

# CASE STUDY FOR SQL

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## INTRODUCTION

ChocoDelight, founded in 1985 in Belgium, is celebrated for its high-quality chocolate products like bars, truffles, and artisanal treats. With a focus on premium ingredients and traditional methods, ChocoDelight sources cocoa beans sustainably from West Africa, ensuring ethical practices. This case study explores their chocolate-making process from bean procurement to packaging, alongside their supply chain efficiency, marketing strategies, and distribution methods. It also examines challenges and growth opportunities in the competitive chocolate industry, highlighting sustainability efforts and consumer engagement. Through detailed analysis, this study aims to uncover ChocoDelight's keys to success and recommend future improvements.



## **PROBLEM STATEMENT**

ChocoDelight, a Belgian chocolate company founded in 1985, faces challenges despite its strong reputation for quality and ethical cocoa sourcing from West Africa. In a competitive market, it deals with intense competition due to new flavors and marketing trends. Managing a smooth supply chain while staying eco-friendly is crucial for sourcing top-notch ingredients without raising costs. Adapting to changing consumer tastes toward healthier and ethically sourced products offers growth opportunities. Expanding into new global markets means understanding local rules and customer preferences. Keeping operations efficient and profitable is key for ChocoDelight's ongoing success.

ü **SQL** – Structured Query Language

ü SQL is a specialized language for interacting with relational databases, allowing users to retrieve, modify, and manage data stored in these systems efficiently.

SQL commands are,

DDL (Data Definition Language)

TCL (Transfer Control Language)

DQL (Data Query Language)

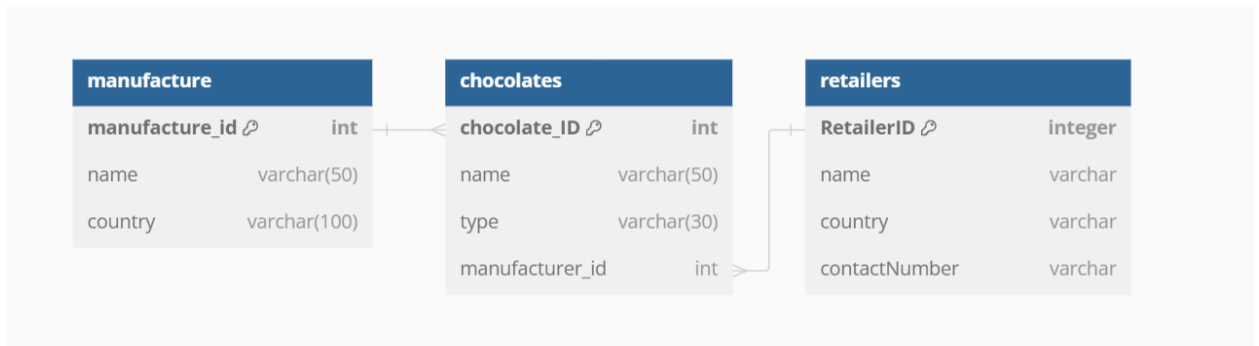
DCL (Data Control Language)

Create a database , name it as chocolate\_factory and use the chocolate\_factory database. I have Created three tables in the chocolate\_factory database

They are...,

- Manufacture Table
- Chocolates Table
- Retailers Table

## ENTITY RELATIONSHIP DIAGRAM



The syntax to create database is

```
CREATE DATABASE chocolate_factory;
```

```
use chocolate_factory;
```

**# Creating manufacture table and inserting the values to the table**

**# Manufacture Table..**

Create a manufacture table.,

```
create table manufacture(
    manufacture_id int,
    name varchar(50),
    country varchar(100)
);
```

Insert values into manufacture table,

```
INSERT VALUES INTO manufacture VALUES
```

```
(1,"Cocoa Delight","Belgium"),
```

- (2,"Sweet Treats","Switzerland"),
- (3,"Choco Heaven","USA"),
- (4,"Divine Chocolates","UK"),
- (5,"Chocolate Masters","Germany"),
- (6,"Sweet Sensations","France"),
- (7,"ChocoDreams","Italy"),
- (8,"Gourmet Chocolates","Netherlands"),
- (9,"Heavenly Bites","Spain"),
- (10,"Cocoa Creations","Belgium"),
- (11,"Delightful Chocolates","Switzerland"),
- (12,"Premium Chocolates","USA"),
- (13,"Luxury Bites","UK"),
- (14,"Fine Chocolates","Germany"),
- (15,"Sweet Indulgence","France"),
- (16,"Chocolate Delights","Italy"),
- (17,"Exquisite Chocolates","Netherlands"),
- (18,"Choco Bliss","Spain"),
- (19,"Masterpiece Chocolates","Belgium"),
- (20,"Choco Pleasures","Switzerland"),
- (21,"Sweet Joy","USA"),
- (22,"Choco Parlor","UK"),

```
(23,"Cocoa Artisans","Germany"),  
  
(24,"Choco Fantasy","France"),  
  
(25,"Choco Elegance","Italy"),  
  
(26,"Choco Delight","Netherland"),  
  
(27,"Choco Lovers","Spain"),  
  
(28,"Divine Bites","Belgium"),  
  
(29,"Choco Treats","Switzerland"),  
  
(30,"Choco Moments","USA");
```

**# Creating a chocolate table**

**# CHOCOLATE TABLE**

```
create table chocolate(  
  
    ChocolateID int,  
  
    Name varchar(50),  
  
    Type varchar(30),  
  
    ManufacturerID int  
  
);
```

**# inserting the values to the table**

insert into chocolate values

(101,"Dark Fantasy","Dark Chocolate",1),  
(102,"Milk Bliss","Milk Chocolate",1),  
(103,"Almond Joy","Nut Chocolate",2),  
(104,"White Dream","White Chocolate",2),  
(105,"Hazelnut Heaven","Nut Chocolate",3),  
(106,"Caramel Crunch","Milk Chocolate",3),  
(107,"Mint Delight","Dark Chocolate",4),  
(108,"Berry Bliss","White Chocolate",4),  
(109,"Orange Zest","Dark Chocolate",5),  
(110,"Coconut Dream","Milk Chocolate",5),  
(111,"Sea Salt Caramel","Dark Chocolate",6),  
(112,"Raspberry Ripple","White Chocolate",6),  
(113,"Maple Delight","Milk Chocolate",7),  
(114,"Cherry Blossom","Dark Chocolate",7),  
(115,"Peanut Butter Bliss","Milk Chocolate",8),  
(116,"Toffee Crunch","Dark Chocolate",8),  
(117,"Lavender Love","White Chocolate",9),  
(118,"Mocha Magic","Dark Chocolate",9),  
(119,"Blueberry Burst","Milk Chocolate",10),  
(120,"Lemon Twist","White Chocolate",10),

(121,"Spicy Chili","Dark Chocolate",11),  
(122,"Honey Delight","Milk Chocolate",11),  
(123,"Pistachio Perfection","Nut Chocolate",12),  
(124,"Ginger Snap","Dark Chocolate",12),  
(125,"Vanilla Bean","White Chocolate",13),  
(126,"Espresso Shot","Dark Chocolate",13),  
(127,"Matcha Magic","Milk Chocolate",14),  
(128,"Cinnamon Swirl","Dark Chocolate",14),  
(129,"Strawberry Cream","White Chocolate",15),  
(130,"Banana Bliss","Milk Chocolate",15);

### **#Creating Retailer table**

```
CREATE TABLE Retailer (  
  
    RetailerID INT PRIMARY KEY,  
  
    Name VARCHAR(100),  
  
    Country VARCHAR(50),  
  
    ContactNumber VARCHAR(20)  
  
);
```

**#Inserting values into the Retailer table..**

Insert into Retailer values (1, 'SuperChocoMart', 'USA', '123-456-7890'),

(2, 'Sweet Treats Shop', 'Canada', '234-567-8901'),

(3, 'Choco Paradise', 'UK', '345-678-9012'),

(4, 'Gourmet Choco', 'France', '456-789-0123'),

(5, 'Belgian Delights', 'Belgium', '567-890-1234'),

(6, 'Swiss Choco House', 'Switzerland', '678-901-2345'),

(7, 'Choco Lovers', 'Australia', '789-012-3456'),

(8, 'Candy Haven', 'Germany', '890-123-4567'),

(9, 'Choco Heaven', 'Netherlands', '901-234-5678'),

(10, 'Deluxe Chocolates', 'Italy', '012-345-6789'),

(11, 'ChocoLand', 'Spain', '123-456-7891'),

(12, 'Choco Emporium', 'Portugal', '234-567-8902'),

(13, 'Chocolate Bliss', 'Sweden', '345-678-9013'),

(14, 'Sweet Dreams', 'Norway', '456-789-0124'),

(15, 'Choco Wonders', 'Denmark', '567-890-1235'),

(16, 'Choco Magic', 'Finland', '678-901-2346'),

(17, 'Choco Delight', 'Austria', '789-012-3457'),

(18, 'Choco Kingdom', 'Ireland', '890-123-4568'),



(19, 'Pure Chocolate', 'Belgium', '901-234-5679'),

(20, 'Choco House', 'USA', '012-345-6780');

### **CASE STUDY QUESTIONS AND ANSWERS...**

**(1) Write a query to select all columns from the manufacture table ?**

```
SELECT * FROM manufacture;
```


	manufacture_id	name	country
▶	1	Cocoa Delight	Belgium
	2	Sweet Treats	Switzerland
	3	Choco Heaven	USA
	4	Divine Chocolates	UK
	5	Chocolate Masters	Germany
	6	Sweet Sensations	France
	7	ChocoDreams	Italy

**(2) Write a query for all manufacture based in Belgium ?**

```
SELECT * FROM manufacture
```

```
WHERE country="Belgium";
```

Result Grid



Filter Rows:

Exp

	manufacture_id	name	country
▶	1	Cocoa Delight	Belgium
	10	Cocoa Creations	Belgium
	19	Masterpiece Chocolates	Belgium
	28	Divine Bites	Belgium

**(3) Write a query to select all chocolates with their types ?**

```
SELECT name,type FROM chocolate;
```

Result Grid			Filter Rows:
	name	type	
▶	Dark Fantasy	Dark Chocolate	
	Milk Bliss	Milk Chocolate	
	Almond Joy	Nut Chocolate	
	White Dream	White Chocolate	
	Hazelnut Heaven	Nut Chocolate	
	Caramel Crunch	Milk Chocolate	
	Mint Delight	Dark Chocolate	
chocolate 35			×

(4) Write a query to find all chocolates that are “Milk Chocolates” ?

```
select name,type from chocolate
```

```
where type="Milk Chocolate";
```

Result Grid			Filter Rows:
	name	type	
▶	Milk Bliss	Milk Chocolate	
	Caramel Crunch	Milk Chocolate	
	Coconut Cream	Milk Chocolate	
	Maple Delight	Milk Chocolate	
	Peanut Butter Bliss	Milk Chocolate	
	Blueberry Burst	Milk Chocolate	
	Honey Delight	Milk Chocolate	
chocolate 36			×

(5) Write a sql query to count the number of manufacture ?

```
SELECT count(*)
```

AS total\_manufacture

FROM manufacture;

Result Grid			Filter
	total_manufacture		
▶	30		

(6) Write a sql query to count the number of chocolates ?

SELECT count(\*) FROM chocolate;

Result Grid			
	total_chocolates		
▶	30		

(7) Write a query to find manufacture with id is 5?

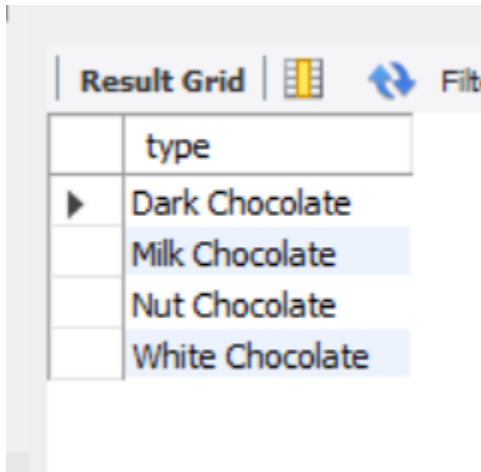
select \* from manufacture

where manufacture\_id=5;

Result Grid			Filter Rows:
	manufacture_id	name	country
▶	5	Chocolate Masters	Germany

**(8) Select a distinct type of chocolates?**

```
select distinct(type) from chocolate;
```



The screenshot shows a 'Result Grid' window with a table containing the results of the query. The table has a single column labeled 'type' and four rows of data: 'Dark Chocolate', 'Milk Chocolate', 'Nut Chocolate', and 'White Chocolate'. The 'Milk Chocolate' row is highlighted in blue.

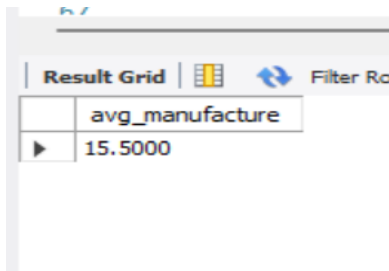
	type
▶	Dark Chocolate
	Milk Chocolate
	Nut Chocolate
	White Chocolate

**(9) Write a query to find the average number of chocolates produced by manufacture?**

```
Select avg(manufacture_id)
```

```
as avg_manufacture
```

```
from manufacture;
```



The screenshot shows a 'Result Grid' window with a table containing the results of the query. The table has a single column labeled 'avg\_manufacture' and one row of data: '15.5000'.

	avg_manufacture
▶	15.5000

**(10) Write a query to select name, types of chocolates produced by manufacturers based ID is 5.**

```
select ManufacturerID,name
```

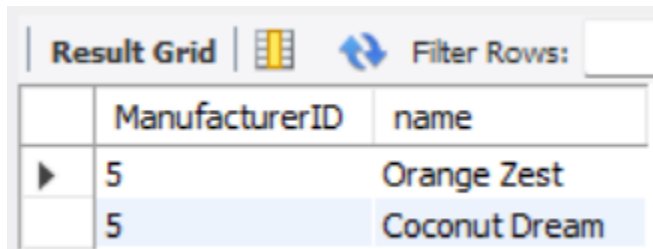
```
from chocolate
```

where ManufacturerID in

(select manufacture\_id

from manufacture

where manufacture\_id=5);



The screenshot shows a database query result grid. At the top, there is a tab labeled 'Result Grid' and a 'Filter Rows:' button. Below this, a table with two columns, 'ManufacturerID' and 'name', is displayed. The first row shows '5' for ManufacturerID and 'Orange Zest' for name. The second row, which is highlighted in blue, also shows '5' for ManufacturerID and 'Coconut Dream' for name.

	ManufacturerID	name
▶	5	Orange Zest
	5	Coconut Dream

**(11) Write a query to join the chocolate and manufacture with the condition that the country is belgium?**



select ChocolateID,country

from chocolate c

join manufacture m

on c.ManufacturerID=m.manufacture\_id



where country="Belgium";

Result Grid     Filter Rows		
	ChocolateID	country
▶	101	Belgium
	102	Belgium
	119	Belgium
	120	Belgium

(12) Write a query to select the null values from the manufacture table ?

```
select * from manufacture
```

```
where manufacture_id is null;
```

Result Grid     Filter Rows: <input type="text"/>   Exp			
	manufacture_id	name	country
▶	1	Cocoa Delight	Belgium
	2	Sweet Treats	Switzerland
	3	Choco Heaven	USA
	4	Divine Chocolates	UK
	5	Chocolate Masters	Germany
	6	Sweet Sensations	France

manufacture 26 x

(13) Write a sql query order by descending order based on name in the chocolate?

```
select ChocolateID,name from chocolate
```

```
order by name desc;
```

Result Grid			Filter Rows:
	ChocolateID	name	
▶	104	White Dream	
	125	Vanilla Bean	
	116	Toffee Crunch	
	129	Strawberry Cream	
	121	Spicy Chili	
	111	Sea Salt Caramel	
chocolate 33			×

- (14) Write a sql query order by descending order based on name and limit the five records in the chocolate?

```
select ChocolateID,name from chocolate
```

```
order by name desc
```

```
limit 5;
```

Result Grid			Filter Rows:
	ChocolateID	name	
▶	104	White Dream	
	125	Vanilla Bean	
	116	Toffee Crunch	
	129	Strawberry Cream	
	121	Spicy Chili	

- (15) Write a sql query to change the name to uppercase in the chocolate table?

```
select upper(name)
```

```
from chocolate;
```

Result Grid		Filter Rows
	upper(name)	
▶	DARK FANTASY	
	MILK BLISS	
	ALMOND JOY	
	WHITE DREAM	
	HAZELNUT HEAVEN	
	CARAMEL CRUNCH	

Result 35 ×

(16) Write a sql query to return a list of customers with the following country  
 ["France","Belgium","UK"]: From Retailer table ?

select Country

from Retailer

where Country in ("France","Belgium","UK");

Result Grid		Filter Rows:
	Country	
▶	UK	
	France	
	Belgium	
	Belgium	

Retailer 40    Retailer 41 ×

(17) Write a sql query to return a list of customers without the following country  
 ["France","UK"]: From Retailer table ?



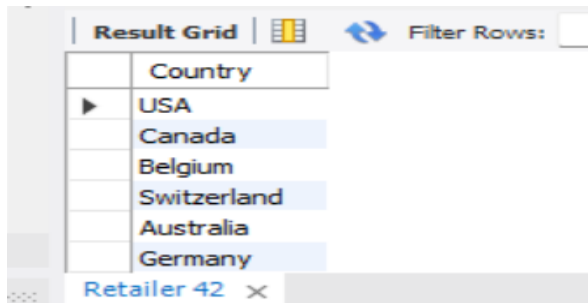
```

select Country

from Retailer

where Country not in ("France","UK");

```



The screenshot shows a 'Result Grid' window with a 'Filter Rows' input field. The grid contains a single column titled 'Country'. The data rows are: USA, Canada, Belgium, Switzerland, Australia, and Germany. The 'Retailer 42' tab is active at the bottom.

Country
USA
Canada
Belgium
Switzerland
Australia
Germany

**(18) Write a query to replace the word ‘Cocoa’ with ‘chocos’ in a manufacture table?**

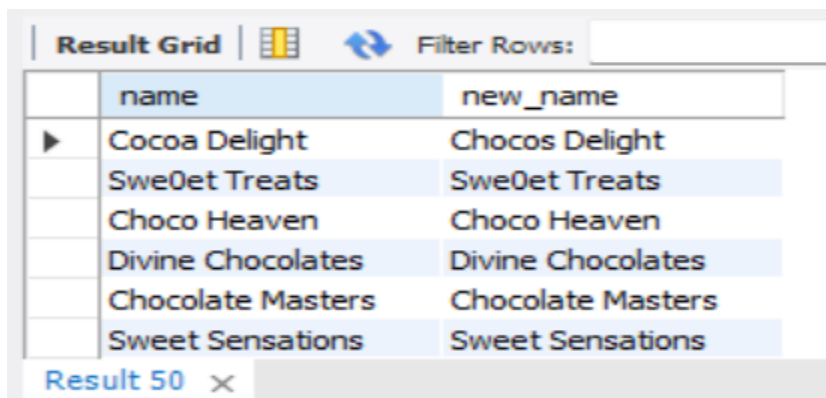
```

select name,

replace(name,'Cocoa','Chocos') as new_name

from manufacture;

```



The screenshot shows a 'Result Grid' window with a 'Filter Rows' input field. The grid has two columns: 'name' and 'new\_name'. The data rows show the replacement of 'Cocoa' with 'Chocos' in the product names. The 'Result 50' tab is active at the bottom.

name	new_name
Cocoa Delight	Chocos Delight
Sweet Treats	Sweet Treats
Choco Heaven	Choco Heaven
Divine Chocolates	Divine Chocolates
Chocolate Masters	Chocolate Masters
Sweet Sensations	Sweet Sensations

**(19) Write a query to Count the number of chocolates produced by each manufacture?**


```
SELECT m.manufacture_id, m.name AS Manufacturer, COUNT(c.ChocolateID) AS  
NumberOfChocolates
```

```
FROM manufacture m
```

```
LEFT JOIN chocolate c ON m.manufacture_id = c.ManufacturerID
```

```
GROUP BY m.manufacture_id, m.name
```

```
ORDER BY NumberOfChocolates DESC;
```



The screenshot shows a database query result grid with the following data:

	manufacture_id	Manufacturer	NumberOfChocolates
▶	1	Cocoa Delight	2
	2	Sweet Treats	2
	3	Choco Heaven	2
	4	Divine Chocolates	2
	5	Chocolate Masters	2
	6	Sweet Sensations	2

Below the table, there is a tab labeled "Result 3" with a close button (X).

**(20) Write a query to list out the first 10 chocolates in alphabetical order?**

```
SELECT ChocolateID, Name, Type, ManufacturerID
```

```
FROM chocolate
```

```
ORDER BY Name ASC
```

```
LIMIT 4;
```

Result Grid					Filter Rows:	Export:	Wrap
	ChocolateID	Name	Type	ManufacturerID			
▶	103	Almond Joy	Nut Chocolate	2			
	130	Banana Bliss	Milk Chocolate	15			
	108	Berry Bliss	White Chocolate	4			
	119	Blueberry Burst	Milk Chocolate	10			

chocolate 8 x

(21) Write a query for retailers whose name ends with 'Mart'?

```
SELECT * FROM Retailer
```

```
WHERE Name LIKE '%Mart';
```

Result Grid					Filter Rows:	Edit:
	RetailerID	Name	Country	ContactNumber		
▶	1	SuperChocoMart	USA	123-456-7890		
•	NULL	NULL	NULL	NULL		

(22) Write a query to combine the manufacture and retailer countries ?

```
SELECT country AS Location
```

```
FROM manufacture
```

```
UNION
```

```
SELECT country AS Location
```

```
FROM retailer
```

```
limit 3;
```

Result Grid | Filter Rows:

	Location
▶	Belgium
	Switzerland
	USA

Result 12 x

**(23) List all manufacture and retailer countries, including duplicates ?**

SELECT country AS Location

FROM manufacture

UNION ALL

SELECT country AS Location

FROM retailer;

Result Grid | Filter I

	Location
▶	Belgium
	Switzerland
	USA
	UK
	Germany
	France

Result 13 x



