Sang Hwa Lee

INST 327

March 31, 2022

<div align="center">Assignment 5 - Normalization</div>

1NF

I have to eliminate here redundancies of multiple data from the given. Plot all the given example data to see if we were able to breakdown each.

Branch ID	Branch Name	Branch Address	Branch City	Branch State	Branch Opening Hours	Branch Closing Hours	Department Name	Department Itmes	Department Quantities
1	Giant Foods #1243	3301 N Ridge Rd	Ellicott City	MD	8:00:00 AM	10:00:00 PM	Dairy	Cheese	50
1	Giant Foods #1243	3301 N Ridge Rd	Ellicott City	MD	8:00:00 AM	10:00:00 PM	Dairy	Milk	10
2	Giant Foods #1244	3302 N Ridge Rd	Ellicott City	MD	8:00:00 AM	10:00:00 PM	Dairy	Butter	20
3	Giant Foods #1245	3303 N Ridge Rd	Ellicott City	MD	8:00:00 AM	10:00:00 PM	Meat	GroundBeef	60
4	Giant Foods #1246	3304 N Ridge Rd	Ellicott City	MD	8:00:00 AM	10:00:00 PM	Meat	Pork	100
5	Giant Foods #1247	3305 N Ridge Rd	Ellicott City	MD	8:00:00 AM	10:00:00 PM	Meat	Turkey	40

Employee First Name	Employee Last Name	Employee Role	Role Description	Employee Manager First Name	Employee Manager Last Name	Branch ID		
Richard	Smith	Employee	An employee is responsible for stocking shelves and running a cash register	Alana	Martin	1		
Alana	Martin	Manager	A manager is responsible for managing employees.			1		
Frances	Frazier	Employee	An employee is responsible for stocking shelves and running a cash register	Alana	Martin	1		Sang Hwa Lee

2NF

I will now make sure that all attributes are belonging to the cardinal attributes. Role Description is transitively dependent in Employee Role. Department Quantities are transitively dependent on Department Quantities.

Branch ID	Branch Name	Branch Address	Branch City	Branch State	Branch Opening Hours	Branch Closing Hours
1	Giant Foods #1243	3301 N Ridge Rd	Ellicott City	MD	8:00:00 AM	10:00:00 PM

Employee First Name	Employee Last Name	Employee Role	Employee Manager First Name	Employee Manager Last Name	Branch ID	
Richard	Smith	Employee	Alana	Martin	1	
Alana	Martin	Manager			1	
Frances	Frazier	Employee	Alana	Martin	1	

Employee Role	Role Description					
Employee	An employee is responsible for stocking shelves and running a cash register					Sang Hwa Lee
Manager	A manager is responsible for managing employees.					

Department Name	Department Items	Department Quantites	Branch ID
Dairy	Cheese	50	1
Dairy	Milk	10	1
Dairy	Butter	20	1
Meat	GroundBeef	60	1
Meat	Pork	100	1
Meat	Turkey	40	1

3NF

In this form I need to set primary keys to avoid multiple duplication of data and to use it a foreign key to each table. Also, to make sure that there are no non key attributes depending on candidate key.

Branch

Branch ID	Branch Name	Branch Address	Branch City	Branch State	Branch Opening Hours	Branch Closing Hours
1	Giant Foods #1243	3301 N Ridge Rd	Ellicott City	MD	8:00:00 AM	10:00:00 PM

Employee

Employee ID	Employee First Name	Employee Last Name	Employee Role	Manager ID	Branch ID
1	Richard	Smith	1	2	1
2	Alana	Martin	2		1
3	Frances	Frazier	1	2	1

Role

Role ID	Employee Role	Role Description
1	Employee	An employee is responsible for stocking shelves and running a cash register
2	Manager	A manager is responsible for managing employees.

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Department Items

Department ID	Item ID
1	1
1	2
1	3
2	4
2	5
2	6

Department

Department ID	Department Name	Branch ID
1	Dairy	1
2	Meat	1

Item

Item ID	Department Items	Department Quantities
1	Cheese	50
2	Milk	10
3	Butter	20
4	GroundBeef	60
5	Pork	100
6	Turkey	40

PK, FK

PK – Title ,   FK – Underline

Branch

BranchID	BranchName	BranchAddress	BranchCity	BranchState	BranchOpeningHours	BranchClosingHours

Employee

Employee ID	Employee Firs tName	Employee Las tName	Employee Role FK	Manager ID FK	Branch ID FK

Role

Role ID	Employee Role	Role Description

Department Items

Department ID FK	Item ID FK

Department

Department ID	Department Name	Branch ID FK

Item

Item ID	Department Items	Department Quantities