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Due: 09/20/20

Rochester Institute of Technology
Golisano College of Computing and Information Sciences
School of Information
PE03: Dimensional Modeling

Exercise 1: Identifying Facts and Dimensions

- Suppose a regional dairy products company employs you, and your task is to build the data marts for the overall data warehouse
- The company sells products to grocery stores, convenience stores, gas stations, and mass merchandisers
- You will be extracting data from the **Product Returns** operational system and **Sales Forecast spreadsheet**
- Identify each field
 - D - a dimensional attribute
 - F - a fact
 - O - operational only, not to be included

D/F/O	Product Returns
F	Customer Account Number
D	Product Category
D	Product Brand
D	Customer Name
D	Product Expiration Date
F	Product #
D	Product Description
O	Package Type
D	Plant Number
D	Manufacturing Line
O	Regular/Low fat
D	Customer Ship to Street Address
D	Customer Ship to City
D	Customer Ship to State
D	Customer Ship to Country
F	SKU (Stock Keeping Unit)
F	Returned Quantity
D	Returned Reason
F	Expired Quantity
F	Damaged Quantity
D	Damaged Code
F	Returned Date
F	Sales Rep
D	Sales Region

D/F/O	Sales Forecast
F	Account Rep
D	Month
F	Item #
D	Item Description
F	Forecast Units
F	Forecast Amount
O	Valid Forecast Flag

Exercise 2: Identifying Dimensions and Fact Groups

Using the same extract files that you used in Exercise #1, identify the following:

- Possible dimensions
- Possible fact groups (facts in each data mart)

Possible Dimensions

Customer_____

Product_____

Sales_____

Plant_____

Date_____

Item_____

Fact Groups

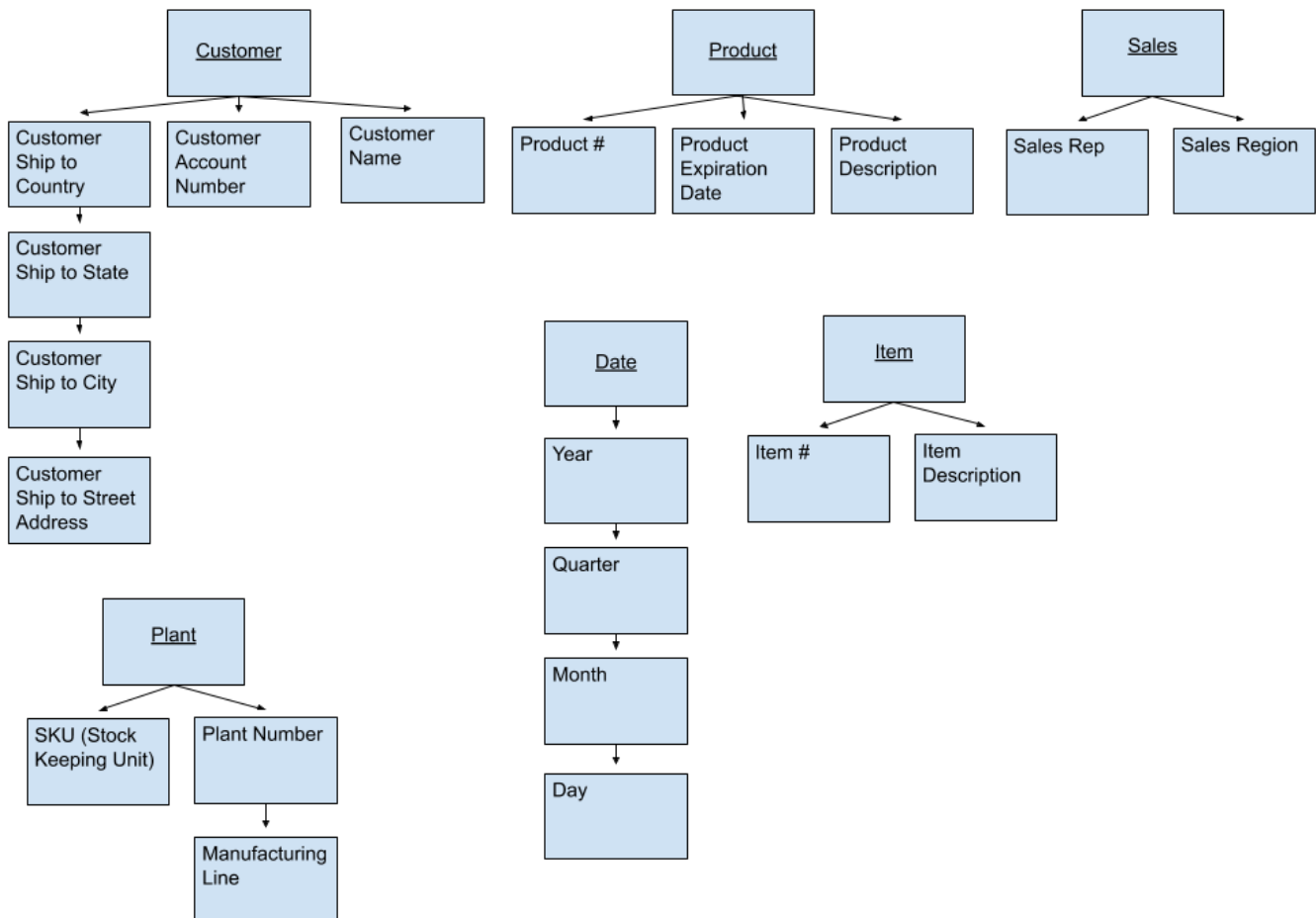
Returns_____

Forecast_____

Exercise 3: Designing Dimensions

Design (i.e., draw a diagram of) each of the dimensions that were identified in Exercises 1 & 2. Follow the dimension representation shown on slide #8 of Week 4 Lecture notes). Specifically:

- Identify dimension attributes
- Identify all hierarchies of the attributes within a dimension



Exercise 4: Designing Fact Groups

Design each of the fact groups that were identified in Exercises #1 & #2. Specifically, for each fact group (data mart):

- list the facts that relate to the process that the fact group represents
- write a description for the fact – i.e., define it
- state the default aggregation rule (“sum” if additive; “semi-additive over time” if semi-additive; “N/A” if non-additive)

Fact Group: Returns

Fact Name	Fact Description	Default Aggregation Rule
Customer Account #	The customer account who purchased the product	Sum
Product #	The product's unique ID number	Sum
Plant number	Plant number of the associated plant	Sum
Sales Rep	Sales representative of the product	Sum
Returned Quantity	Total number of returned products	Semi-additive over time
Expired Quantity	Number of products that were returned and were expired items	Semi-additive over time
Damaged Quantity	Number of products that were returned and were damaged items	Semi-additive over time
Returned Date	Date that the product was returned	Semi-additive over time

Fact Group: Forecast

Fact Name	Fact Description	Default Aggregation Rule
Account Rep	Account representative of the forecast	Sum
Item #	The item's unique ID number related to the forecast	Sum
Forecast Units	Number of forecasted units	Sum
Forecast Amount	Amount forecasted	Semi-additive over time
Forecasted Date	Forecasted date	Semi-additive over time

Exercise 5: Create the Data Mart Matrix

The data mart matrix shows the relationship between the possible data marts and dimensions. Any dimension (column) with more than one X implies that this dimension must be conformed across multiple data marts to fit into the Data Warehouse Bus Architecture.

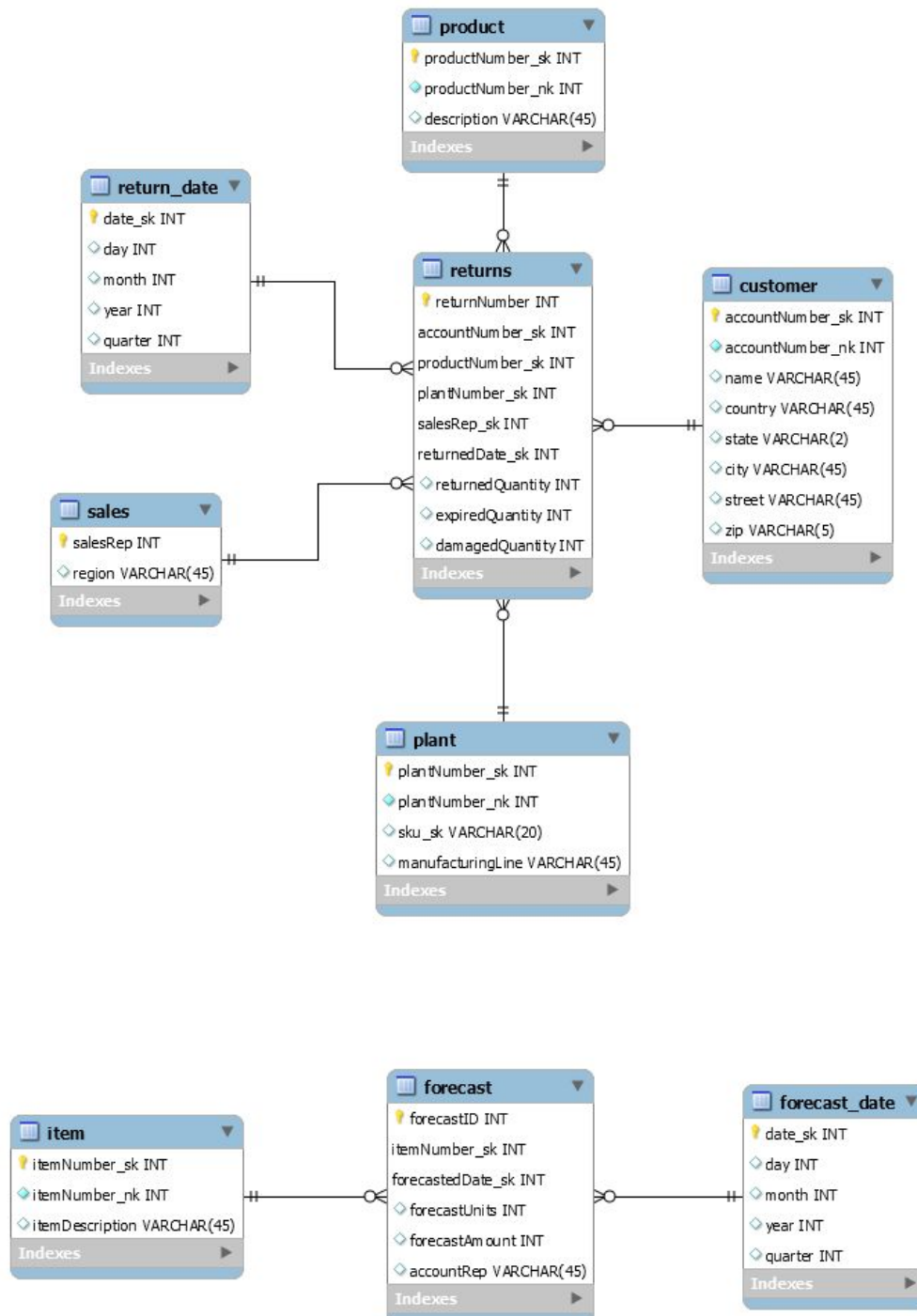
Fill in the data mart matrix using the following table:

Data Mart	Product	Customer	Sales	Plant	Date	Item
Returns	X	X	X	X	X	
Forecast					X	X

Exercise 6: Logical Table Design

Use the dimensional models that you have created so far to:

- Design the actual star schema for each of the fact groups that you defined in Exercise #4.
- Create your Dimensional Models using MySQL Workbench and save it as a pdf file.
- Submit a zip file containing 1) a copy of the answered PE03 and 2) pdf file of EER diagrams to MyCourses PE03 Dropbox by 11:59 PM, Sunday 9/20/2020.
- Bring a hard copy of the answered PE03 & EER pdf to Monday (9/21/20) in person class.



Name: Ellie Parobek

Graded By: _____

PE03: Dimensional Modeling Grade sheet

Requirements	Grade	Grade Earned
Exercise 1: Identifying Facts and Dimensions		
- Identify all the attributes correctly	10	
Exercise 2: Identifying Dimensions and Fact Groups		
- Dimensions	6	
- Fact Groups	4	
Exercise 3: Designing Dimensions		
- Identify all dimensions' attributes	8	
-		
- Identify all hierarchies of the attributes	5	
Exercise 4: Designing Fact Groups		
- Fact groups	2	
- All the facts are included with the fact groups	5	
- Fact descriptions and aggregation rules	5	
Exercise 5: Create the Data Mart Matrix	9	
Exercise 6: Logical Table Design		
- Dimensions	16	
- Fact tables	8	
- Conformed dimension	8	
- Correct primary keys and foreign key constraints	5	
- Relationships between fact tables and dimensions	9	
- Submit star schema to Dropbox & bring a hard copy	-20	
Total Grade:	100	