of the year and multiple employees can be on a single trip.

3. Month on month top drivers:
   This query gives the details about the number of trips completed by a driver every month of the year.

4. Busiest days of the week:
   This query displays the days of the week that are the busiest based on the number of rides.

5. Busiest times of the day:
   This query displays the time slot (morning, afternoon, evening) of the day that are the busiest based on the number of rides.

6. Most frequently traveling employees in a month:
   This query gives the details of the employees who travel most frequently in each month of the year.

7. Top customers in a month:
   This query gives the offices that are utilizing the client's services the most in each month of the year.

8. Number of insured and uninsured rides given out:
   This query gives the number of trips completed by fully insured vehicles and partially insured vehicles.

9. Highest demand area:
   This query shows the areas from which the greatest number of rides originate.

10. Drivers with driving license expiring in 2023:
    This query gives the details about the drivers whose license is about to expire in 2023.

INSIGHTS

- The busiest days of the week where our client provides most service is on Wednesday and Thursday
- 12PM to 3 PM and 9PM to Midnight are busiest time slots for the client, accounting for ~ two-thirds of all the rides taken.
- The maximum number of trips was 1714, taken during August 2022. The number of trips saw an increase from January 2022 to August 2022, with a subsequent decrease from September to May 2023.
- ~ 28 % of the rides were in partially insured cabs. The client could consider upgrading to full coverage to mitigate risks from accidents.

FUTURE RECOMMENDATIONS

1. *Process Optimization:* A lot of manual effort for the billing team can be saved with the help of trip sign off status given by the drivers. This helps the team keep track of the completed trips and gives them a clear estimate of the trips completed and revenue generated with the help of employee_trips table.
2. *Expansion of Operations:* The company can onboard more clients and store data in the Trips table.
3. *Future Records:* The company can work on improving their database further by introducing new tables such as a feedback table which includes driver punctuality and ratings, helping the company to assess their drivers in a better way.