IN1010 Data Modeling Exercise 2 – Classic Car Club

In this exercise you have to decide what the entities (tables) are, which attributes should belong in which tables, and what the relationships should be.

A classic car club where members pay a fee to belong and can book out various classic cars for up to 5 days is developing a database to replace its existing paper-based records system. The customer's membership fee is translated into club points. The database needs to record members by their unique membership number, name, address, date of birth and club points. The system needvs to record bookings of cars with a unique booking id, a start date and a number of days. The cars available to members need to be put in the database. Each car has a registration number, make, model, mileage and band. When a booking is complete the system should store the invoice information which should show the end date of the booking and the cost of the car in club points.

Develop data model in Visual Paradigm to represent the above scenario.
Hint: The relationship between two of the tables is one we haven't used before, but it is on the Visual Paradigm relationship menu.

Entities/tables and Attributes:

1. **Members**
    - Membership Number (Primary Key)
    - Name
    - Address
    - Date of Birth
    - Club Points
2. **Cars**
    - Registration Number (Primary Key)
    - Make
    - Model
    - Mileage
    - Band
3. **Bookings**
    - Booking ID (Primary Key)
    - Membership Number (Foreign Key referencing Members table)
    - Car Registration Number (Foreign Key referencing Cars table)
    - Start Date
    - Number of Days
    - End Date
4. **Invoices**
    - Invoice ID (Primary Key)
    - Booking ID (Foreign Key referencing Bookings table)
    - End Date
    - Cost in Club Points

Relationships:

1. **Members to Bookings:** A one-to-many relationship, where one member can have multiple bookings over time.
2. **Cars to Bookings:** A one-to-many relationship, where each car can be booked multiple times but by different members.
3. **Bookings to Invoices:** A one-to-one relationship, where each booking results in a single invoice once the booking is completed.

ER Diagram Overview: