PROJECT MILESTONE 2

IE6700

Data Management for Analytics

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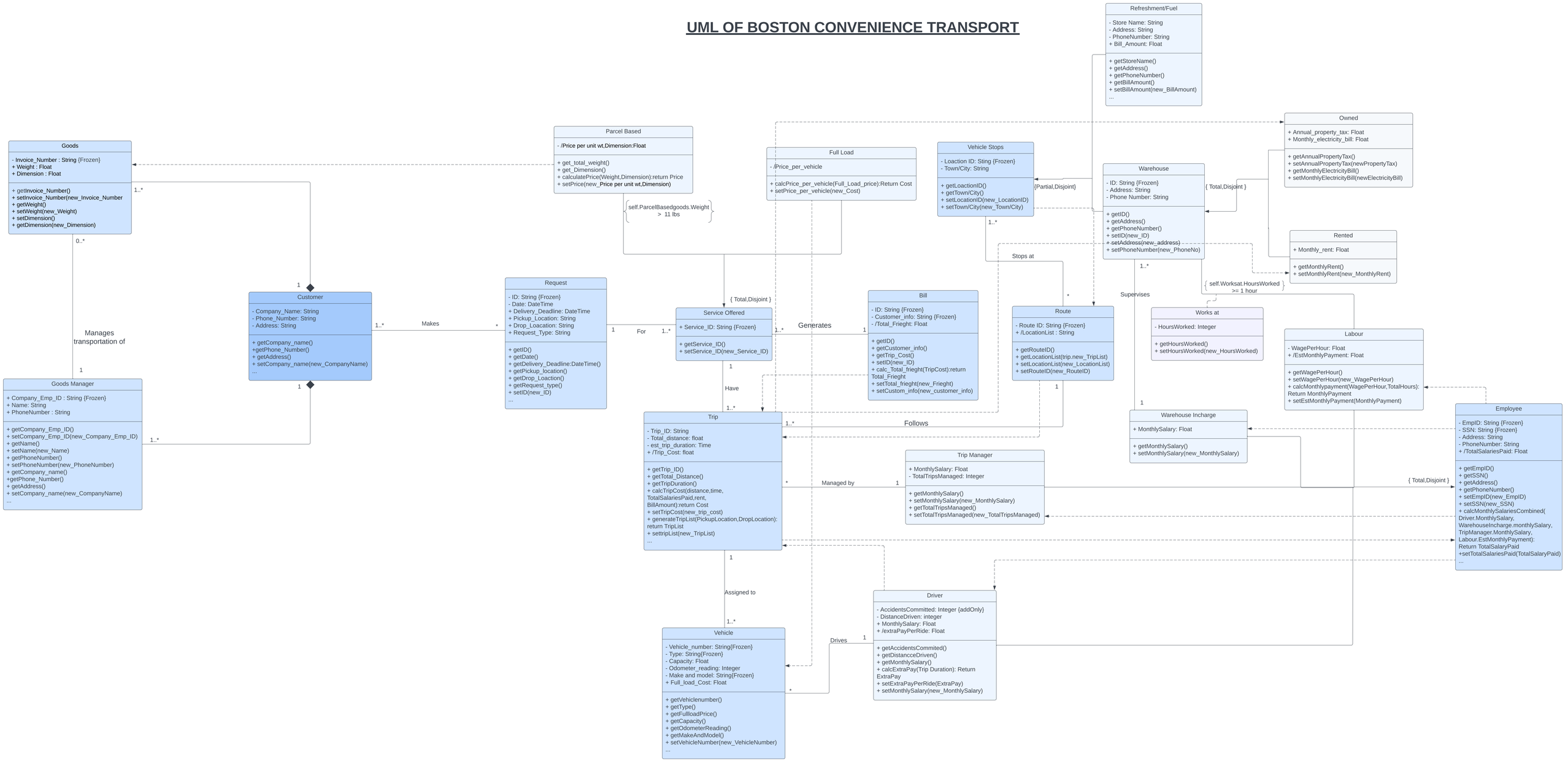
UML OF BOSTON CONVENIENCE TRANSPORT



RELATIONAL MODEL OF BOSTON CONVENIENCE TRANSPORT:

GOODS(Invoice, Weight, Dimension, *Employee ID*)

- Invoice: Primary key
- Employee ID: Foreign key refers to Company Employee ID in GOODS MANAGER, NOT NULL

GOODS MANAGER(Company employee ID, Name, Phone Number)

- Company employee ID: Primary key

CUSTOMER(Customer Company Name, Phone Number, Address, Invoice, Customer Employee ID)

- Invoice: Primary key
- Customer Employee ID: Primary key
- This is the aggregate entity

MAKES(*Request_ID*, *Invoice*, *Employee ID*)

- Request ID: Foreign key refers to ID in REQUEST, NOT NULL
- Invoice: Foreign key refers to Invoice in CUSTOMER, NOT NULL
- Employee ID: Foreign key refers to Customer Employee ID in CUSTOMER, NOT NULL
- All the foreign keys together form the primary key of the relation

REQUEST(ID, Date, pickup location, drop location, Delivery deadline, Request type)

- ID: Primary key

PARCEL BASED SERVICE(Service ID, Price per unit, *Request ID, Bill ID*)

- Service ID: Primary key
- Request ID: Foreign key refers to ID in REQUEST, NOT NULL
- Bill ID: Foreign key refers to ID in BILL, NOT NULL

FULL LOAD SERVICE(Service ID, Price per vehicle, *Request ID, Bill ID*)

- Service ID: Primary key
- Request ID: Foreign key refers to ID in REQUEST, NOT NULL
- Bill ID: Foreign key refers to ID in BILL, NOT NULL

While mapping the EER to the relational model, disjointness constraint cannot be enforced in the modelling of the "service offered" entity type into "parcel based service" and "full load service" subclasses.

BILL(ID, Customer Information, Total Freight)

- ID: Primary key

TRIP(Trip ID, Total distance, Est. trip Duration, Trip cost, *Service ID*, *Route ID*, *Manager Emp ID*)

- Trip ID: Primary key
- Service ID: Foreign key refers to Service ID in PARCEL BASED SERVICE or FULL LOAD SERVICE
- Route ID: Foreign key refers to Route ID in ROUTE
- Manager Emp ID: Foreign key refers to Trip Manager ID in TRIP MANAGER

VEHICLE(Vehicle number, Full Load cost, Make, Model, Odometer reading, Type, Capacity, *Trip ID*, *Driver Emp ID*)

- Vehicle number: Primary key
- Trip ID: Foreign key refers to Trip ID in TRIP, NOT NULL
- Driver Emp ID: Foreign key refers to Driver ID in DRIVER, NOT NULL

ROUTE(Route ID, List of locations)

- Route ID: Primary key

STOPS AT(*Route ID*, *Location ID*)

- Route ID: Foreign key refers to Route ID in ROUTE, NOT NULL
- Location ID: Foreign key refers to Location ID in VEHICLE STOPS, NOT NULL
- Both the foreign keys together make the primary key of the relation

VEHICLE STOPS(Location ID, Town/City)

- Location ID: Primary key

REFRESHMENTS AND FUEL(*Store ID,* Store name, Address, Phone number, Bill Amount)

- Store ID: Foreign key refers to Location ID in VEHICLE STOPS, NOT NULL; it is also the primary key of the relation

WAREHOUSE(*Warehouse ID*, Address, Phone number, Annual Property tax, Monthly Electricity Bill, Monthly rent, *Warehouse Incharge ID*)

- Warehouse ID: Foreign key refers to Location ID in VEHICLE STOPS, NOT NULL; it is also the primary key of the relation
- Warehouse Incharge ID: Foreign key refers to Warehouse Incharge ID in WAREHOUSE INCHARGE

While mapping the EER to the relational model, disjointness constraint cannot be enforced in the modelling of the "vehicle stops" entity type into "refreshment and fuel" and "warehouse" subclasses.

WORKS AT(*Warehouse ID*, *Labour ID*, Time worked)

- Warehouse ID: Foreign key refers to Warehouse ID in WAREHOUSE, NOT NULL
- Labour ID: Foreign key refers to Labour ID in LABOUR, NOT NULL
- Both the foreign keys together make up the primary key of the relation

LABOUR(Labour ID, Total Salaries paid, SSN, Address, Phone number, Wage per hour, Est. Monthly Payment)

- Labour ID: Primary key

WAREHOUSE INCHARGE(Warehouse Incharge ID, Total Salaries paid, SSN, Address, Phone number, monthly salary)

- Warehouse Incharge ID: Primary key

TRIP MANAGER(Trip Manager ID, Total Salaries paid, SSN, Address, Phone number, Total trips manager, monthly salary)

- Trip Manager ID: Primary key

DRIVER(Driver ID, Total Salaries paid, SSN, Address, Phone number, extra pay per ride, monthly salary, Distance Driven, Accidents committed)

- Driver ID: Primary key

While mapping the EER to the relational model, disjointness constraint cannot be enforced in the modelling of the "Employee" entity type into "labour", "warehouse incharge", "trip manager", and "driver" subclasses.