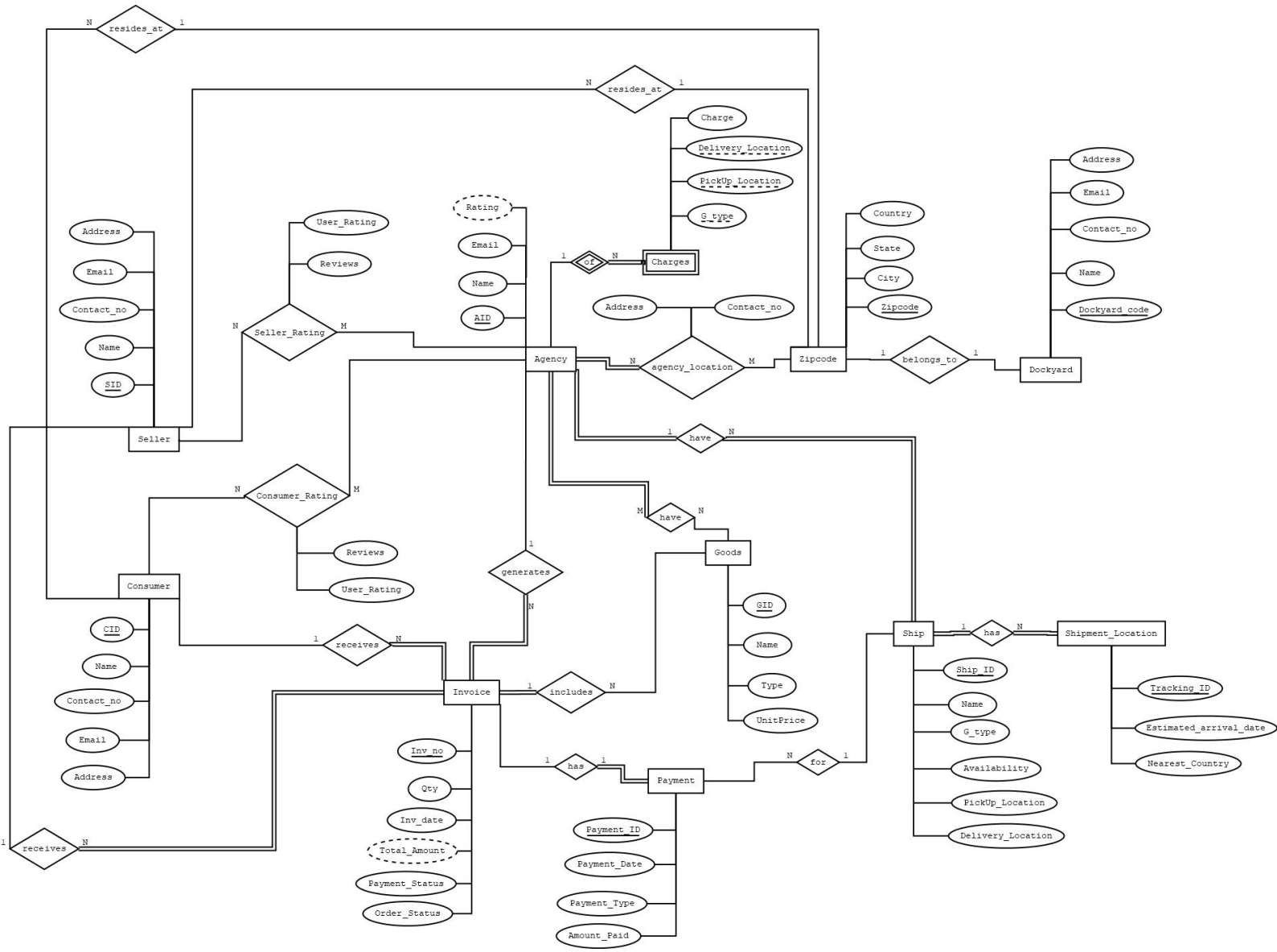
Export Logistic Management System

- **Team Members:-**

Akhil Rachhadia - 202201005
Sujal Mavadiya - 202201040
Meet Joshi - 202201065
Sahil Vaghasiya - 202201083
Parth Dholariya - 202201085


resides_at
N
1
resides_at
N
1
Charge
Delivery_Location
PickUp_Location
G_type
Charges
of
1
N
Rating
Email
Name
AID
Address
Contact_no
Country
State
City
Zipcode
Address
Email
Contact_no
Name
Dockyard_code
Address
Email
Contact_no
Name
SID
User_Rating
Reviews
Seller_Rating
N
M
Agency
agency_location
N
M
Zipcode
belongs_to
1
1
Dockyard
Seller
have
1
N
Consumer_Rating
N
M
have
M
N
Goods
Reviews
User_Rating
generates
1
N
GID
Name
Type
UnitPrice
Consumer
CID
Name
Contact_no
Email
Address
receives
1
N
Invoice
includes
1
N
Ship
has
1
N
Shipment_Location
Ship_ID
Name
G_type
Availability
PickUp_Location
Delivery_Location
Tracking_ID
Estimated_arrival_date
Nearest_Country
Inv_no
Qty
Inv_date
Total_Amount
Payment_Status
Order_Status
has
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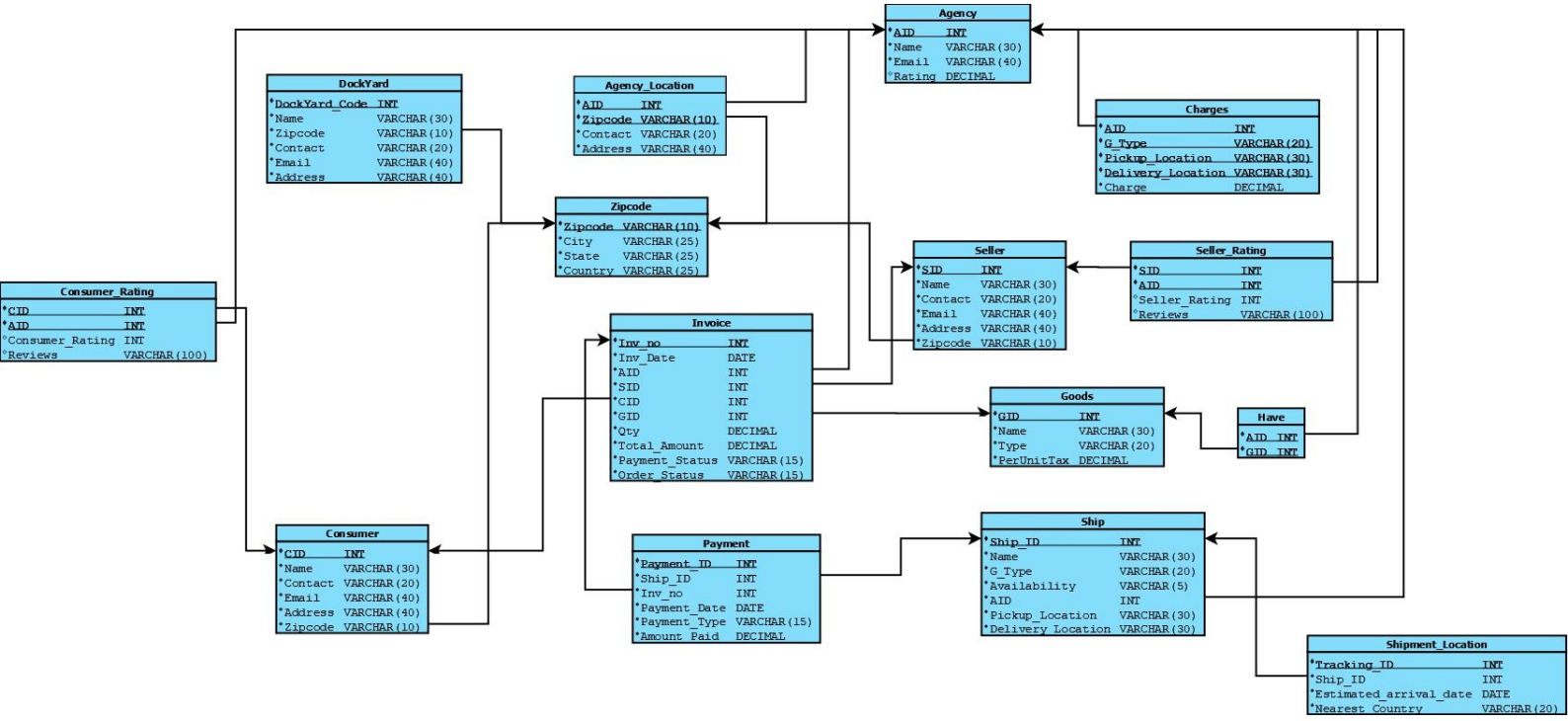
Payment
for
N
1
Payment_ID
Payment_Date
Payment_Type
Amount_Paid
receives
1
N


Agency
*AID INT
*Name VARCHAR(30)
*Email VARCHAR(40)
°Rating DECIMAL
DockYard
*DockYard_Code INT
*Name VARCHAR(30)
*Zipcode VARCHAR(10)
*Contact VARCHAR(20)
*Email VARCHAR(40)
*Address VARCHAR(40)
Agency_Location
*AID INT
*Zipcode VARCHAR(10)
*Contact VARCHAR(20)
*Address VARCHAR(40)
Charges
*AID INT
*G_Type VARCHAR(20)
*Pickup_Location VARCHAR(30)
*Delivery_Location VARCHAR(30)
*Charge DECIMAL
Zipcode
*Zipcode VARCHAR(10)
*City VARCHAR(25)
*State VARCHAR(25)
*Country VARCHAR(25)
Seller
*SID INT
*Name VARCHAR(30)
*Contact VARCHAR(20)
*Email VARCHAR(40)
*Address VARCHAR(40)
*Zipcode VARCHAR(10)
Seller_Rating
*SID INT
*AID INT
°Seller_Rating INT
°Reviews VARCHAR(100)
Consumer_Rating
*CID INT
*AID INT
°Consumer_Rating INT
°Reviews VARCHAR(100)
Invoice
*Inv_no INT
*Inv_Date DATE
*AID INT
*SID INT
*CID INT
*GID INT
*Qty DECIMAL
*Total_Amount DECIMAL
*Payment_Status VARCHAR(15)
*Order_Status VARCHAR(15)
Goods
*GID INT
*Name VARCHAR(30)
*Type VARCHAR(20)
*PerUnitTax DECIMAL
Have
*AID INT
*GID INT
Consumer
*CID INT
*Name VARCHAR(30)
*Contact VARCHAR(20)
*Email VARCHAR(40)
*Address VARCHAR(40)
*Zipcode VARCHAR(10)
Payment
*Payment_ID INT
*Ship_ID INT
*Inv_no INT
*Payment_Date DATE
*Payment_Type VARCHAR(15)
*Amount_Paid DECIMAL
Ship
*Ship_ID INT
*Name VARCHAR(30)
*G_Type VARCHAR(20)
*Availability VARCHAR(5)
*AID INT
*Pickup_Location VARCHAR(30)
*Delivery_Location VARCHAR(30)
Shipment_Location
*Tracking_ID INT
*Ship_ID INT
*Estimated_arrival_date DATE
*Nearest_Country VARCHAR(20)

Normalization Proof

Minimal FD Set and BCNF Proof

1. Seller Table:

- SID → Name
- SID → Contact
- SID → Email
- SID → Address
- SID → Zip Code

Closure of SID => $\{SID\}^+$ ={SID,Name,Contact,Email,Address,Zip Code}
Therefore Key = SID.

→All Projected FDs of this Relation have Key on Left side.
→Hence, it is in BCNF Normal Form.

2. Agency Table:

- AID → Name
- AID → Email
- AID → Rating

Closure of AID => $\{AID\}^+$ ={AID,Name,Email,Rating}
Therefore Key = AID.

→All Projected FDs of this Relation have Key on Left side.
→Hence, it is in BCNF Normal Form.

3. Agency Location Table:

- {AID,Zipcode} →{Contact}
- {AID,Zipcode} →{Address}
- Key =>{AID,Zip Code}

Closure of {AID,Zipcode} => $\{AID,Zipcode\}^+$ ==={AID,Zipcode,Contact,Address}
Therefore Key={AID,Zipcode}.

→All Projected FDs of this Relation have Key on Left side.

→Hence, it is in BCNF Normal Form.

4. Goods Table:

- GID → Name
- GID → Type
- GID → PerUnitTax

Closure of GID => $\{GID\}^+$ ={GID,Name,Type,PerUnitTax}.
Therefore Key = GID.

→All Projected FDs of this Relation have Key on Left side.
→Hence, it is in BCNF Normal Form.

5. Have Table:

Key =>{AID,GID}

There is no Projected FD for This relation. Since all attributes together form a Key, Hence it is in BCNF Normal Form.

6. Charges Table:

- {AID,G_Type,Pickup_Location,Delivery_Location} →{Charge}

Closure of {AID,G_Type,Pickup_Location,Delivery_Location} =>
$\{AID,G\_Type,Pickup\_Location,Delivery\_Location\}^+$
={AID,G_Type,Pickup_Location,Delivery_Location,Charge}

Therefore Key = {AID,G_Type,Pickup_Location,Delivery_Location}

→All Projected FDs of this Relation have Key on Left side.
→Hence, it is in BCNF Normal Form.

7. Ship Table:

- Ship_ID → Name
- Ship_ID → G_Type
- Ship_ID → Availability
- Ship_ID → AID
- Ship_ID → Pickup_Location
- Ship_ID → Delivery_Location

Closure of Ship_ID =>
{Ship_ID}+ ={Ship_ID,Name,G_Type,Availability,AID,Pickup_Location,Delivery_Location}
Therefore Key = Ship_ID.

→All Projected FDs of this Relation have Key on Left side.
→Hence, it is in BCNF Normal Form.

8. Invoice Table:

- Inv_no → Inv_Date
- Inv_no → AID
- Inv_no → SID
- Inv_no →CID
- Inv_no → GID
- Inv_no → Qty
- Inv_no → Total_Amount
- Inv_no →Payment_Status
- Inv_no → Order_Status

Closure of Inv_no =>
{Inv_no}+={Inv_no,Inv_Date,AID,SID,CID,GID,Qty,Total_Amount,Payment_Status
,Order_Status}
Therefore Key = Inv_no.

→All Projected FDs of this Relation have Key on Left side.
→Hence, it is in BCNF Normal Form.

9. Shipment_Location Table:

- Tracking_ID → Ship_ID
- Tracking_ID → Estimated_arrival_date
- Tracking_ID → Nearest_Country

Closure of Tracking_ID =>
{Tracking_ID}+ ={Tracking_ID,Ship_ID,Estimated_arrival_date,Nearest_Country}
Therefore Key = Tracking_ID.

→All Projected FDs of this Relation have Key on Left side.
→Hence, it is in BCNF Normal Form.

10. Dockyard Table:

- Dockyard_Code → Name
- Dockyard_Code → Contact
- Dockyard_Code → Email
- Dockyard_Code→ Address

- Dockyard_Code→ Zip Code

Closure of Dockyard_Code =>
{Dockyard_Code}+ ={Dockyard_Code,Name,Contact,Email,Address,Zip Code}
Therefore Key = Dockyard_Code.

→All Projected FDs of this Relation have Key on Left side.
→Hence, it is in BCNF Normal Form.

11. Payment Table:

- Payment_ID → Ship_ID
- Payment_ID → Inv_no
- Payment_ID → Payment_Date
- Payment_ID→ Payment_Type
- Payment_ID→ Amount_Paid

Closure of Payment_ID =>
{Payment_ID}+ ={Payment_ID,Ship_ID,Inv_no,Payment_Date,Payment_Type,Amount_Paid}
Therefore Key = Payment_ID.

→All Projected FDs of this Relation have Key on Left side.
→Hence, it is in BCNF Normal Form.

12. Zipcode Table:

- Zipcode → City
- Zipcode → State
- Zipcode → Country

Closure of Zipcode => {Zipcode}+ ={Zipcode,City,State,Country}
Therefore Key = Zipcode.

→All Projected FDs of this Relation have Key on Left side.
→Hence, it is in BCNF Normal Form.

13. Consumer Table:

- CID → Name
- CID → Contact
- CID → Email
- CID → Address
- CID → Zip Code

Closure of CID => {CID}+ ={CID,Name,Contact,Email,Address,Zip Code}
Therefore Key = CID.

→All Projected FDs of this Relation have Key on Left side.
→Hence, it is in BCNF Normal Form.

14. Seller_Rating Table:

- {SID,AID} →Seller_Rating
- {SID,AID}→ Reviews

Closure of {SID,AID} => $\{SID,AID\}^+$ ={SID,AID,Seller_Rating,Reviews}
Therefore Key = {SID,AID}.

→All Projected FDs of this Relation have Key on Left side.
→Hence, it is in BCNF Normal Form.

15. Consumer_Rating Table:

- {CID,AID} →Consumer_Rating
- {CID,AID}→ Reviews

Closure of {CID,AID} => $\{CID,AID\}^+$ ={CID,AID,Consumer_Rating,Reviews}
Therefore Key = {CID,AID}.

→All Projected FDs of this Relation have Key on Left side.
→Hence, it is in BCNF Normal Form.