CASE 16 Susan's Special Sauces

Database Case **Difficulty Rating:** ★

SKILLS CHECK
You should review the following areas:

DATABASE SKILLS

- ✓ Calculated Control
- ✓ Form Design
- ✓ Relationship
- ✓ Report Design
- ✓ Select Query
- ✓ Table Design

CASE BACKGROUND

Susan's Special Sauces is a small company that produces a variety of salad dressings and sauces. Joy Giovanni, the company's owner, recently purchased a building on the outskirts of town and now wishes to become more organized with her record keeping, especially as it relates to inventory tracking. Initially, Ms. Giovanni wants you to build a database that allows her to monitor the inventory levels of the company's products. For instance, she would like to know current inventory levels, maximum inventory levels, minimum inventory levels, production costs, and selling prices for the company's products. She needs simple, effective forms for entering data about her products. She needs reports that identify low-in-stock items and items that are currently in inventory. She also needs to extract specific information about the company's products and product categories from the database.

CASE SCENARIO

Ms. Giovanni owns and operates a small, Texas-based company called Susan's Special Sauces. Ms. Giovanni named the company after her grandmother and one of her daughters. Susan's Special Sauces produces and sells a variety of salad dressings and sauces, ranging from Creamy Italian Salad Dressing to Extra Spicy Barbecue Sauce. In the early years of her business, Ms. Giovanni prepared, packaged, and sold a variety of spaghetti sauces at local and state fairs, conventions, and flea markets. Over the years, Ms. Giovanni increased her company's product offerings to include gourmet salad dressings, pasta sauces, barbecue sauces, and steak sauces. Susan's Special Sauces

currently offers 20 products in five product categories. Table 1 shows the company's current product list.

Randolph Restaurants, a small restaurant chain, uses and also sells many of the sauce company's products. In fact, Randolph Restaurants is the primary customer for Susan's Special Sauces. When the restaurant chain runs low on one of the sauce company's products, Mr. Randolph calls Ms. Giovanni and tells her which product he needs to replenish. The lead-time has been sufficient, so if Ms. Giovanni does not have the product already bottled, she prepares the product after the order is placed.

To date, Ms. Giovanni does not have a formalized method for tracking inventory. When Mr. Randolph calls, she writes the order down on any available scrap of paper or just relies on her memory. If she has the products already bottled, she boxes the order and then delivers the order to Mr. Randolph at one of his restaurants. If a new batch is required, Ms. Giovanni gives the order to her cooks. Sometimes, this method leads to problems with having too much or too little of a particular item on hand.

The growing popularity of the company's sauces has recently required the sauce company to move to a larger building. Customers can now purchase Susan's Special Sauces products from a small shop located in the front of the building.

Now that she has opened a shop, Ms. Giovanni recognizes the need to implement lead times and utilize safety stock. The lead-time to prepare new batches of dressings or special sauces is two days. In general, lead-time is the time it takes Ms. Giovanni to replenish her stock. To avoid stockouts, Ms. Giovanni also utilizes safety stock. Safety stock is extra bottles of the products that are kept on hand. Safety stock acts as a cushion, guarding against running out of a given product. Ms. Giovanni feels that each product's safety stock should be two days of expected daily demand.

As Ms. Giovanni needs a more formalized method for tracking inventory, she asks you to build a simple inventory tracking system. During your first meeting with her, she mentions that she wants to track each product's selling price, quantity on hand, and production cost. Additionally, the inventory tracking system should store the maximum and minimum inventory levels for each product. Ms. Giovanni provides you with a sheet, listing the maximum inventory levels for her products. However, she has not had time to determine the minimum inventory levels for all of her products. She asks you to determine the minimum inventory levels for each product and then insert this information into the database. (A formula is provided in the next section.) Initially, you will build the portion of the database that provides Ms. Giovanni with this information.

Storage Specifications

As you review your notes from your meeting with Ms. Giovanni, you realize that Product and Category tables are needed. The Product table contains nine fields, and its structure is shown in Table 2. (Once you have created the table, use the records provided in Table 1 to populate the table.) As you are constructing the Product table, you recall that Ms. Giovanni asked you to determine each product's minimum inventory level. After you determine each product's minimum inventory level, you create the MinInvLev field for the Product table, and then insert the minimum inventory level data into this field. During your meeting with Ms.

Giovanni, she recommended that you use the following formula for calculating a product's minimum inventory level.

Minimum Inventory Level = (Demand During Lead Time + Safety Stock).

As the Category table contains four fields, it is easy to construct. Table 3 shows the Category table's structure, and Table 4 contains the records for the Category table.

Since Ms. Giovanni has requested information that requires data from two tables, you establish a relationship between the Product and Category tables. As each table contains a PFamilyCode field, you use this common field to join the two tables.

Table 1: Product Records

Product No	Product Name	Product Family Code	Quantity on Hand	Selling Price	Production Cost	Expected Daily Demand	Maximum Inventory Level
1	Extra Creamy Ranch Dressing	DR	140	$3.50	$2.00	25	150
2	Extra Creamy Italian Dressing	DR	100	$3.50	$2.00	35	210
3	Italian Dressing	DR	100	$3.00	$1.50	40	240
4	Superior Caesar Salad Dressing	DR	150	$3.25	$1.25	40	240
5	Susan's French Dressing	DR	119	$3.25	$1.25	42	252
6	Susan's Thousand Island Dressing	DR	125	$3.25	$1.25	55	330
7	Susan's Creamy Blue Cheese Dressing	DR	330	$3.25	$1.25	55	330
8	Sensational Steak Sauce	SA	202	$4.50	$2.50	45	270
9	Thick and Hearty Sensational Steak Sauce	SA	40	$4.75	$2.75	30	180
10	Meatball Express	PS	180	$4.35	$2.85	30	180
11	Vegetarian's Delight	PS	150	$4.50	$2.90	30	180
12	Garlic, Onion, and Mushrooms	PS	30	$4.50	$3.00	5	30
13	More Cheese, Please	PS	4	$4.75	$3.50	15	90
14	Mild Picante	SL	149	$3.10	$1.55	25	150
15	Medium Picante	SL	130	$3.10	$1.55	25	150
16	Jumpin' Hot Picante	SL	115	$3.10	$1.55	20	120
17	Hickory Smoke Barbecue Sauce	BS	130	$4.90	$2.95	25	150

18	Uncle Steve's Best Ever Barbecue Sauce	BS	164	$5.90	$3.45	30	180
19	Magnificent Mesquite Flavored Barbecue Sauce	BS	110	$4.75	$2.75	20	120
20	Extra Spicy Barbecue Sauce	BS	101	$4.50	$2.25	25	150

Table 2: Product Table Structure

Field Name	Data Type	Field Description	Field Size	Comments
PNo	Number	Serves as the primary key. Is unique.	Long Integer	Is required.
PName	Text	Identifies the product.	45	Is required.
PFamilyCode	Text	Identifies the category to which the product belongs.	4	Is required.
QOH	Number	Identifies the number of units currently on hand.	Long Integer	Is required.
SellingPrice	Currency	Identifies the selling price of the product.		Is required.
PCost	Currency	Identifies how much it costs us per unit to produce this product.		Is required.
MinInvLev	Number	Identifies the amount we should keep on hand. New batches are made when we reach this level.	Long Integer	
DailyDemand	Number	Identifies the average daily demand.	Long Integer	
MaxInvLev	Number	Identifies the maximum level of inventory.	Long Integer	

Table 3: Category Table Structure

Field Name	Data Type	Field Description	Field Size	Comments
PFamilyCode	Text	Is a unique number. Use as the primary key.	4	Is required.
Description	Text	Contains the product family name.	15	Is required.
NoInFamily	Number	Contains the number of products in this category.	Long Integer	
Comments	Memo	Contains comments about this category.		

Table 4: Category Records

PFamilyCode	Description	NoInFamily	Comments
BS	Barbecue Sauce	4	
DR	Dressing	7	
PS	Pasta Sauce	4	
SA	Steak Sauce	2	
SL	Salsa	3	

Input Specifications

You prepare sketches of the Product and Category forms and schedule a meeting with Ms. Giovanni. Figures 1 and 2 show these sketches. During the meeting, Ms. Giovanni expresses her delight with the sketches; however, she encourages you to be creative with the design. She also requests that the forms use a consistent format, be user friendly, include the business name, and have a picture of a sauce bottle in the header. (You will need to locate a picture to include on each form.)

After your meeting with Ms. Giovanni, you begin working on the forms. As you study the sketch for the Product form, you decide the main purpose of the form is to enable Ms. Giovanni to add, modify, or delete products from the database. You also decide the form should include all fields from the Product table. As you study the Category form sketch, you recognize the simplicity of this form. This form contains only four fields and is used by Ms. Giovanni to add, modify, and delete information about each product family category.

Figure 1: Product Form

Susan's Special Sauces

Product Form

Product No:	**Quantity on Hand:**
Product Name:	**Expected Daily Demand:**
Product Family Code:	**Minimum Inventory Level:**
	Maximum Inventory Level:
Selling Price:	
Production Cost:	

Figure 2: Category Form

Susan's Special Sauces

Category Form

Family Code:	**Description:**
Products In Family:	**Comments:**

Information Specifications

Ms. Giovanni needs a Weekly Inventory Report and Low-In-Stock Report. She has developed sketches for these reports. Figures 3 and 4 show these preliminary sketches. As Ms. Giovanni hands you the sketches, she mentions that you are free to modify each report's overall appearance; however, each report should provide the required information and have a professional appearance.

The Weekly Inventory Report is prepared each Friday afternoon and provides Ms. Giovanni with detailed information about each product. She would like the Weekly Inventory Report format to resemble Figure 3. The report header includes the report's title and current date. Ms. Giovanni wants the Weekly Inventory Report to group the products by product category. The product categories should be sorted in ascending order. Ms. Giovanni would like the products within each category sorted in ascending order. For each product, Ms. Giovanni wants to see the product's name, number, quantity on hand, minimum inventory level, and current selling price. Use the column headings shown in Figure 3. As this is a multi-page report, Ms. Giovanni wants the column headings to appear on each page. She also would like a page number to appear in each page's footer. She also wants each report field to be

formatted appropriately. For instance, make sure the current selling price uses a currency format. Ms. Giovanni would like the product category headings to stand out, so she requests that you bold these headings on the report. Keep in mind that this report is based on a select query, and the query uses data from the Product and Category tables.

Ms. Giovanni wants the Low-In-Stock Report to identify all products whose current quantity on hand is equal to or below the minimum inventory level. If a product's quantity on hand is equal to or below the minimum inventory level, Ms. Giovanni will then request that the recommended batch amount be produced to replenish each low-in-stock product. The Recommended Batch Amount is determined by subtracting the Quantity on Hand from the Maximum Inventory Level.

Figure 4 shows a sketch of the Low-In-Stock Report. As you review the sketch, you notice that the report header displays the report's title and current date. Ms. Giovanni has said that this report must contain product name, number, quantity on hand, minimum inventory level, and recommended batch amount columns. Ms. Giovanni wants the products listed in ascending order. In order to build this report, you decide to construct a select query based on the Product table and then base the report on the select query. To enhance the report, you place a page number in the page footer.

Figure 3: Weekly Inventory Report

Susan's Special Sauces

Weekly Inventory Report

(Current Date)

Product Name	Product Number	Quantity on Hand	Minimum Inventory Level	Current Selling Price
Barbecue Sauce				
Extra Spicy Barbecue Sauce				
Hickory Smoke Barbecue Sauce				
.				
.				
.				
Dressing				
Extra Creamy Italian Dressing				
Italian Dressing				
.				
.				
.				

Figure 4: Low-in-Stock Report

Susan's Special Sauces

Low-in-Stock Report

(Current Date)

Product Name	Product Number	Quantity on Hand	Minimum Inventory Level	Recommended Batch Amount
Extra Spicy Barbecue Sauce				
Hickory Smoke Barbecue Sauce				
.				
.				
.				

Ms. Giovanni needs answers for the following questions. Build queries to help Ms. Giovanni answer these questions. If you choose, you may generate reports based on these queries.

1. Which products have a unit profit margin less than $2.00? For each product, include the product's name, number, and unit profit margin. (No other fields should be included.)

2. Which products have a unit profit margin equal to or greater than $2.00? For each product, include the product's name, number, and unit profit margin. (No other fields should be included.)

3. Which products cost Ms. Giovanni less than $2.50 per unit to produce? For each product, include the product's name, number, and production cost. (No other fields should be included.)

4. Which products cost Ms. Giovanni more than $3.00 per unit to produce? For each product, include the product's name, number, and production cost. (No other fields should be included.)

5. Which products have a minimum inventory level greater than 150? For each product, include the product's name and minimum inventory level. (No other fields should be included.)

Implementation Concerns

In order to build the inventory tracking system described in the case scenario, you will build two tables, two forms, two reports, and several select queries. You will also establish a relationship between the Product and Category tables. The forms require you to insert a picture. You will need to locate a picture to insert. Several of the select queries require you to sort, specify criteria, create expressions, and use data from two tables. In order to design the reports, you will base the reports on queries, specify sort orders, and work with report headers, footers, and page headers.

Test Your Design

After creating the tables, forms, queries, relationships, and reports, you should test your database design. Perform the following transactions.

1. Ms. Giovanni wishes to add a new product category to the database. The new product family is cocktail sauce; the product family code is CS, and the number of products currently in the family is 1.

2. Ms. Giovanni has developed several new products and wishes to offer them for sale. Enter the following products into the database.

Product No	Product Name	Product Family Code	Quantity on Hand	Selling Price	Production Cost	Expected Daily Demand	Maximum Inventory Level
21	Lite Italian Dressing	DR	100	$3.50	$2.00	25	150
22	Lite Superior Caesar Salad Dressing	DR	100	$3.50	$2.00	5	30
23	Traditional Meat Spaghetti Sauce	PS	150	$5.00	$3.50	25	150
24	Southern Barbecue Sauce	BS	150	$5.00	$3.00	25	150
25	Grandma's Cocktail Sauce	CS	150	$2.00	$.75	15	90

3. Ms. Giovanni no longer wishes to sell the Garlic, Onion, and Mushrooms pasta sauce. Delete this product from the Product table.

4. The daily demand for the Superior Caesar Salad Dressing has increased to 75 units. Update your database to reflect this change.

5. Identify the five products that have the highest expected daily demand. List only the product name and expected daily demand fields.

CASE DELIVERABLES

In order to satisfactorily complete this case, you should build the database and then prepare both written and oral presentations. Unless otherwise specified, submit the following deliverables to your professor.

1. A written report discussing any assumptions you have made about the case and the key elements of the case. Additionally, what features did you add to make the database more functional? User friendly? (Please note that these assumptions cannot violate any of the requirements specified above and must be approved by your professor.)

2. A printout of each form.

3. A printout of each report.

4. An electronic, working copy of your database that meets the criteria mentioned in the case scenario and specifications sections.

5. Results for each query. (A memo to your instructor discussing these results should also be provided.)

6. As mentioned above, you should prepare an oral presentation. (Your instructor will establish the time allocated for your presentation.) You should use a presentation package and discuss the key features of your database. Also, discuss how this database is beneficial for Ms. Giovanni.