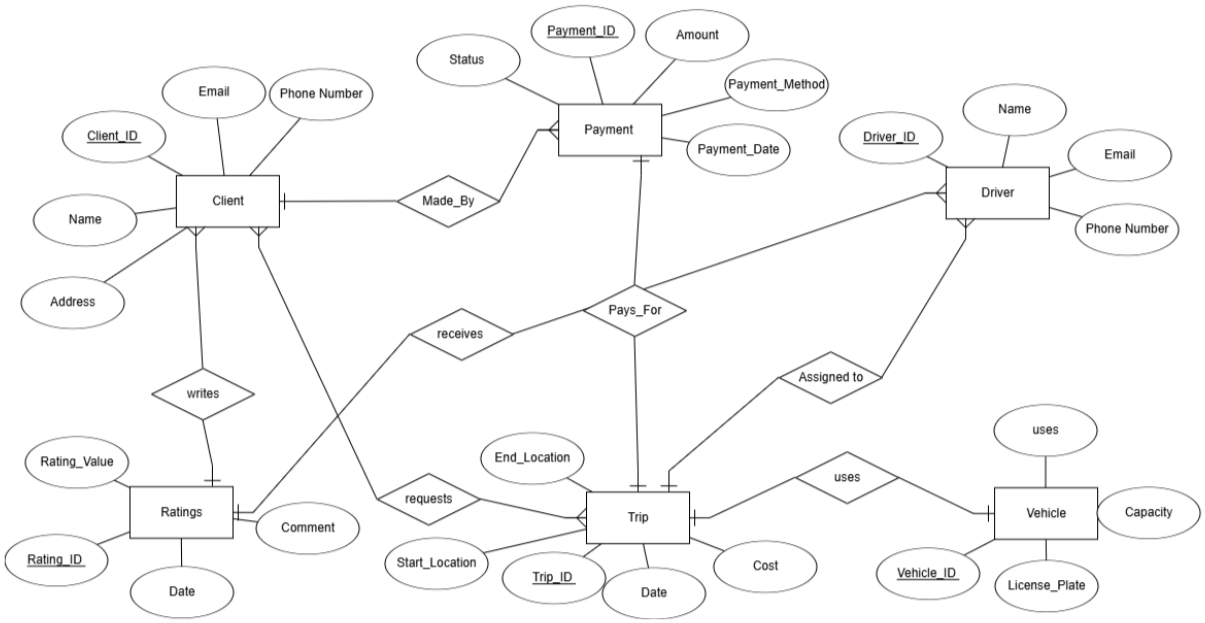
REPORT DATABASE

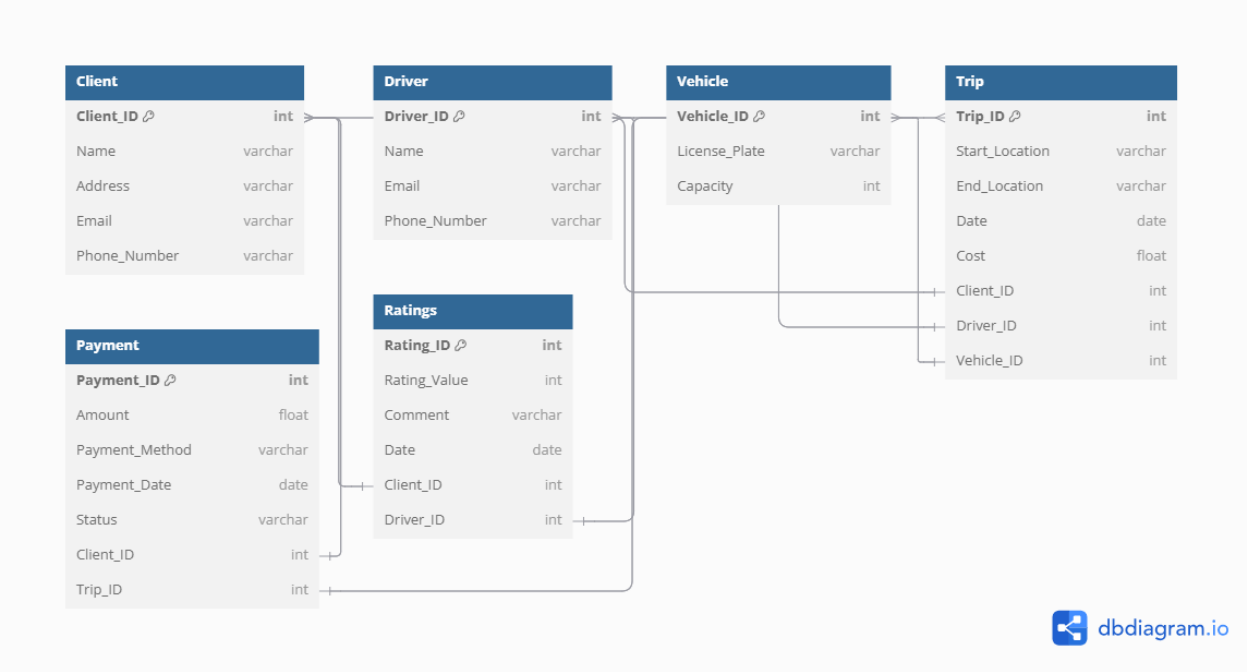
1. Overview

The "Service" database is designed to manage a ride-sharing or transportation service. It tracks clients, drivers, vehicles, trips, payments, and ratings. The database consists of six main tables: Client, Driver, Vehicle, Trip, Payment, and Ratings. The relationships between these tables are illustrated in the provided ERD, ensuring proper data integrity through foreign key constraints.

2. Entity-Relationship Diagram (ERD)



3. Mapping (Logical Design to Physical Design)



4. Data Overview

The database has been populated with sample data:

- **Clients**: 10 records (e.g., Ahmed Ali, Sara Mahmoud, etc.)
- **Drivers**: 10 records (e.g., Hassan Saleh, Mostafa Nabil, etc.)
- **Vehicles**: 10 records (e.g., License Plate ABC-1234 with capacity 2, etc.)
- **Trips**: 3 records (e.g., Cairo to Giza on 2024-11-01 costing 150.00, etc.)
- **Payments**: 94 records (e.g., Payment of 150.00 via Credit Card for Trip 1, etc.)
- **Ratings**: 3 records (e.g., Rating of 5 for Driver 1 with comment "Excellent service", etc.)

5. Analysis of Queries and Results

The SQL file includes several SELECT queries. Below are the queries, their purposes, and their results in a textual "screenshot" format.

1. **Query 1: SELECT * FROM Client WHERE Name LIKE '%Ahmed%';**

```
125 •   SELECT * FROM Client WHERE Name LIKE '%Ahmed%';
```

Result Grid | Filter Rows: | Edit: | Export/Import:

Client_ID	Name	Address	Email	Phone_Number
1	Ahmed Ali	Cairo	ahmed1@gmail.com	01000123456
NULL	NULL	NULL	NULL	NULL

2. **Query 2: SELECT Client_ID, SUM(Amount) AS Total_Paid FROM Payment GROUP BY Client_ID;**

```
126 •   SELECT Client_ID, SUM(Amount) AS Total_Paid FROM Payment GROUP BY Client_ID;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Client_ID	Total_Paid
1	150
2	300
3	100

3. **Query 3: SELECT * FROM Trip ORDER BY Cost ASC;**

```
127 •   SELECT * FROM Trip ORDER BY Cost ASC;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap

Trip_ID	Start_Location	End_Location	Date	Cost	Client_ID	Driver_ID	Vehicle_ID
3	Mansoura	Tanta	2024-11-03	100	3	3	3
1	Cairo	Giza	2024-11-01	150	1	1	1
2	Alexandria	Cairo	2024-11-02	300	2	2	2
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

4. **Query 4: SELECT Name, Address FROM Client;**

```
129 •    SELECT Name, Address FROM Client ;
```

Result Grid | Filter Rows: | Export:

Name	Address
Ahmed Ali	Cairo
Sara Mahmoud	Giza
Mohamed Adel	Alexandria
Heba Said	Mansoura
Khaled Amin	Tanta
Laila Youssef	Asyut
Omar Hassan	Suez
Rana Ibrahim	Ismailia
Yasser Mostafa	Zagazig
Nada Fathy	Fayoum

5. **Query 5: Trip Details with Joins**

```
130 •    SELECT Trip.Trip_ID,
131      Client.Name AS Client_Name,
132      Driver.Name AS Driver_Name,
133      Vehicle.License_Plate,
134      Trip.Start_Location,
135      Trip.End_Location,
136      Trip.Date,
137      Trip.Cost
138  FROM Trip
139  JOIN Client ON Trip.Client_ID = Client.Client_ID
140  JOIN Driver ON Trip.Driver_ID = Driver.Driver_ID
141  JOIN Vehicle ON Trip.Vehicle_ID = Vehicle.Vehicle_ID;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Trip_ID	Client_Name	Driver_Name	License_Plate	Start_Location	End_Location	Date	Cost
1	Ahmed Ali	Hassan Saleh	ABC-1234	Cairo	Giza	2024-11-01	150
2	Sara Mahmoud	Mostafa Nabil	DEF-5678	Alexandria	Cairo	2024-11-02	300
3	Mohamed Adel	Ramy Kamel	GHI-9101	Mansoura	Tanta	2024-11-03	100

6. Observations and Insights

- **Client Activity**: Ahmed Ali, Sara Mahmoud, and Mohamed Adel are the only clients with recorded trips and payments so far. The remaining 7 clients have not yet taken trips.
- **Driver Performance**: Hassan Saleh received the highest rating (5/5) with the comment "Excellent service", while Ramy Kamel received an average rating (3/5).
- **Payment Status**: Two payments are marked as "Paid" (Trip 1 and Trip 3), while Trip 2's payment (300.00) is still "Pending".
- **Cost Analysis**: The cheapest trip is from Mansoura to Tanta (100.00), while the most expensive is from Alexandria to Cairo (300.00).
- **Data Integrity**: The foreign key constraints ensure that trips, payments, and ratings are linked to valid clients, drivers, and vehicles, maintaining referential integrity.

7. Conclusion

The "Service" database effectively manages the core operations of a transportation service. The schema is well-structured with appropriate relationships and constraints. The ERD and mapping provide a clear understanding of the database design, while the query results offer insights into the data. Further data and enhancements (as suggested) can unlock deeper insights into operations, client behavior, and driver performance.