Eduardo Ramirez
C170 Data Management- Applications

Nora's Bagel Bin Database Blueprints

First Normal Form (1NF)

BAGEL ORDER	
PK	Bagel Order ID
PK	Bagel ID
	Order Date
	First Name
	Last Name
	Address 1
	Address 2
	City
	State
	Zip
	Mobile Phone
	Delivery Fee
	Bagel Name
	Bagel Description
	Bagel Price
	Bagel Quantity
	Special Notes

Second Normal Form (2NF)

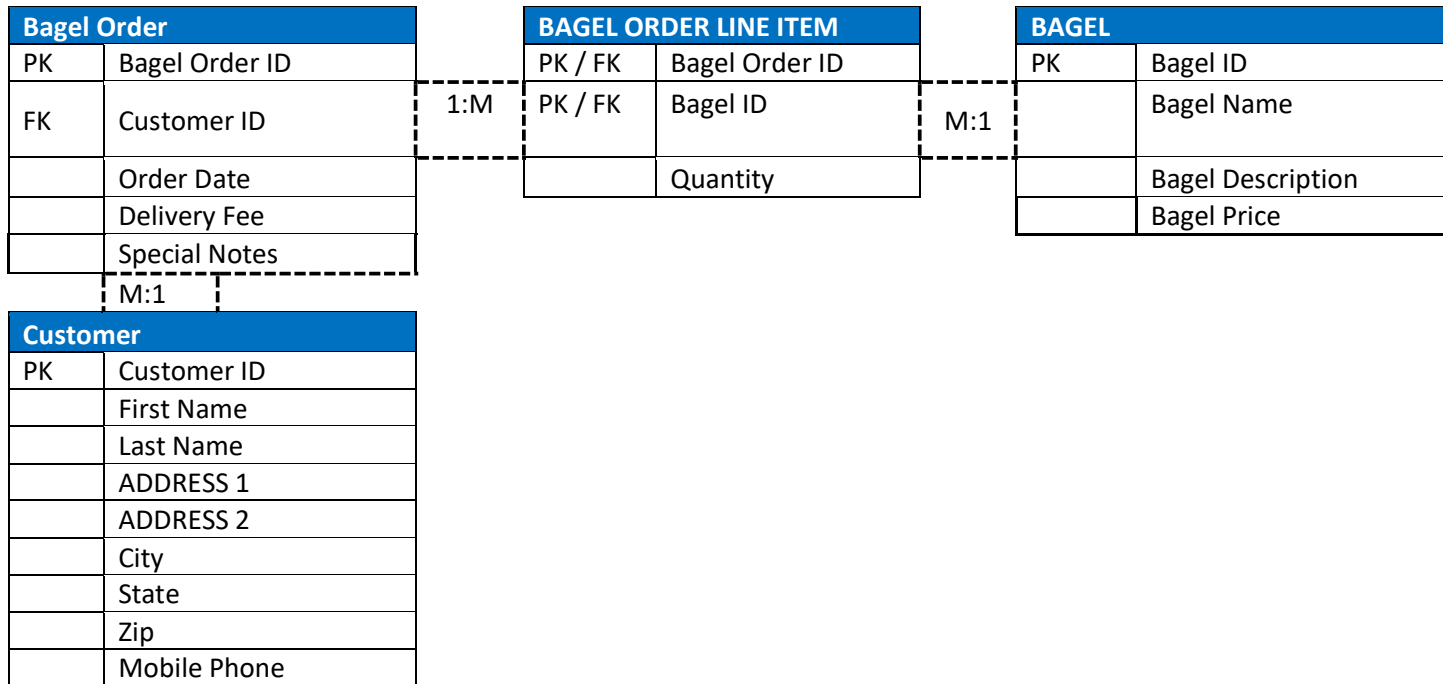| BAGEL ORDER				BAGEL ORDER LINE ITEM				BAGEL	
PK	Bagel Order ID			PK / FK	Bagel Order ID		PK	Bagel ID
	First Name	1:M	PK / FK	Bagel ID	M:1		Bagel Name
	Last Name			Bagel Quantity			Bagel Description
	Order Date						Bagel Price
	Address 1						
	Address 2						
	City						
	State						
	Zip						
	Mobile Phone						
	Delivery Fee						
	Special Notes						
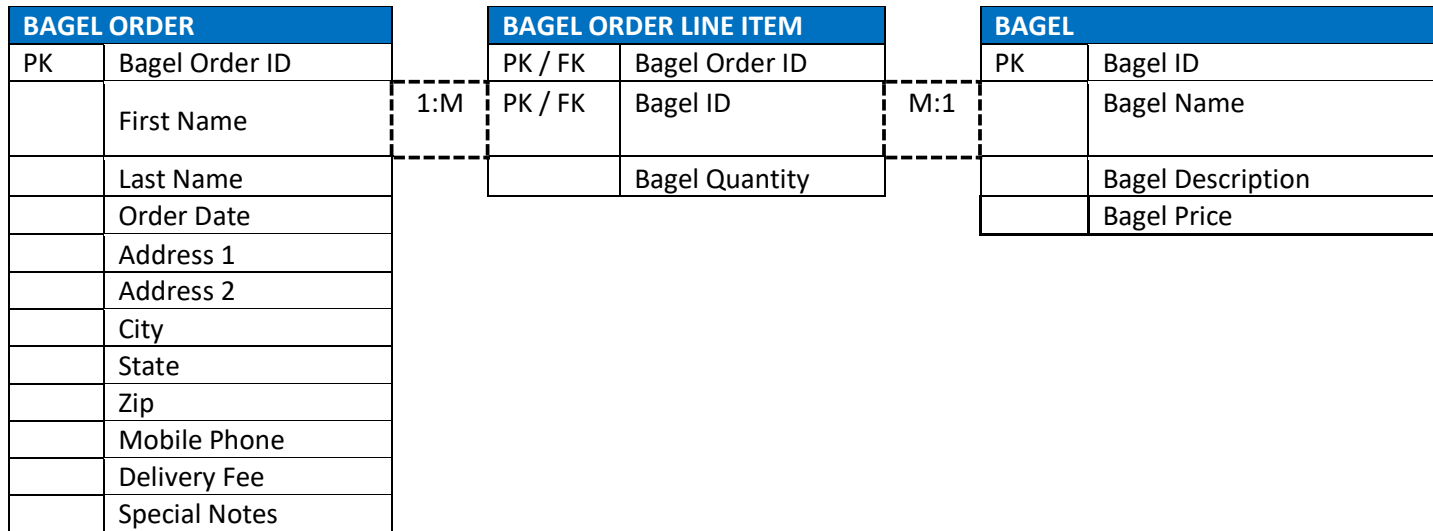
EXPLANATION 2NF:

First the 1NF table had to be broken up into 3 tables. This allowed the composite key to be broken up into two separate primary keys. The Bagel Order ID is the primary key for the Bagel Order Table. The Bagel Order Table will contain data of each individual transaction made by customers. The Bagel ID is the primary key for the Bagel table which contains data about the name, description, and price of the bagel. Finally, the Bagel Order Line-Item table uses Quantity attribute to determine the quantity of items purchased, this table links to the Bagel Order and Bagel table and will store each line item from an order.

RELATIONSHIP 2NF:

The Cardinality of the 2NF Diagram follows that one Bagel Order can contain at least one or many Bagel Order line items and one Bagel Order line item can have only one Bagel Order. Many Bagel Order line item describes only one Bagel, and one bagel can describe one and only one Bagel Order line item.

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Third Normal Form (3NF)

Bagel Order	
PK	Bagel Order ID
FK	Customer ID
	Order Date
	Delivery Fee
	Special Notes

1:M

BAGEL ORDER LINE ITEM	
PK / FK	Bagel Order ID
PK / FK	Bagel ID
	Quantity

M:1

BAGEL	
PK	Bagel ID
	Bagel Name
	Bagel Description
	Bagel Price

M:1

Customer	
PK	Customer ID
	First Name
	Last Name
	ADDRESS 1
	ADDRESS 2
	City
	State
	Zip
	Mobile Phone

Explanation 3NF:

The 3NF table was achieved by breaking up the Bagel Order table into two separate tables. This allows the tables to have no redundancy. The Customer Table has been added and allows you to use the Customer ID foreign key to extract data from a specific order a customer has made.

RELATIONSHIP 3NF: The Cardinality of the 3NF Diagram follows that one Bagel Order can contain at least one or many Bagel Order line items and one Bagel Order line item can have only one Bagel Order. Many Bagel Order line item describes only one Bagel and one bagel can describe one and only one Bagel Order line items. .One customer can have one or many orders and one Order has only one customer.

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Final Physical Database Model

Bagel Order		
PK	Bagel Order ID	INT
FK	Customer ID	INT
	Order Date	DATE
	Delivery Fee	DECIMAL(3, 2)
	Special Notes	VARCHAR(300)

1:M

BAGEL ORDER LINE ITEM		
PK / FK	bagel_order_id	INT
PK / FK	bagel_id	CHAR(2)
	Quantity	INT

M:1

BAGEL		
PK	Bagel ID	INT
	Bagel Name	VARCHAR(25)
	Bagel Description	VARCHAR(100)
	Bagel Price	DECIMAL (4, 2)

M:1

Customer		
PK	Customer ID	INT
	FirstName	VARCHAR(20)
	Last Name	VARCHAR(20)
	ADDRESS1	VARCHAR(50)
	ADDRESS2	VARCHAR(50)
	City	VARCHAR(30)
	State	VARCHAR(3)
	Zip	VARCHAR(10)
	Mobile Phone	VARCHAR(20)