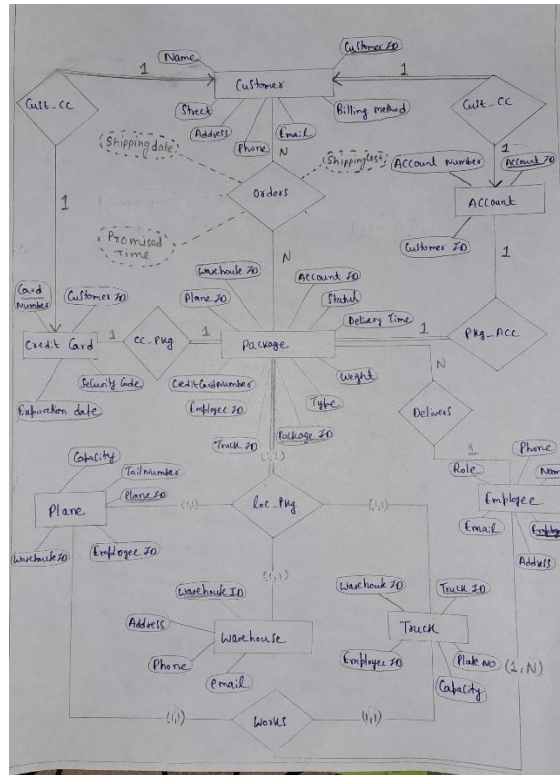


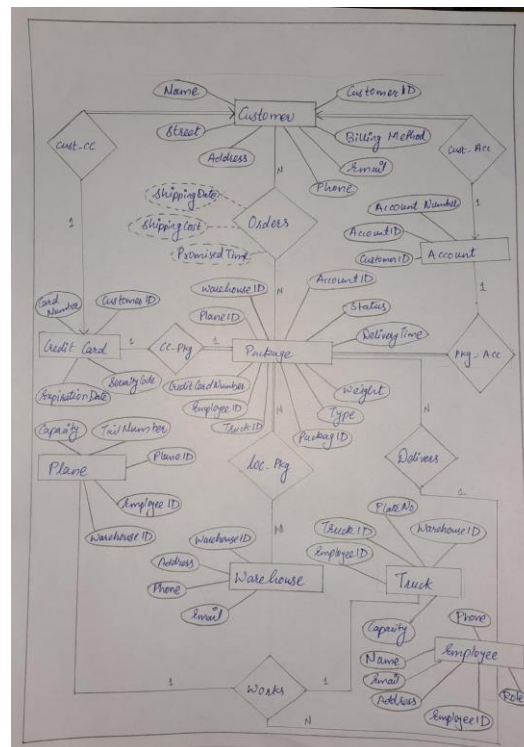
# ShipMate Package Delivery

## Normalisation Analysis

### 1. Initial ER Diagram



### 2. Final ER Diagram- After Normalisation



### 3. Normalisation of all tables

Customer (3NF):

- CustomerID (Primary Key)
- Name
- Street
- City
- Phone
- Email
- BillingMethod

No transitive dependencies exist; all attributes are directly dependent on the primary key (CustomerID).

Account (3NF):

- AccountID (Primary Key)
- AccountNumber
- CustomerID (Foreign Key)

No transitive dependencies; all attributes are directly dependent on the primary key (AccountID)

CreditCard (3NF):

- CardNumber (Primary Key)
- CustomerID (Foreign Key)
- ExpirationDate
- SecurityCode

No transitive dependencies; all attributes are directly dependent on the primary key (CardNumber).

Employee (3NF):

- EmployeeID (Primary Key)
- Name
- Address

- Phone
- Email
- Role

No transitive dependencies; all attributes are directly dependent on the primary key (EmployeeID).

Warehouse (3NF):

- WarehouseID (Primary Key)
- Address
- Phone
- Email

No transitive dependencies; all attributes are directly dependent on the primary key (WarehouseID).

Truck (3NF):

- TruckID (Primary Key)
- PlateNumber
- Capacity
- EmployeeID (Foreign Key)
- WarehouseID (Foreign Key)

No transitive dependencies; all attributes are directly dependent on the primary key (TruckID).

Plane (3NF):

- PlaneID (Primary Key)
- TailNumber
- Capacity
- EmployeeID (Foreign Key)
- WarehouseID (Foreign Key)

No transitive dependencies; all attributes are directly dependent on the primary key (PlaneID).

Package (3NF):

- PackageID (Primary Key)
- Type

- Weight
- AccountID (Foreign Key)
- CreditCardNumber (Foreign Key)
- EmployeeID (Foreign Key)
- TruckID (Foreign Key)
- PlaneID (Foreign Key)
- WarehouseID (Foreign Key)
- Status

No transitive dependencies; all attributes are directly dependent on the primary key (PackageID).

PackageDelivery (3NF):

- PackageID (Primary Key, Foreign Key)
- WarehouseID (Primary Key, Foreign Key)
- StartTimestamp
- EndTimestamp

No transitive dependencies; all attributes are directly dependent on the primary key (PackageID, WarehouseID).

Orders (3NF):

- PackageID (Foreign Key, Part of Composite Primary Key)
- SenderID (Foreign Key, Part of Composite Primary Key)
- ReceiverID (Foreign Key, Part of Composite Primary Key)
- ShippingDate
- ShippingCost
- PromisedTime

No transitive dependencies; all attributes are directly dependent on the primary key (PackageID, SenderID, ReceiverID).

Works (3NF):

- EmployeeID (Primary Key, Foreign Key)
- TruckID (Foreign Key)
- PlaneID (Foreign Key)

No transitive dependencies; all attributes are directly dependent on the primary key (EmployeeID).

