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DBMS FUNCTIONAL DEPENDENCIES

Customer ID \rightarrow UserName, Customer Name, Customer Address

Item ID \rightarrow Item Name, Item Price, Item Description, Item Date Of Publish

Manufacturing ID \rightarrow Manufacturer Name, Manufacturer Location,
Manufacturer Rating

{Manufacturing ID, Customer ID, Item ID} \rightarrow Quantity, Date

Shipment No \rightarrow Customer Address, No Of Days, Customer Name,
CustomerID

{Item ID, Customer ID} \rightarrow Stars, Comments

NORMALISATION

1st Normal Form :-

Making all the attributes atomic, we have the functional dependencies as and the relation becomes in 1NF

Customer ID \rightarrow UserName

Customer ID \rightarrow Customer Name

Customer ID \rightarrow Customer Address

Item ID \rightarrow Item Name

Item ID \rightarrow Price

Item ID \rightarrow Description

Item ID \rightarrow Date of Publish

Manufacturing ID \rightarrow Manufacturer Name

Manufacturing ID \rightarrow Location

Manufacturing ID \rightarrow Rating

{Manufacturing ID, Customer ID, Item ID} \rightarrow Quantity

{Manufacturing ID, Customer ID, Item ID} \rightarrow Date

Shipment No \rightarrow Customer Address

Shipment No \rightarrow No. of Days

Shipment No \rightarrow Customer Name

Shipment No \rightarrow Customer ID

{Item ID, Customer ID} → Stars
{Item ID, Customer ID} → Comments

2nd Normal Form :-

R1(Shipment No, Customer Address, Shipment No_of_Days, Customer Name, CustomerID, UserName)

R2(ItemID, Description, Date_of_Publish, Item_Name, Price)

R3(Manufacturing ID, Manufacturer Location, Manufacturer Rating, Manufacturer Name)

R4(CustomerID, ItemID, Stars, Rating)

Here, the non-key attributes are fully functional dependent on the primary key. There is no partial dependency. So, the relation is in 2nd Normal Form.

Also, here R1 is having a transitive dependency so converting it into 3NF we have

3rd Normal Form :-

R1(Shipment No, Customer Address, Shipment No_of_Days, Customer Name, CustomerID)

R2(CustomerID, UserName)

R2(ItemID, Description, Date_of_Publish, Item Name, Price)

R3(Manufacturing ID, Manufacturer Location, Manufacturer Rating, Manufacturer Name)

R4(CustomerID, ItemID, Stars, Rating)

CONCLUSION :-

Our relation satisfies 3rd Normal Form.