

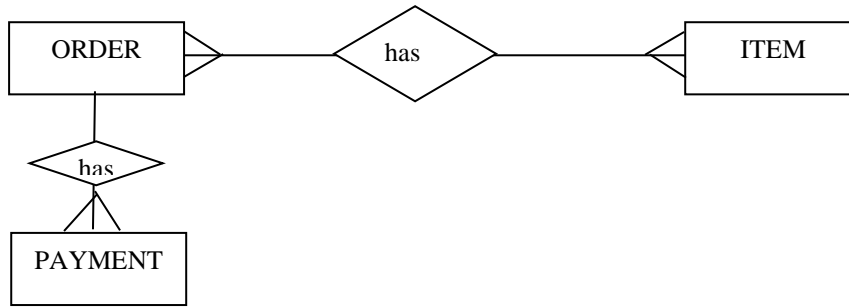
Business Data Management and Analytics
Tutorial 8 - Data Modelling Solution
Task 2 – Case Study – Zero Normal Form

Order				
OrderID	DateOrdered	dateFulfilled		
Payment1Amount	Payment1Type	Payment1Description		
Payment2Amount	Payment2Type	Payment2Description		
TaxFederal	TaxState	TaxLocal	SubTotalTax	
ShipToName	ShipToStreet	ShipToCountry	ShipToPostcode	
BillToName	BillToStreet	BillToCountry	BillToPostcode	
ShipToPhone	BillToPhone			
ItemName1	ItemNumber1	ItemQuantity1	ItemPrice1	ItemCategory1
ItemName2	ItemNumber2	ItemQuantity2	ItemPrice2	ItemCategory2
ItemName3	ItemNumber3	ItemQuantity3	ItemPrice3	ItemCategory3
ItemName4	ItemNumber4	ItemQuantity4	ItemPrice4	ItemCategory4
ItemName5	ItemNumber5	ItemQuantity5	ItemPrice5	ItemCategory5
ItemName6	ItemNumber6	ItemQuantity6	ItemPrice6	ItemCategory6
ItemName7	ItemNumber7	ItemQuantity7	ItemPrice7	ItemCategory7
ItemName8	ItemNumber8	ItemQuantity8	ItemPrice8	ItemCategory8
ItemName9	ItemNumber9	ItemQuantity9	ItemPrice9	ItemCategory9
ItemName10	ItemNumber10	ItemQuantity10	ItemPrice10	ItemCategory10
TotalPrice				

The above relational model shows a ONE table database. It has not been normalised. Based on anomalies lecture it has INSERT/UPDATE&DELETE anomalies, and many of the fields do **NOT** DEPEND ON THE KEY, THE WHOLE KEY AND NOTHING BUT THE KEY SO HELP ME CODD. Put in other terms, the above relational model is in ZERO Normal form. There are repeated groups, transitive depends and partial dependency that will surface in this model.

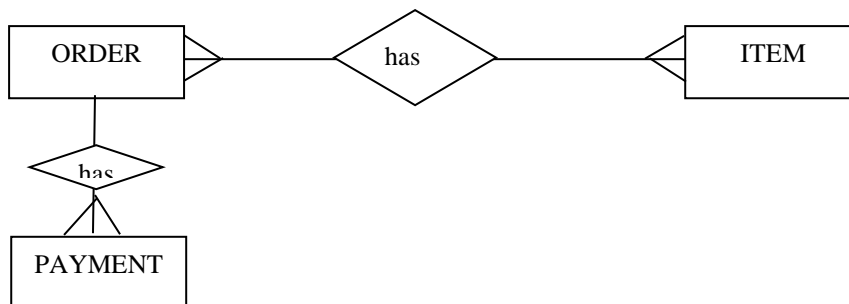
Can you please create a 3rd normal form data model from the above data model.

First Normal form – remove repeated groups



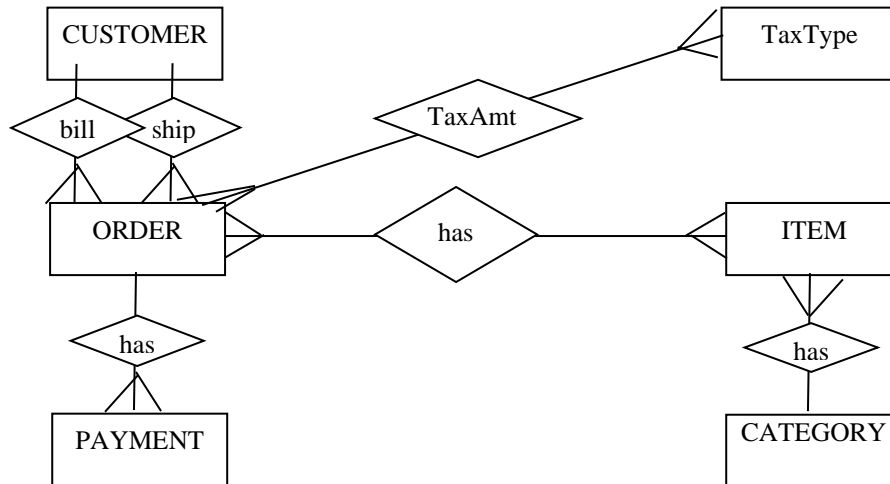
Order		OrderItem	Payment
<u>OrderID</u>		<u>OrderID +</u>	<u>PaymentID</u>
DateOrdered	TaxState	<u>ItemName</u>	Amount
dateFulfilled	TaxFederal	ItemNumber	Type
BillToName	TaxLocal	ItemPrice	Description
BillToStreet	SubTotalTax	ItemCategory	<u>OrderID</u>
BillToCountry	TotalPrice	ItemQuantity	
BillToPostcode			
BillToPhone			
ShipToName			
ShipToStreet			
ShipToCountry			
ShipToPostcode			
ShipToPhone			

Second Normal form – Partial Dependency



Order		OrderItem	Item	Payment
<u>OrderID</u>		<u>OrderLineID</u>	<u>ItemID</u>	<u>PaymentID</u>
DateOrdered	TaxState	<u>OrderID</u>	Name	Amount
dateFulfilled	TaxFederal	<u>ItemID</u>	ItemNumber	Type
BillToName	TaxLocal	Quantity	Price	Description
BillToStreet	SubTotalTax		Category	<u>OrderID</u>
BillToCountry	TotalPrice			
BillToPostcode				
BillToPhone				
ShipToName				
ShipToStreet				
ShipToCountry				
ShipToPostcode				
ShipToPhone				

Third Normal form – Transitive Dependency



Order	Contact	OrderItem	Item	Payment
<u>OrderID</u>	<u>CustomerID</u>	<u>OrderLineID</u>	<u>ItemID</u>	<u>PaymentID</u>
DateOrdered	Name	<u>OrderID</u>	Name	Amount
dateFulfilled	Street	<u>ItemID</u>	ItemNumber	Type
SubTotalTax	Country	Quantity	Price	Description
TotalPrice	Postcode		<u>CategoryID</u>	<u>OrderID</u>
<u>ContactBillID</u>	Phone			
<u>ContactShipID</u>		TaxAmount	TaxType	Category
		<u>TaxID</u>	<u>TaxTypeID</u>	<u>CategoryID</u>
		<u>TaxTypeID</u>	Name	Name
		<u>OrderID</u>		
		Amount		

Fourth Normal form – Remove all Insert, Update and Delete Anomalies