Travel Management System

Step-1: Entities

1. Company
2. Bus
3. Driver
4. Passenger
5. Ticket
6. Payment
7. Helper
8. Owner
9. Repair\_Center

Step-2: Identifying the Attributes and Primary key for each Entity

1. Company(**id**, name, city, contact)
2. Bus(**bus\_id**, bus\_name, model, company\_id)
3. Driver(**d\_id**, name, phone, license\_no, city, bus\_id)
4. Passenger(**p\_id**, first\_name, last\_name, gender, email, phone)
5. Ticket(**t\_id**, passenger\_id, bus\_id, journey\_date, seat\_no)
6. Payment(**payment\_id**, passenger\_id, bus\_id, amount)
7. Helper(**h\_id**, name, phone, d\_id)
8. Owner(**o\_id**, name, email, phone, address, company\_id)
9. Repair\_Center(**rc\_id**, name, phone, email, bus\_id)

Step-3: Identifying the Relationship needed

1. Company-has-Bus
2. Bus-requires-Driver
3. Passenger-needs-Ticket
4. Bus-provides-Ticket
5. Passenger-pays-Payment
6. Bus-gets-Payment
7. Driver-have-Helper
8. Owner-runs-Company
9. Bus-chooses-Repair\_Center

Step-4: Identifying the Cardinality Ratio and Participation

1. Company-has-Bus

Company

Bus

has

1. Bus-requires-Driver

Bus

Driver

requires Bus-requires-Driver

1. Passenger-needs-Ticket

Passenger

Tickets

needs

1. Bus-provides-Ticket

Bus

Ticket

provides

1. Passenger-pays-Payment

Passenger

Payment

pays

1. Bus-gets-Payment

Bus

Payment

gets

1. Driver-have-Helper

Driver

Helper

have

1. Owner-runs-Company

Owner

Company

runs

1. Bus-chooses-Repair\_Center

Bus

Repair\_Center

chooses

model

payment

contact

city

Seat no

Journey date

gender

Last name

First name

city

License no

phone

name

id

id

email

phone

name

amount

id

id

phone

address

email

name

repair center

chooses

gets

pays

passenger

needs

helper

have

owner

runs

ticket

provides

driver

requires

company

has

Bus

Step-5: Drawing the ER diagram

2. Reduction to database schema:

1. Company(**id**, name, city, contact)
2. Bus(**bus\_id**, bus\_name, model, company\_id)
3. Driver(**d\_id**, name, phone, license\_no, city, bus\_id)
4. Passenger(**p\_id**, first\_name, last\_name, gender, email, phone)
5. Ticket(**t\_id**, passenger\_id, bus\_id, journey\_date, seat\_no)
6. Payment(**payment\_id**, passenger\_id, bus\_id, amount)
7. Helper(**h\_id**, name, phone, d\_id)
8. Owner(**o\_id**, name, email, phone, address, company\_id)
9. Repair\_Center(**rc\_id**, name, phone, email, bus\_id)