



Functional Dependencies:

## Supplier

Vendorid → FirstName, LastName, Email, Phone, StreetAddress1, StreetAddress2, City, State, Country, Zip\_PostalCode, Company

## ReplenishmentOrder

ASNorderid → CreatedByid, ASNItemid, Quantity, ETADate, CarrierName, AirWayBillNumber, Status, ReceivedByid, ReceiptDate, PutAwayAisle, PutAwayBin

CreatedByid → [attributes of Supplier via Vendorid]

ASNItemid → [attributes of Stock via Itemid]

ReceivedByid → [attributes of Operator via Employeeid]

## **Operator**

Employeeid → FirstName, LastName, Wages, Type, Email, Phone, StreetAddress1, StreetAddress2, City, State, Country, Zip\_PostalCode

## **Stock**

Itemid → PartNumber, PartDescription, Active, ItemCost, ItemCurrencyCode, Length, Width, Height, DimensionUOM, Weight, WeightUOM, Quantity

PartNumber → PartDescription, Active, ItemCost, ItemCurrencyCode, Length, Width, Height, DimensionUOM, Weight, WeightUOM, Quantity

## **EndUser**

Userid → FirstName, LastName, Email, Phone, StreetAddress1, StreetAddress2, City, State, Country, Zip\_PostalCode

## **Partner**

Partnerid → Partnername, Email, Phone, StreetAddress1, StreetAddress2, City, State, Country, Zip\_PostalCode

## **Carrier**

Carrierid → Name, SLA, FirstName, LastName, Email, Phone, StreetAddress1, StreetAddress2, City, State, Country, Zip\_PostalCode

## **ShippingOrder**

ShippingOrderid → SLA, Status, ShipToUserid, ShippingItemid, Quantity, ETADate, CreatedByid, FulfilledBy, FulfilledDate, Packing, PackageLength, PackageWidth, PackageHeight, PackageDimensionUOM, PackageWeight, PackageWeightUOM, Carrierid, CarrierSLA, AWB, RAWB

ShipToUserid → [attributes of EndUser via Userid]

CreatedByid → [attributes of Partner via Partnerid]

Carrierid → [attributes of Carrier via Carrierid]

ShippingItemid → [attributes of Stock via Itemid]

FulfilledBy → [attributes of Operator via Employeeid]

After conversion to BCNF:

**Supplier**(Vendorid, FirstName, LastName, Email, Phone, StreetAddress1, StreetAddress2, City, State, Country, Zip\_PostalCode, Company)

pk: Vendorid

not null: FirstName, LastName, StreetAddress1, StreetAddress2, City, State, Country, Zip\_PostalCode, Company

unique: Company

BCNF Analysis: No potential BCNF violations since Vendorid is the only determinant.

**ReplishmentOrder**(ASNOrderid, CreatedByid, ASNItemid, Quantity, ETADate, CarrierName, AirWayBillNumber, Status, ReceivedByid, ReceiptDate, PutAwayAisle, PutAwayBin)

pk: ASNOrderid

fk:

(CreatedByid) referencing Supplier(Vendorid)

(ASNItemid) referencing Stock(Itemid)

(ReceivedByid) referencing Operator(Employeeid)

not null: CreatedByid, ASNItemid, Quantity, Status

BCNF Analysis: No concerns as ASNOrderid is the only determinant.

**Operator**(Employeeid, FirstName, LastName, Wages, Type, Email, Phone, StreetAddress1, StreetAddress2, City, State, Country, Zip\_PostalCode)

pk: Employeeid

not null: FirstName, LastName, StreetAddress1, StreetAddress2, City, State, Country, Zip\_PostalCode

BCNF Analysis: No concerns as Employeeid is the only determinant.

**Stock**(Itemid, PartNumber, PartDescription, Active, ItemCost, ItemCurrencyCode, Length, Width, Height, DimensionUOM, Weight, WeightUOM, Quantity)

pk: Itemid

unique: PartNumber

not null: PartNumber, Active, ItemCost

BCNF Analysis: No concerns as Itemid is the only determinant.

**EndUser**(Userid, FirstName, LastName, Email, Phone, StreetAddress1, StreetAddress2, City, State, Country, Zip\_PostalCode)

pk: Userid

not null: FirstName, LastName, StreetAddress1, StreetAddress2, City, State, Country, Zip\_PostalCode

BCNF Analysis: No concerns as Userid is the only determinant.

**Partner**(Partnerid, Partnername, Email, Phone, StreetAddress1, StreetAddress2, City, State, Country, Zip\_PostalCode)

pk: Partnerid

not null: Partnername, Email, Phone, StreetAddress1, StreetAddress2, City, State, Country, Zip\_PostalCode

BCNF Analysis: No concerns as Partnerid is the only determinant.

**Carrier**(Carrierid, Name, SLA, FirstName, LastName, Email, Phone, StreetAddress1, StreetAddress2, City, State, Country, Zip\_PostalCode)

pk: Carrierid

not null: FirstName, LastName, Phone, StreetAddress1, StreetAddress2, City, State, Country, Zip\_PostalCode

BCNF Analysis: No concerns as Carrierid is the only determinant.

**ShippingOrder**(ShippingOrderid, SLA, Status, ShipToUserid, ShippingItemid, Quantity, ETADate, CreatedByid, FulfilledBy, FulfilledDate, Packing, PackageLength, PackageWidth, PackageHeight, PackageDimensionUOM, PackageWeight, PackageWeightUOM, Carrierid, CarrierSLA, AWB, RAWB)

pk: ShippingOrderid

fk:

(ShipToUserid) referencing EndUser(Userid)

(CreatedByid) referencing Partner(Partnerid)

(Carrierid) referencing Carrier(Carrierid)

(ShippingItemid) referencing Stock(Itemid)

(FulfilledBy) referencing Operator(Employeeid)

not null: Status, ShipToUserid, ShippingItemid, Quantity, CreatedByid

BCNF Analysis: No concerns as ShippingOrderid is the only determinant.

Each table already follows the principles of 3NF and BCNF.

