

# Willy Wonka Factory (WWF)

## The Chocolate Factory

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Group: 5

**Policy:** The policy of the chocolate factory is to ensure the production of high-quality chocolate products while prioritizing food safety and customer satisfaction. This includes sourcing premium ingredients, implementing strict quality control measures, and adhering to regulatory standards. The policy aims to establish the chocolate factory as a trusted brand known for its exceptional chocolates.

**Procedure:** The procedure for chocolate production involves several steps. It starts with the careful selection and measurement of ingredients, including cocoa beans, sugar, milk, and flavors. The ingredients are then processed, mixed, and tempered to create the desired chocolate base. The chocolate is molded into various shapes and sizes, cooled, and solidified. Afterward, the chocolates undergo quality checks for taste, texture, and appearance. Once approved, the chocolates are packaged, labeled with relevant information such as ingredients and expiration dates, and stored in a controlled environment. When orders are received, the packaged chocolates are assigned to a driver for delivery to distributors or companies.

# **Business Rules**

A chocolate factory named Willy Wonka Factory (WWF) plans to create a database system, named WWFDB, to keep track of information about its ingredients, chocolate products, offers, employees and companies.

## **The First Table is Ingredients:**

- \* Each ingredient has an( Ingredient ID, ingredient name, quantity) Ingredient ID is the primary key .
- \* Each ingredient used in several chocolate products , and each chocolate product contains several ingredients.
- \* Ingredient quantity should be positive number between 0 and 300 Kg.

## **The Second Table is Chocolate Products:**

- \* Each chocolate product has a ( Product ID, Product Name, {Flavor} and Packaging ID) Product ID and Packaging ID are the primary keys.
- \* Each chocolate product is associated with one or more employees , and each employee has one or more chocolate products.
- \* Each production process, must be followed the quality control measures.
- \* Each packaging, must be labeled the allergen information.

### **The Third Table is Offer:**

- \* Each chocolate product may or may not have an offer created only for the chocolate products consisting of a (starting date , an end date , and discount percentage).
- \* Start date is the partial key.
- \* Offer start date should be after 1/1/2024

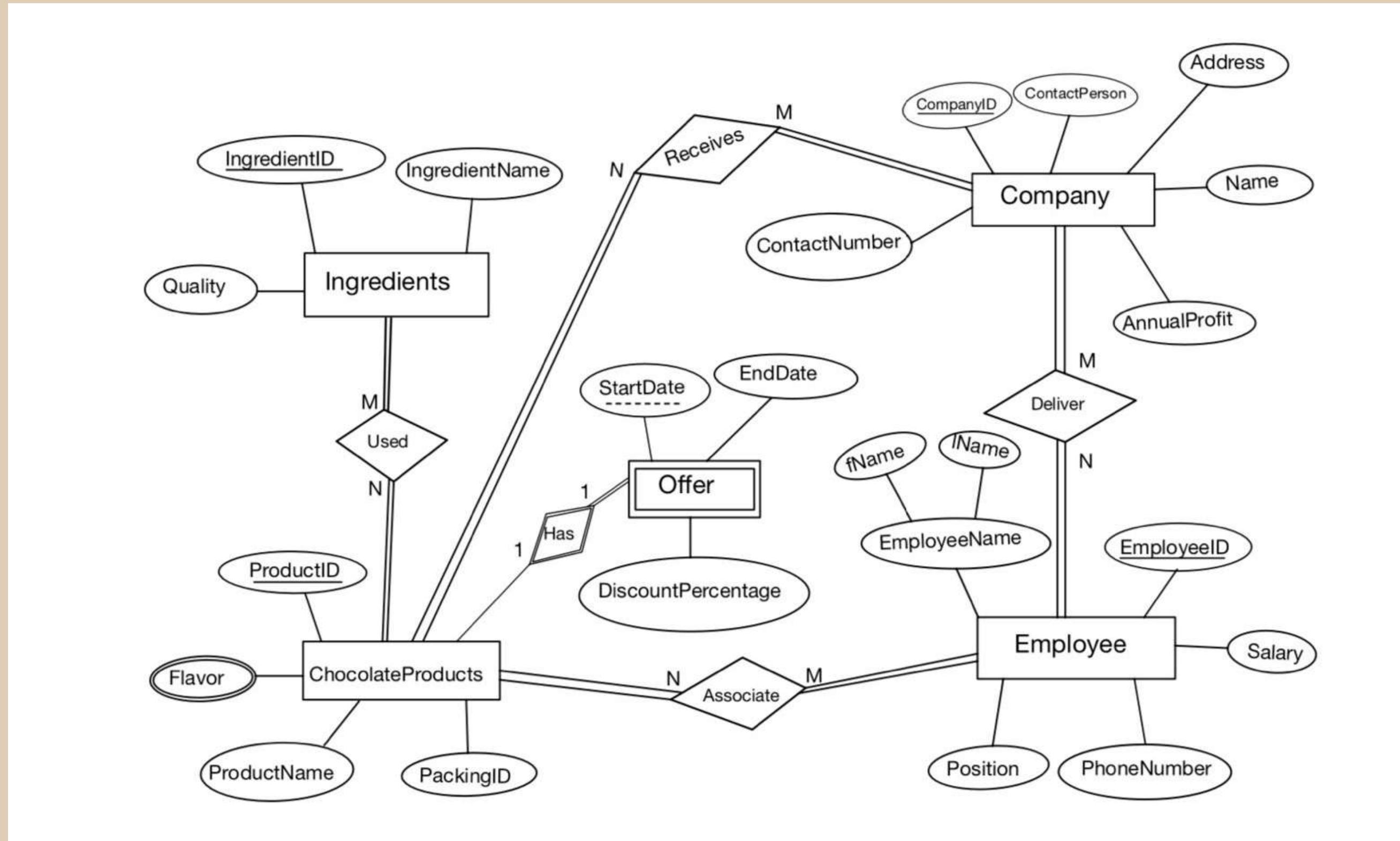
### **The Fourth Table is Employees:**

- \* Each employee has an ( employee ID, name(fName, lName), phone number, position, and salary) employee ID is the primary key .
- \* Each employee delivers a chocolate product to more than one company, and the company receives many chocolate product from more than one employee.
- \* Each employee must have a valid license and adhere to safe driving practices and on-time delivery times.

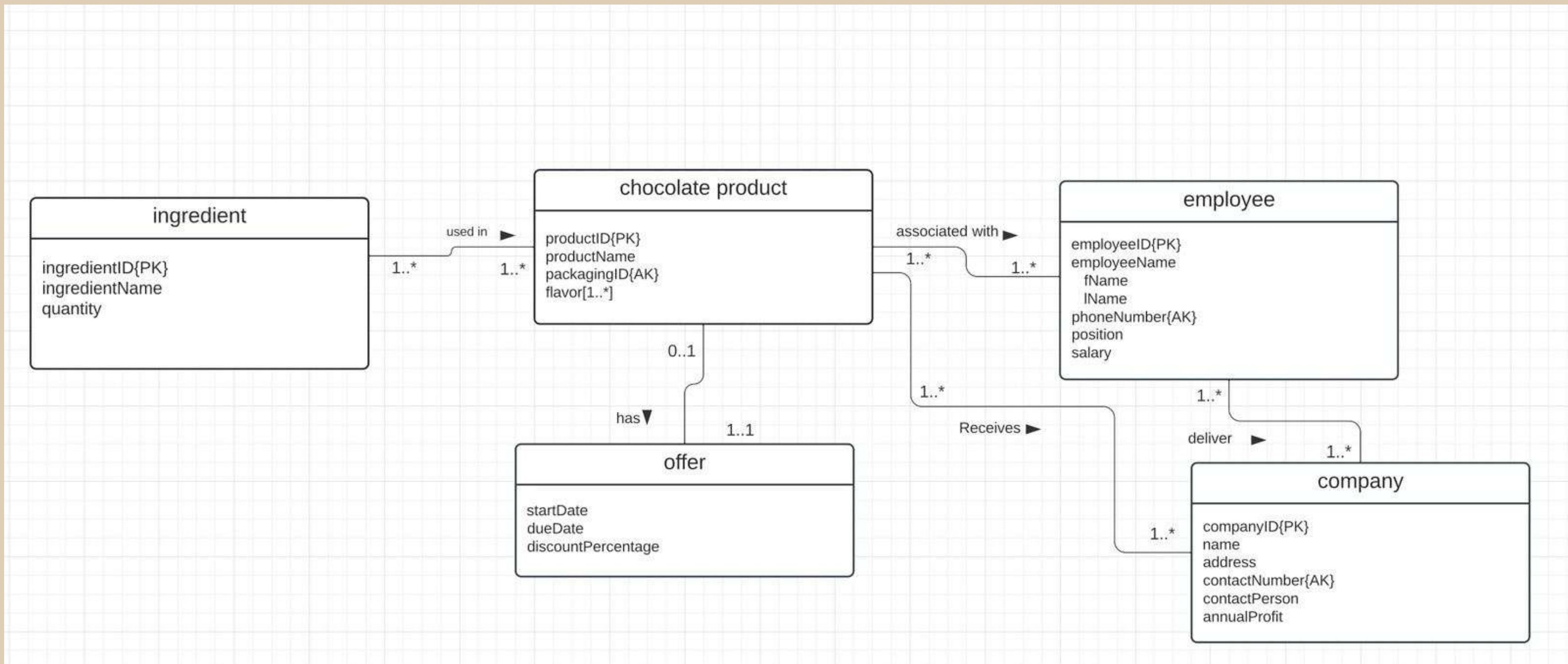
### **The last Table is Companies:**

- \* WWF has a number of companies. Each company has an (company ID, a name, address, Contact number, contact person, and annual profit ) company ID is the primary key.
- \* Each company receives several chocolate products, and each chocolate product is sent to one or more companies.

# ER Model: Chen notion



# ER Model: UML notation



# Step 1- mapping regular entity

**Ingredients Table**

IngredientID	IngredientName	Quantity
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**ChocolateProducts Table**

ProductID	ProductName	PackagingID
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**Employee Table**

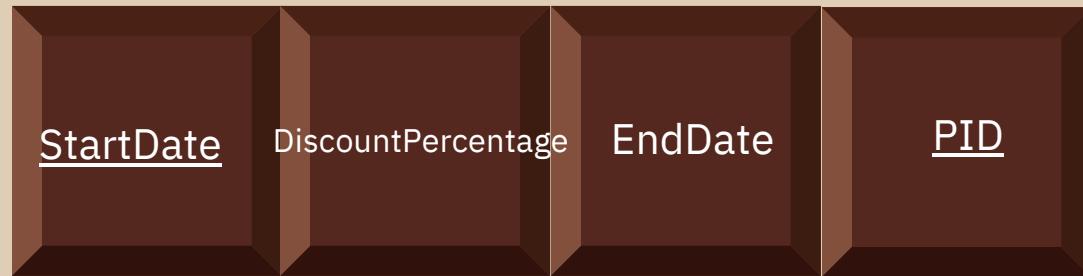
EmployeeID	fName	lName	PhoneNumber	Salary	Position
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**Company Table**

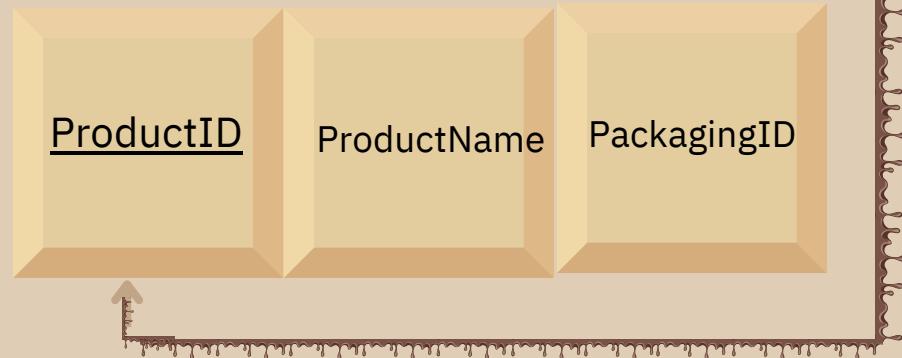
CompanyID	ContactPerson	Name	AnnualProfit	Address	ContactNumber
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## Step 2- Mapping of Weak Entity Types

**Offer Table**



**ChocolateProducts Table**

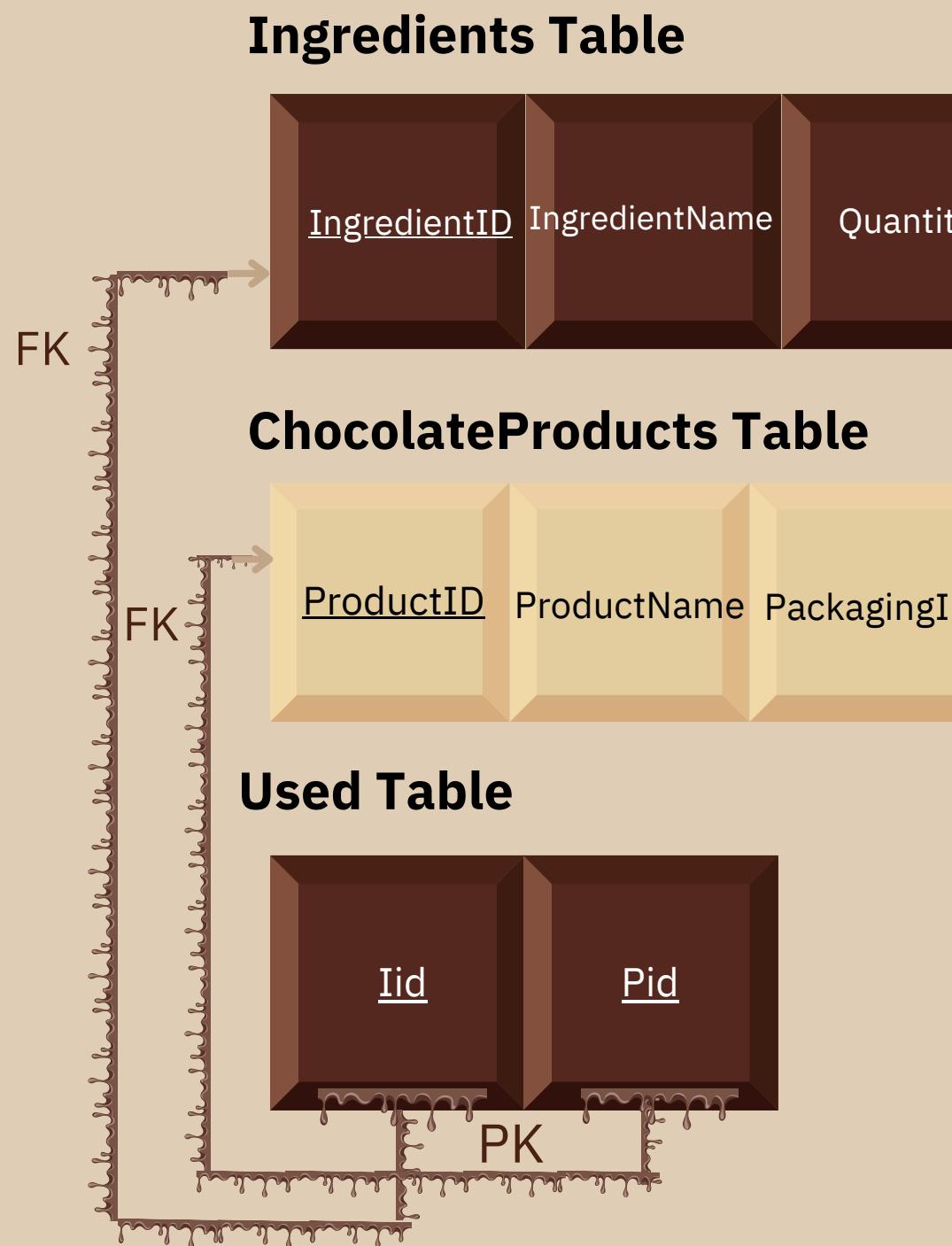


## Step 3- Mapping of Binary 1:1 Relationship Types

We did this step in the previous step

## Step 4-Mapping of Binary 1:N Relationships Types is Null

## Step 5- Mapping of Binary M:N Relationship Types Used relationship type



# Receives relationship type

**ChocolateProducts Table**

FK	ProductID	ProductName	PackagingID
----	-----------	-------------	-------------

**Company Table**

FK	CompanyID	ContactPerson	Name	AnnualProfit	Address	ContactNumber
----	-----------	---------------	------	--------------	---------	---------------

**Receives Table**

PK	Pid	Cid
----	-----	-----

# Associate relationship type

**Employee Table**

FK	EmployeeID	fName	lName	PhoneNumber	Salary	Position
----	------------	-------	-------	-------------	--------	----------

**ChocolateProducts Table**

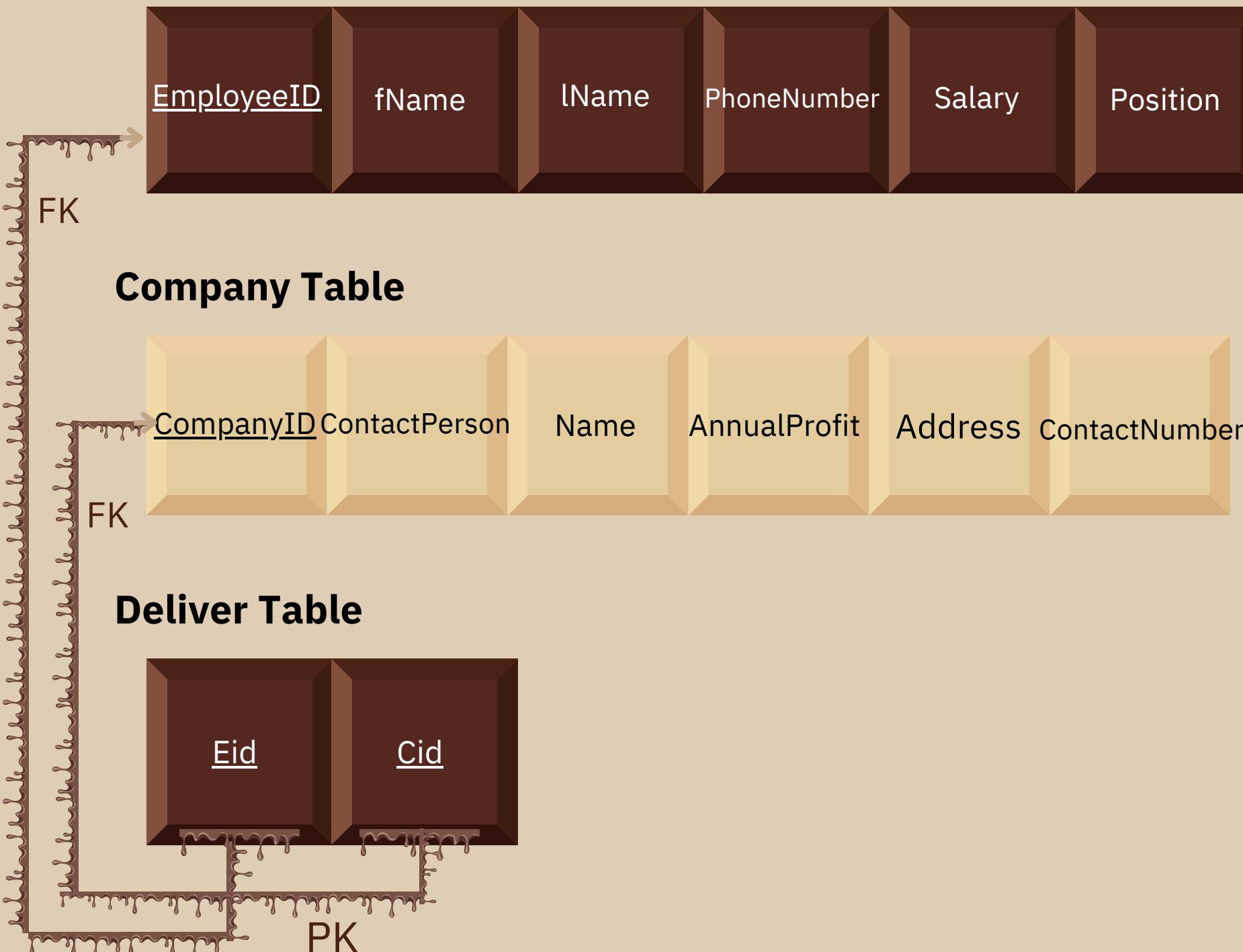
FK	ProductID	ProductName	PackagingID
----	-----------	-------------	-------------

**Associate Table**

PK	Pid	Eid
----	-----	-----

# Deliver relationship type

**Employee Table**

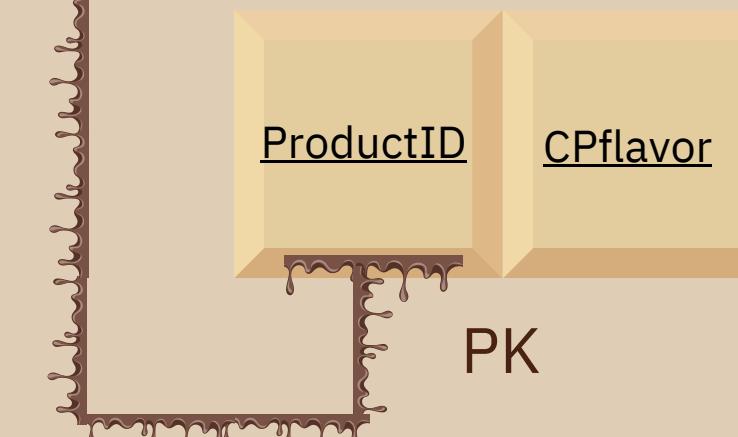


## Step 6 - Mapping of Multivalued Attributes

**ChocolateProducts Table**



**Choco\_Flavors Table**



## Step7- Mapping of N-are Relationships Types is Null

# Final Mapping



# Normalization

Ingredients Table

IngredientID	IngredientName	Quantity

## **1-First Normal Form(1NF)**

No multivalued attribute so the table is in First Normal Form(1NF)

## **2- Second Normal Form(2NF)**

No partial dependencie,so the table is in Second Normal Form (2NF)

## **3-Third Normal Form(3NF)**

No transitive dependencies, so the table is in Third Normal Form (3NF)

# Normalization

ChocolateProducts Table

ProductID	PackingID	ProductName
-----------	-----------	-------------

## **1-First Normal Form(1NF)**

No multivalued attribute so the table is in First Normal Form(1NF)

## **2- Second Normal Form(2NF)**

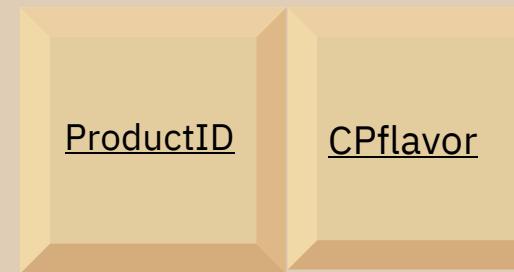
No partial dependencie,so the table is in Second Normal Form (2NF)

## **3-Third Normal Form(3NF)**

No transitive dependencies, so the table is in Third Normal Form (3NF)

# Normalization

Choco\_Flavor Table



## **1-First Normal Form(1NF)**

We've covered multivalued attribute in the mapping, so the table is in First Normal Form(1NF)

## **2- Second Normal Form(2NF)**

No partial dependencie,so the table is in Second Normal Form (2NF)

## **3-Third Normal Form(3NF)**

No transitive dependencies, so the table is in Third Normal Form (3NF)

# Normalization

Used Table



## **1-First Normal Form(1NF)**

No multivalued attribute so the table is in First Normal Form(1NF)

## **2- Second Normal Form(2NF)**

No partial dependencie,so the table is in Second Normal Form (2NF)

## **3-Third Normal Form(3NF)**

No transitive dependencies, so the table is in Third Normal Form (3NF)

# Normalization

Company Table

<u>CompanyID</u>	ContactPerson	Name	AnnualProfit	Address	ContactNumber
------------------	---------------	------	--------------	---------	---------------

## 1-First Normal Form(1NF)

No multivalued attribute so the table is in First Normal Form(1NF)

## 2- Second Normal Form(2NF)

No partial dependencie,so the table is in Second Normal Form (2NF)

## 3-Third Normal Form(3NF)

No transitive dependencies, so the table is in Third Normal Form (3NF)

# Normalization

Receives Table



## **1-First Normal Form(1NF)**

No multivalued attribute so the table is in First Normal Form(1NF)

## **2- Second Normal Form(2NF)**

No partial dependencie,so the table is in Second Normal Form (2NF)

## **3-Third Normal Form(3NF)**

No transitive dependencies, so the table is in Third Normal Form (3NF)

# Normalization

Employee Table

<u>EmployeeID</u>	fname	lname	PhoneNumber	Salary	Position
-------------------	-------	-------	-------------	--------	----------

## 1-First Normal Form(1NF)

No multivalued attribute so the table is in First Normal Form(1NF)

## 2- Second Normal Form(2NF)

No partial dependencie,so the table is in Second Normal Form (2NF)

## 3-Third Normal Form(3NF)

No transitive dependencies, so the table is in Third Normal Form (3NF)

# Normalization

Associate Table



## **1-First Normal Form(1NF)**

No multivalued attribute so the table is in First Normal Form(1NF)

## **2- Second Normal Form(2NF)**

No partial dependencie,so the table is in Second Normal Form (2NF)

## **3-Third Normal Form(3NF)**

No transitive dependencies, so the table is in Third Normal Form (3NF)

# Normalization

Deliver Table



## **1-First Normal Form(1NF)**

No multivalued attribute so the table is in First Normal Form(1NF)

## **2- Second Normal Form(2NF)**

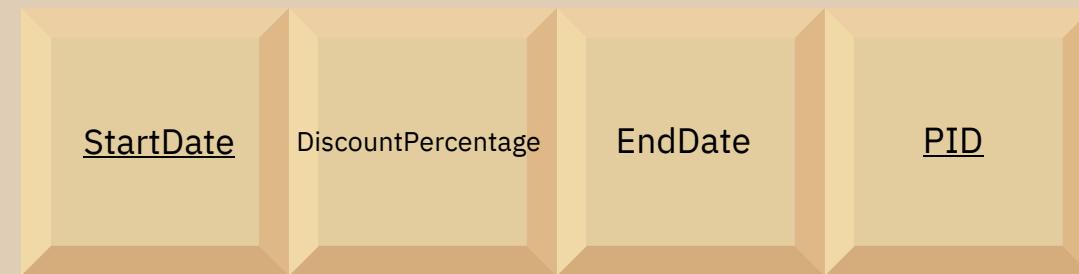
No partial dependencie,so the table is in Second Normal Form (2NF)

## **3-Third Normal Form(3NF)**

No transitive dependencies, so the table is in Third Normal Form (3NF)

# Normalization

Offer Table



## 1-First Normal Form(1NF)

No multivalued attribute so the table is in First Normal Form(1NF)

## 2- Second Normal Form(2NF)

No partial dependencie,so the table is in Second Normal Form (2NF)

## 3-Third Normal Form(3NF)

No transitive dependencies, so the table is in Third Normal Form (3NF)

# Mapping after Normalization



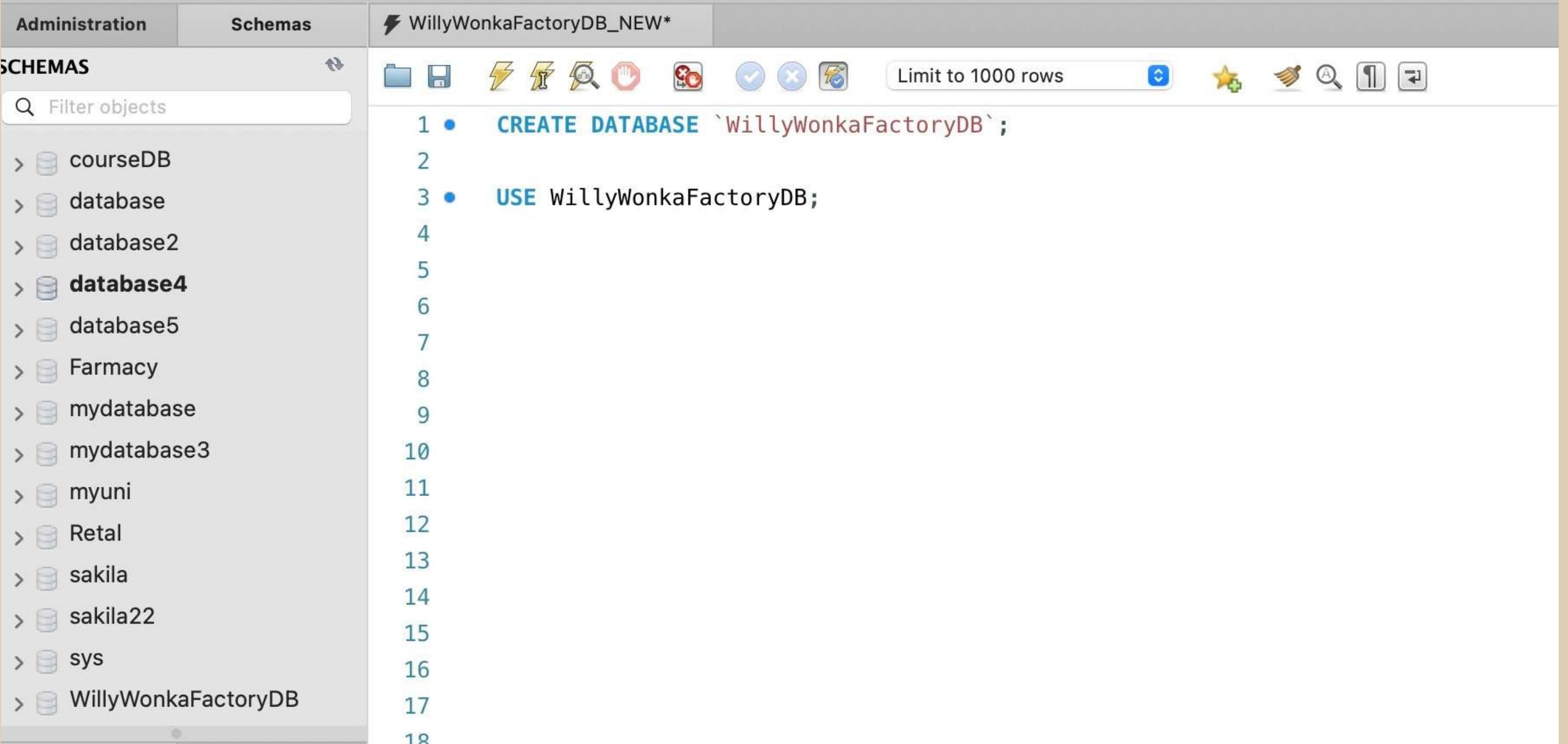


# SQL implementation

The creation and the output of the  
database and every table



## Creating database and name it WillyWonkaFactoryDB then we use the 'USE' command. .



The screenshot shows the MySQL Workbench interface. On the left, the 'SCHEMAS' tree view lists various databases, including 'courseDB', 'database', 'database2', 'database4', 'database5', 'Farmacy', 'mydatabase', 'mydatabase3', 'myuni', 'Retal', 'sakila', 'sakila22', 'sys', and 'WillyWonkaFactoryDB'. The current schema selected is 'WillyWonkaFactoryDB\_NEW\*'.

In the main pane, the SQL editor displays the following code:

```
1 • CREATE DATABASE `WillyWonkaFactoryDB`;
2
3 • USE WillyWonkaFactoryDB;
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
```

The 'CREATE DATABASE' command is highlighted in blue, indicating it has been run. The 'USE' command is also highlighted in blue, indicating it is the next command to be run.

# Creating the Ingredients tables with their attribute .

The screenshot shows the MySQL Workbench interface with the following details:

- Schemas:** The current schema is "IAS".
- Query Editor:** The query being run is:

```
1 • CREATE DATABASE `WillyWonkaFactoryDB`;
2
3 • USE WillyWonkaFactoryDB;
4
5 • CREATE TABLE Ingredients (
6     ingredient_id INT PRIMARY KEY,
7     ingredient_name VARCHAR(50),
8     quantity INT
9 );
10
11
```

- Object Browser:** The tree view shows the database structure, including the "payment" table which has a "amount" column selected.
- Action Output:** A table showing the history of actions taken:

Time	Action	Response	Duration / Fetch Time
18 13:28:54	SELECT name,film_id FROM category C,film_category F WHERE C.category_id=F.category_id LIMIT 0, 1000	1000 row(s) returned	0.0020 sec / 0.00012...
19 13:29:21	SELECT * FROM sakila22.category LIMIT 0, 1000	16 row(s) returned	0.0012 sec / 0.00001...
20 13:31:15	SELECT name,film_id FROM category C ,film_category F WHERE C.category_id=F.category_id AND C.name='Children'...	60 row(s) returned	0.0025 sec / 0.00001...
21 13:36:37	SELECT name,film_id FROM category C Left Join film_category F ON C.category_id=F.category_id LIMIT 0, 1000	1000 row(s) returned	0.0020 sec / 0.00013...
22 13:39:48	SELECT * FROM customer WHERE customer_id in (SELECT MIN(amount) FROM payment) LIMIT 0, 1000	0 row(s) returned	0.011 sec / 0.000008...
23 13:45:47	SELECT name, film_id FROM category LEFT JOIN film_category ON category.category_id = film_category.category_id	Error Code: 1054. Unknown column 'film_category.jcategory_id' in...	0.033 sec
24 13:51:15	SELECT name, film_id FROM category LEFT JOIN film_category ON category.category_id = film_category.category_id	1000 row(s) returned	0.041 sec / 0.00077 s...

# Result:

The screenshot shows the MySQL Workbench interface with the following details:

- Administration** tab is selected.
- Schemas** tab is selected.
- Query 7** tab is selected.
- Ingredients** tab is selected.
- SCHEMAS** pane lists various databases: courseDB, database, database2, database4, database5, Farmacy, mydatabase, mydatabase3, myuni, Retai, sakila, sakila22, sys, and WillyWonkaFactoryDB.
- Query Editor**:
  - Text: `1 • SELECT * FROM WillyWonkaFactoryDB.Ingredients;`
  - Buttons: Filter objects, Limit to 1000 rows, and several icons for copy/paste, search, and navigation.
- Result Grid**:
  - Header: ingredient..., ingredient\_na..., quantity
  - Data: A single row with all columns set to NULL.
  - Buttons: Result Grid, Filter Rows, Search, Edit, Export/Import.
- Object Info** pane: No object selected.
- Action Output** pane:

	Time	Action	Response	Duration / Fetch Time
1	16:46:00	CREATE DATABASE `WillyWonkaFactoryDB`	1 row(s) affected	0.057 sec
2	16:46:00	USE WillyWonkaFactoryDB	0 row(s) affected	0.0016 sec
3	16:46:11	CREATE TABLE Ingredients ( ingredient_id INT PRIMARY KEY, ingredient_name VARCHAR(50), quantity INT )	0 row(s) affected	0.048 sec
4	16:46:40	SELECT * FROM WillyWonkaFactoryDB.Ingredients LIMIT 0, 1000	0 row(s) returned	0.0060 sec / 0.0000...

# Creating the ChocolateProducts tables with their attribute .

The screenshot shows the MySQL Workbench interface with the following details:

- Administration** tab is selected.
- Schemas** tab is selected.
- Query 7** tab is selected.
- Ingredients** tab is selected.
- Toolbars:** Standard MySQL Workbench toolbar with icons for file operations, database navigation, and search.
- Limit to 1000 rows** button is present.
- Object Info** tab is selected in the bottom-left panel.
- No object selected** message is displayed in the Object Info panel.
- Tables** section under WillyWonkaFactoryDB schema contains **Ingredients**, **Views**, **Stored Procedures**, and **Functions**.
- Query Editor:** Displays the following SQL code:

```
1 • CREATE DATABASE `WillyWonkaFactoryDB`;
2
3 • USE WillyWonkaFactoryDB;
4
5 • CREATE TABLE Ingredients (
6     ingredient_id INT PRIMARY KEY,
7     ingredient_name VARCHAR(50),
8     quantity INT
9 );
10
11 • CREATE TABLE ChocolateProducts (
12     product_id INT PRIMARY KEY,
13     product_name VARCHAR(50),
14     packing_id INT
15 );
16
17
```
- Action Output** tab is selected at the bottom.
- Time**, **Action**, **Response**, and **Duration / Fetch Time** columns are visible in the Action Output tab.

# Result:

The screenshot shows the MySQL Workbench interface with the following details:

- Toolbar:** Administration, Schemas, Query 7, Ingredients, ChocolateProducts.
- Schemas Panel:** Lists various schemas including courseDB, database, database2, database4, database5, Farmacy, mydatabase, mydatabase3, myuni, Retal, sakila, sakila22, sys, and WillyWonkaFactoryDB. The WillyWonkaFactoryDB schema is expanded to show Tables, Views, Stored Procedures, and Functions.
- Query Editor:** Displays the SQL query: `1 • SELECT * FROM WillyWonkaFactoryDB.ChocolateProducts;`. There are 1000 rows selected.
- Result Grid:** Shows the results of the query. The columns are product\_id, product\_name, and packing\_id. All three columns have NULL values for all rows.
- Right Sidebar:** Contains icons for Result Grid, Form Editor, Field Types, Query Stats, and Execution Plan.
- Bottom Navigation:** Action Output, Time, Action, Response, Duration / Fetch Time.

# Creating the Offer tables with their attribute .

The screenshot shows the MySQL Workbench interface with the following details:

- Schemas:** A tree view of databases including Farmacy, mydatabase, mydatabase3, myuni, Retal, sakila, and sakila22. The WillyWonkaFactoryDB database is selected.
- Tables:** Under the WillyWonkaFactoryDB schema, the Tables node is expanded, showing ChocolateProducts, Ingredients, and Offer.
- Query Editor:** The main area displays the SQL code for creating three tables:

```
2
3 • USE WillyWonkaFactoryDB;
4
5 • CREATE TABLE Ingredients (
6     ingredient_id INT PRIMARY KEY,
7     ingredient_name VARCHAR(50),
8     quantity INT
9 );
10
11 • CREATE TABLE ChocolateProducts (
12     product_id INT PRIMARY KEY,
13     product_name VARCHAR(50),
14     packing_id INT
15 );
16
17 • CREATE TABLE Offer (
18     StartDate DATE CHECK (StartDate >= '2024-01-01'),
19     DiscountPercentage INT ,
20     EndDate DATE,
21     PID INT,
22     CONSTRAINT fk_ChocolateProducts
23     FOREIGN KEY (PID)
24     REFERENCES ChocolateProducts(product_id),
25     PRIMARY KEY(StartDate,PID)
26 );
27
28
29
30
31
```
- Action Output:** A table showing the execution results:

Time	Action	Response	Duration / Fetch Time
43 18:38:25	CREATE TABLE Offer ( StartDate DATE CHECK (StartDate >= '2024-01-01'), DiscountPercentage INT , EndDate DAT...	0 row(s) affected	0.022 sec
43 18:38:26	SELECT * FROM Offer LIMIT 0,1000		0.0000 sec / 0.0000 sec

# Result:

Schemas Administration Schemas

WillyWonkaFactoryDB\* Ingredients Offer

SCHEMAS

Filter objects

Retal sakila sakila22 sys WillyWonkaFactoryDB

Tables ChocolateProducts Ingredients Offer

Columns StartDate DiscountPerce... EndDate PID

Indexes Foreign Keys Triggers

Views Stored Procedures Functions

Object Info Session

No object selected

1 • `SELECT * FROM WillyWonkaFactoryDB.Offer;`

Limit to 1000 rows

Result Grid Filter Rows: Search Edit: Export/Import:

StartDate DiscountPercenta... EndDate PID

NULL NULL NULL NULL

Action Output Time Action Response Duration / Fetch Time

Offer 1 Apply Revert

Result Grid Form Editor Field Types Query Stats

# Creating the Company tables with their attribute .

The screenshot shows the MySQL Workbench interface with the following details:

- Schemas:** The left sidebar lists various schemas, with **sakila22** expanded to show **Tables**, **Views**, **Stored Procedures**, and **Functions**.
- Current Schema:** **WillyWonkaFactoryDB** is selected.
- Code Editor:** The main area contains the SQL code for creating three tables:

```
8     quantity INT
9 );
10
11 • CREATE TABLE ChocolateProducts (
12     product_id INT PRIMARY KEY,
13     product_name VARCHAR(50),
14     packing_id INT
15 );
16
17 • CREATE TABLE Offer (
18     StartDate DATE CHECK (StartDate >= '2024-01-01'),
19     DiscountPercentage INT ,
20     EndDate DATE,
21     PID INT,
22     CONSTRAINT fk_ChocolateProducts
23     FOREIGN KEY (PID)
24     REFERENCES ChocolateProducts(product_id),
25     PRIMARY KEY(StartDate,PID)
26 );
27 • CREATE TABLE Company (
28     CompanyID INT PRIMARY KEY,
29     ContactPerson VARCHAR(50),
30     Name VARCHAR(50),
31     AnnualProfit DECIMAL (3, 1),
32     Address VARCHAR(50),
33     ContactNumber INT
34 );
35
36
37
```
- Action Output:** At the bottom, the "Action Output" section shows the results of the last two insert statements:

Time	Action	Response	Duration / Fetch Time
57 18:47:25	INSERT INTO Employee (EmployeeID, fName, lName, PhoneNumber, Salary, Position) VALUES(1, 'Jhon', 'Doe', '055554...',	5 row(s) affected Records: 5 Duplicates: 0 Warnings... 0.0013 sec	
58 18:47:25	INSERT INTO Associate (AssociateID) VALUES(1, 2, 3, 4, 5, 6, 7, 8, 9)	7 row(s) affected Records: 7 Duplicates: 0 Warnings... 0.0014 sec	

# Result:

The screenshot shows the MySQL Workbench interface with the following details:

- Administration** tab is selected.
- Schemas** tab is selected.
- Current Database:** WillyWonkaFactoryDB\*
- Selected Table:** Company
- Query Editor:** Displays the SQL query: `1 • SELECT * FROM WillyWonkaFactoryDB.Company;`
- Result Grid:** Shows the results of the query. The columns are: CompanyID, ContactPerson, Name, AnnualProfit, Address, ContactNumber, and Email. All values are currently null.
- Object Info:** No object selected.
- Session:** No object selected.
- Right Panel:** A sidebar with icons for Result Grid, Form Editor, Field Types, and Query Stats.
- Bottom Navigation:** Action Output, Time, Action, Response, Duration / Fetch Time.

# Creating the Employee tables with their attribute .

The screenshot shows the MySQL Workbench interface with the following details:

- Schemas:** The current schema is "WillyWonkaFactoryDB\*".
- Tables:** The "database4" schema contains the following tables:
  - Offer:** Columns include StartDate (INT), DiscountPercentage (INT), EndDate (INT), and PID (INT). It has a constraint "fk\_ChocolateProducts" (FOREIGN KEY) referencing "ChocolateProducts(product\_id)" with a PRIMARY KEY(StartDate,PID).
  - Company:** Columns include CompanyID (INT PRIMARY KEY), ContactPerson (VARCHAR(50)), Name (VARCHAR(50)), AnnualProfit (DECIMAL (3, 2)), Address (VARCHAR(50)), and ContactNumber (INT).
  - Employee:** Columns include EmployeeID (INT PRIMARY KEY), fName (VARCHAR(20)), lName (VARCHAR(20)), PhoneNumber (INT), Salary (DECIMAL (7,2)), and Position (VARCHAR(10)).
- Columns:** The "salary" column under the "Employee" table is selected, highlighted with a gray background.
- Object Info:** The definition of the "salary" column is shown as: salary decimal(7,2).
- Action Output:** A table with columns Time, Action, Response, and Duration / Fetch Time is present at the bottom.

```
16
17 • CREATE TABLE Offer (
18     StartDate INT,
19     DiscountPercentage INT ,
20     EndDate INT,
21     PID INT,
22     CONSTRAINT fk_ChocolateProducts
23     FOREIGN KEY (PID)
24     REFERENCES ChocolateProducts(product_id),
25     PRIMARY KEY(StartDate,PID)
26 );
27 • CREATE TABLE Company (
28     CompanyID INT PRIMARY KEY,
29     ContactPerson VARCHAR(50),
30     Name VARCHAR(50),
31     AnnualProfit DECIMAL (3, 2),
32     Address VARCHAR(50),
33     ContactNumber INT
34 );
35 • CREATE TABLE Employee(
36     EmployeeID INT PRIMARY KEY,
37     fName VARCHAR(20),
38     lName VARCHAR(20),
39     PhoneNumber INT,
40     Salary DECIMAL (7,2),
41     Position VARCHAR(10)
42 );
43
44
45
46
```

# Result:

The screenshot shows a database management interface with the following details:

- Toolbar:** Administration, Schemas, WillyWonkaFactoryDB\*, Assessment1\*, Employee.
- Schemas:** A list of schemas including database4, database5, Farmacy, mydatabase, mydatabase3, myuni, Retal, sakila, sakila22, sys, and WillyWonkaFactoryDB.
- Query Bar:** SELECT \* FROM WillyWonkaFactoryDB.Employee;
- Result Grid:** Shows a table with columns EmployeeID, fName, lName, PhoneNumber, Salary, and Position. All cells in the first row are empty (NULL).
- Grid Options:** Result Grid, Filter Rows, Search, Edit, Export/Import.
- Object Info:** No object selected.
- Session:** Employee 1, Apply, Revert.
- Action Output:** Time, Action, Response, Duration / Fetch Time.
- Right Panel:** A sidebar with icons for Result Grid, Form Editor, Field Types, and Query Stats.

# Creating the Choco\_Flavors tables with their attribute .

The screenshot shows the MySQL Workbench interface with the following details:

- Administration** tab is selected.
- Schemas** tab is selected.
- WillyWonkaFactoryDB\*** is the current database.
- Assessment1\*** is the current session.
- SCHEMAS** pane on the left lists various databases, with **WillyWonkaFactoryDB** expanded to show its tables, views, stored procedures, and functions.
- Object Info** tab is selected in the bottom-left corner.
- No object selected** message is displayed.
- Action Output** tab is selected at the bottom.
- Time**, **Action**, **Response**, and **Duration / Fetch Time** columns are visible in the Action Output pane.
- SQL Editor Content:**

```
23     FOREIGN KEY (PID)
24     REFERENCES ChocolateProducts(product_id),
25     PRIMARY KEY(StartDate,PID)
26 );
27 • - CREATE TABLE Company (
28     CompanyID INT PRIMARY KEY,
29     ContactPerson VARCHAR(50),
30     Name VARCHAR(50),
31     AnnualProfit DECIMAL (3, 2),
32     Address VARCHAR(50),
33     ContactNumber INT
34 );
35 • - CREATE TABLE Employee(
36     EmployeeID INT PRIMARY KEY,
37     fName VARCHAR(20),
38     lName VARCHAR(20),
39     PhoneNumber INT,
40     Salary DECIMAL (7,2),
41     Position VARCHAR(10)
42 );
43 • - CREATE TABLE Choco_Flavors (
44     CPflavor VARCHAR(50),
45     Product_ID INT ,
46     CONSTRAINT fk_Chocolate_Product
47     FOREIGN KEY (Product_ID)
48     REFERENCES ChocolateProducts(product_id),
49     PRIMARY KEY(CPflavor,Product_ID)
50 );
51
52
53
```

# Result:

# Creating the Used tables with their attribute .

The screenshot shows the MySQL Workbench interface with the 'Schemas' tab selected. In the left pane, under the 'WillyWonkaFactoryDB' schema, the 'Tables' folder is expanded, showing the three tables being created: Choco\_Flavors, ChocolateProducts, and Employee.

```
35 • CREATE TABLE Employee(
36     EmployeeID INT PRIMARY KEY,
37     fName VARCHAR(20),
38     lName VARCHAR(20),
39     PhoneNumber INT,
40     Salary DECIMAL (7,2),
41     Position VARCHAR(10)
42 );
43 • CREATE TABLE Choco_Flavors (
44     CPflavor VARCHAR(50),
45     Product_ID INT ,
46     CONSTRAINT fk_Chocolate_Product
47     FOREIGN KEY (Product_ID)
48     REFERENCES ChocolateProducts(product_id),
49     PRIMARY KEY(CPflavor,Product_ID)
50 );
51 • CREATE TABLE Used (
52     Iid INT,
53     Pid INT,
54     CONSTRAINT fk_ingredient
55     FOREIGN KEY (Iid)
56     REFERENCES Ingredients(ingredient_id),
57     CONSTRAINT fk_CProduct
58     FOREIGN KEY (Pid)
59     REFERENCES ChocolateProducts(product_id),
60     PRIMARY KEY(Iid,Pid)
61 );
62
63
64
65
```

The code block contains the SQL statements for creating three tables:

- Employee:** A table with columns EmployeeID (INT, Primary Key), fName (VARCHAR(20)), lName (VARCHAR(20)), PhoneNumber (INT), Salary (DECIMAL (7,2)), and Position (VARCHAR(10)).
- Choco\_Flavors:** A table with columns CPflavor (VARCHAR(50)) and Product\_ID (INT). It includes a foreign key constraint named fk\_Chocolate\_Product linking to the product\_id column in the ChocolateProducts table.
- Used:** A table with columns Iid (INT) and Pid (INT). It includes two foreign key constraints: fk\_ingredient linking to the ingredient\_id column in the Ingredients table, and fk\_CProduct linking to the product\_id column in the ChocolateProducts table.

# Result:

Screenshot of a database management tool interface showing the results of a query.

The interface includes a top navigation bar with tabs: Administration, Schemas, WillyWonkaFactoryDB\*, Assessment1\*, Choco\_Flavors, and Used. Below this is a toolbar with various icons for file operations and search.

The left sidebar displays a list of schemas: database4, database5, Farmacy, mydatabase, mydatabase3, myuni, Retal, sakila, sakila22, sys, and WillyWonkaFactoryDB. The WillyWonkaFactoryDB schema is expanded to show its tables: Choco\_Flavors, ChocolateProducts, Company, Employee, Ingredients, Offer, and Used. It also shows a Views section.

The main area contains the following information:

- A query editor window with the SQL command: `1 • SELECT * FROM WillyWonkaFactoryDB.Used;`
- A Result Grid showing the output of the query. The grid has columns lid and Pid, with one row containing values NULL and NULL.
- Toolbars for Result Grid, Filter Rows, Edit, and Export/Import.
- A status bar at the bottom showing "Used 1".
- A footer with tabs: Action Output, Time, Action, Response, and Duration / Fetch Time.
- A vertical sidebar on the right with icons for Result Grid, Form Editor, Field Types, and Query Stats, along with up and down arrows.

The message "No object selected" is displayed in the Object Info tab of the sidebar.

# Creating the Receives tables with their attribute .

The screenshot shows the MySQL Workbench interface with the 'WillyWonkaFactoryDB\*' schema selected. The left pane displays the database structure, including the 'WillyWonkaFactoryDB' schema which contains 'Tables' like Choco\_Flavors, ChocolateProducts, Company, Employee, Ingredients, Offer, Used, and Views. The right pane shows the SQL code for creating two tables: 'Used' and 'Receives'. The 'Used' table has columns Iid (INT), Pid (INT), and a foreign key constraint fk\_ingredient referencing Ingredients(ingredient\_id). The 'Receives' table has columns Pid (INT), Cid (INT), and constraints fk\_ChocProduct (foreign key Pid referencing ChocolateProducts(product\_id)) and fk\_company (foreign key Cid referencing Company(CompanyID)). Both tables have primary keys (CPflavor, Product\_ID) and (Pid, Cid) respectively.

```
45     Product_ID INT ,
46     CONSTRAINT fk_Chocolate_Product
47     FOREIGN KEY (Product_ID)
48     REFERENCES ChocolateProducts(product_id),
49     PRIMARY KEY(CPflavor,Product_ID)
50   );
51 • - CREATE TABLE Used (
52     Iid INT,
53     Pid INT,
54     CONSTRAINT fk_ingredient
55     FOREIGN KEY (Iid)
56     REFERENCES Ingredients(ingredient_id),
57     CONSTRAINT fk_CProduct
58     FOREIGN KEY (Pid)
59     REFERENCES ChocolateProducts(product_id),
60     PRIMARY KEY(Iid,Pid)
61   );
62 • - CREATE TABLE Receives (
63     Pid INT,
64     Cid INT,
65     CONSTRAINT fk_ChocProduct
66     FOREIGN KEY (Pid)
67     REFERENCES ChocolateProducts(product_id),
68     CONSTRAINT fk_company
69     FOREIGN KEY (Cid)
70     REFERENCES Company(CompanyID),
71     PRIMARY KEY(Pid,Cid)
72   );
73
74
75
```

Object Info Session  
No object selected

100% 15:72

Action Output

Time	Action	Response	Duration / Fetch Time
------	--------	----------	-----------------------

# Result:

The screenshot shows the MySQL Workbench interface with the following details:

- Top Bar:** Administration, Schemas, WillyWonkaFactoryDB\*, Assessment1\*, Receives.
- Schemas Panel:** Shows a list of schemas including database4, database5, Farmacy, mydatabase, mydatabase3, myuni, Retal, sakila, sakila22, sys, and WillyWonkaFactoryDB. The WillyWonkaFactoryDB schema is expanded to show its tables.
- Query Editor:** A query is entered: `1 • SELECT * FROM WillyWonkaFactoryDB.Receives;`. There are 1000 rows limit.
- Result Grid:** The results are displayed in a grid with columns Pid and Cid. The first row shows values `HULL` and `HULL`.
- Toolbar:** Includes icons for file operations, search, and other database management functions.
- Bottom Navigation:** Receives 1, Apply, Revert.
- Bottom Tab:** Action Output.
- Right Sidebar:** Contains tabs for Result Grid, Form Editor, Field Types, and Query Stats.

# **Creating the Deliver tables with their attribute .**

Administration   Schemas   WillyWonkaFactoryDB\*   Assessment1\*

SCHEMAS

Filter objects

> database4  
> database5  
> Farmacy  
> mydatabase  
> mydatabase3  
> myuni  
> Retal  
> sakila  
> sakila22  
> sys  
WillyWonkaFactoryDB  
Tables  
> Choco\_Flavors  
> ChocolateProducts  
> Company  
> Employee  
> Ingredients  
> Offer  
> Receives  
> Used

Object Info   Session

No object selected

54                   CONSTRAINT fk\_ingredient  
55                   FOREIGN KEY (Iid)  
56                   REFERENCES Ingredients(ingredient\_id),  
57                   CONSTRAINT fk\_CProduct  
58                   FOREIGN KEY (Pid)  
59                   REFERENCES ChocolateProducts(product\_id),  
60                   PRIMARY KEY(Iid,Pid)  
61                   );  
62 • - CREATE TABLE Receives (  
63                   Pid INT,  
64                   Cid INT,  
65                   CONSTRAINT fk\_ChocProduct  
66                   FOREIGN KEY (Pid)  
67                   REFERENCES ChocolateProducts(product\_id),  
68                   CONSTRAINT fk\_company  
69                   FOREIGN KEY (Cid)  
70                   REFERENCES Company(CompanyID),  
71                   PRIMARY KEY(Pid,Cid)  
72                   );  
73 • - CREATE TABLE Deliver(  
74                   Eid INT,  
75                   Cid INT,  
76                   CONSTRAINT fk\_employee  
77                   FOREIGN KEY (Eid)  
78                   REFERENCES Employee(EmployeeID),  
79                   CONSTRAINT fk\_CompanyD  
80                   FOREIGN KEY (Cid)  
81                   REFERENCES Company(CompanyID),  
82                   PRIMARY KEY(Eid,Cid)  
83                   );  
84

100% 15:83

Action Output

Time	Action	Response	Duration / Fetch Time
------	--------	----------	-----------------------

# Result:

The screenshot shows the MySQL Workbench interface with the following details:

- Top Bar:** Administration, Schemas, WillyWonkaFactoryDB\*, Assessment1\*, Deliver.
- Schemas Panel:** mydatabase, mydatabase3, myuni, Retal, sakila, sakila22, sys, WillyWonkaFactoryDB (selected).
  - Tables Sub-panel:** Choco\_Flavors, ChocolateProducts, Company, Deliver, Employee, Ingredients, Offer, Receives, Used, Views, Stored Procedures.
- Query Editor:** SELECT \* FROM WillyWonkaFactoryDB.Deliver;
- Result Grid:** Shows a single row with columns Eid and Cid, both containing NULL.
- Toolbar:** Result Grid, Filter Rows, Search, Edit, Export/Import.
- Right Sidebar:** Result Grid, Form Editor, Field Types, Query Stats.
- Bottom Navigation:** Deliver 1, Action Output, Time, Action, Response, Duration / Fetch Time.

# Creating the Associate tables with their attribute .

The screenshot shows the MySQL Workbench interface with the 'WillyWonkaFactoryDB\*' schema selected. The left pane displays the database structure, including the 'WillyWonkaFactoryDB' schema which contains 'Tables' such as Choco\_Flavors, ChocolateProducts, Company, Deliver, Employee, Ingredients, Offer, Receives, and Used, along with Views and Stored Procedures. The right pane shows the SQL code for creating two tables: 'Associate' and 'Deliver'. The 'Associate' table has columns Pid (INT), Eid (INT), and constraints fk\_ChocProductAS (foreign key from ChocolateProducts) and fk\_employeeAS (foreign key from Employee). The 'Deliver' table has columns Eid (INT), Cid (INT), and constraints fk\_employee (foreign key from Employee) and fk\_CompanyD (foreign key from Company). Both tables have primary keys (Eid, Cid) and (Pid, Eid) respectively.

```
69      FOREIGN KEY (Cid)
70          REFERENCES Company(CompanyID),
71          PRIMARY KEY(Pid,Cid)
72      );
73 • - CREATE TABLE Deliver(
74     Eid INT,
75     Cid INT,
76     CONSTRAINT fk_employee
77         FOREIGN KEY (Eid)
78             REFERENCES Employee(EmployeeID),
79             CONSTRAINT fk_CompanyD
80                 FOREIGN KEY (Cid)
81                     REFERENCES Company(CompanyID),
82                     PRIMARY KEY(Eid,Cid)
83 );
84 • - CREATE TABLE Associate(
85     Pid INT,
86     Eid INT,
87     CONSTRAINT fk_ChocProductAS
88         FOREIGN KEY (Pid)
89             REFERENCES ChocolateProducts(product_id),
90             CONSTRAINT fk_employeeAS
91                 FOREIGN KEY (Eid)
92                     REFERENCES Employee(EmployeeID),
93                     PRIMARY KEY(Pid,Eid)
94 );
95
96
97
98
```

Action Output

Time	Action	Response	Duration / Fetch Time
5 19:46:58	SELECT * FROM WillyWonkaFactoryDB.Used LIMIT 0, 1000	12 row(s) returned	0.000099 sec / 0.000...
6 20:44:40	CREATE TABLE Associate( Pid INT, Eid INT, CONSTRAINT fk_ChocProductAS FOREIGN KEY (Pid) REFERENCES ChocolateProducts(product_id), CONSTRAINT fk_employeeAS FOREIGN KEY (Eid) REFERENCES Employee(EmployeeID), PRIMARY KEY(Pid,Eid) );		0.100 sec

# Result:

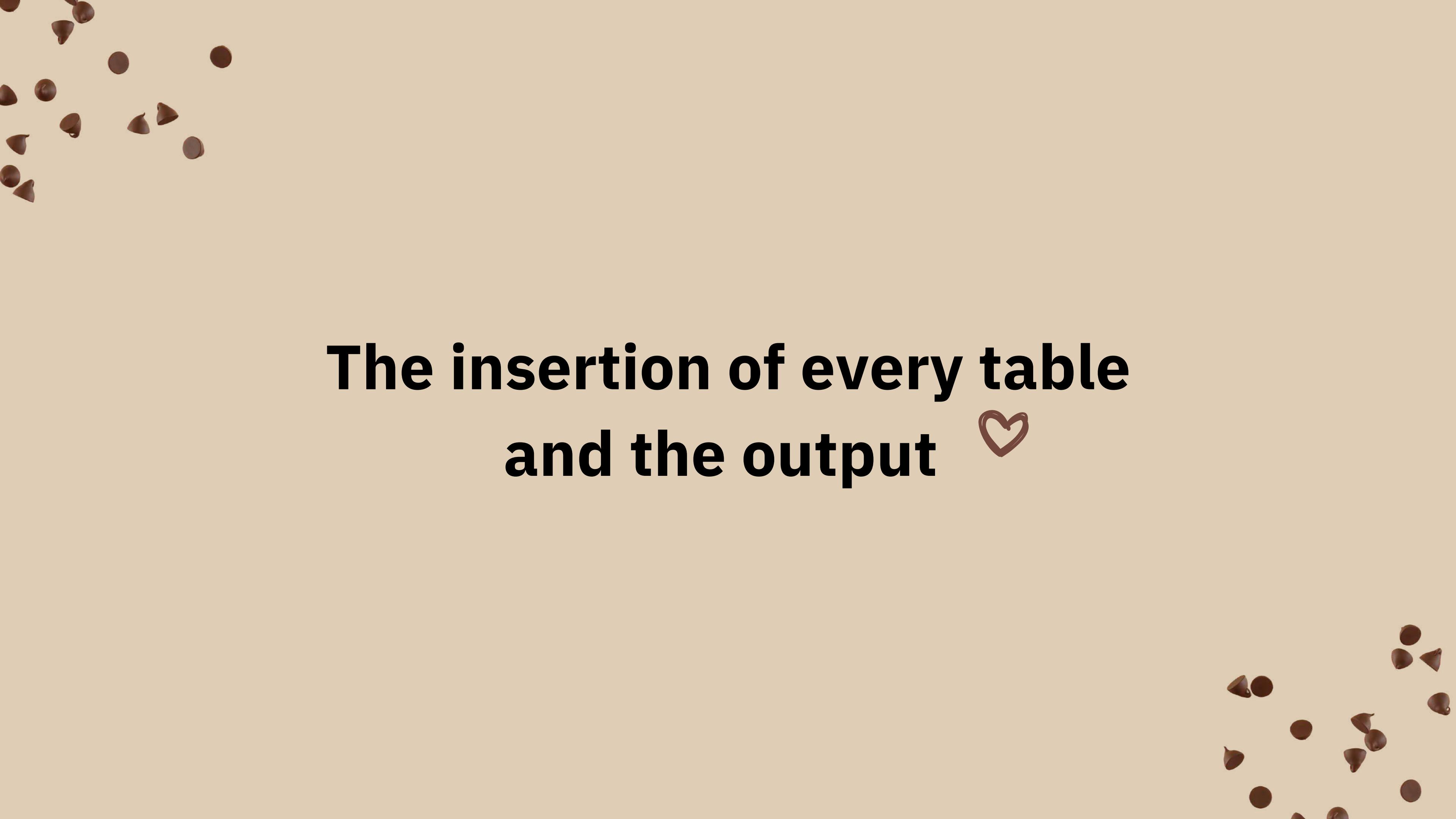
The screenshot shows the MySQL Workbench interface. The left sidebar displays the 'SCHEMAS' tree, with the 'WillyWonkaFactoryDB' schema expanded to show tables like Associate, Choco\_Flavors, ChocolateProducts, Company, Deliver, Employee, Ingredients, Offer, Receives, Used, and Views. The main workspace contains a query editor with the following content:

```
1 •  SELECT * FROM WillyWonkaFactoryDB.Associate;
```

The results grid shows one row with columns Pid and Eid, both containing 'NULL'. At the bottom of the results pane, there is a tab labeled 'Associate 1'.

At the bottom of the screen, there is an 'Action Output' pane showing the creation of the 'Associate' table:

Action	Time	Response	Duration / Fetch Time
CREATE TABLE Associate( Pid INT, Eid INT, CONSTRAINT fk_ChocProductAS FOREIGN... )	20:11:48	0 row(s) affected	0.100 sec



The insertion of every table  
and the output ❤

# Inserting values into Ingredients table.

The screenshot shows the MySQL Workbench interface with the SQL editor tab active. The code in the editor is as follows:

```
76      CONSTRAINT fk_employee
77      FOREIGN KEY (Eid)
78      REFERENCES Employee(EmployeeID),
79      CONSTRAINT fk_CompanyD
80      FOREIGN KEY (Cid)
81      REFERENCES Company(CompanyID),
82      PRIMARY KEY(Eid,Cid)
83  );
84 • - CREATE TABLE Associate(
85     Pid INT,
86     Eid INT,
87     CONSTRAINT fk_ChocProductAS
88     FOREIGN KEY (Pid)
89     REFERENCES ChocolateProducts(product_id),
90     CONSTRAINT fk_employeeAS
91     FOREIGN KEY (Eid)
92     REFERENCES Employee(EmployeeID),
93     PRIMARY KEY(Pid,Eid)
94  );
95
96 • INSERT INTO Ingredients(ingredient_id, ingredient_name, quantity)
97 VALUES(1,'Cocoa Powder',100),
98 (2,'Sugar',200),
99 (3,'Milk',150),
100 (4,'Vanilla Extract',50),(5,'Cocoa Butter',300);
101
102
103
104
105
```

The code includes the creation of the `Associate` table and the insertion of five rows into the `Ingredients` table. The `Associate` table has columns `Pid` and `Eid`, with foreign key constraints linking to the `ChocolateProducts` and `Employee` tables respectively. The `Ingredients` table has columns `ingredient_id`, `ingredient_name`, and `quantity`. The inserted values are: (1, 'Cocoa Powder', 100), (2, 'Sugar', 200), (3, 'Milk', 150), (4, 'Vanilla Extract', 50), and (5, 'Cocoa Butter', 300).

The bottom pane shows the Action Output table with the following data:

Time	Action	Response	Duration / Fetch Time
16:08:59	INSERT INTO ChocolateProducts(product_id, product_name, packing_id) VALUES(1,'Darck Chocolate Bar',1001), (2,'Mi... 5 row(s) affected Records: 5 Duplicates: 0 Warnings... 0.00057 sec		
16:08:59	INSERT INTO Used (id, D) VALUES(1,1),(2,2),(3,3),(4,4),(5,5),(6,6),(7,7),(8,8),(9,9),(10,10),(11,11),(12,12),(13,13),(14,14),(15,15),(16,16),(17,17),(18,18),(19,19),(20,20),(21,21),(22,22),(23,23),(24,24),(25,25)	10 row(s) affected Records: 10 Duplicates: 0 Warnings: 0.00008 sec	

# Result:

The screenshot shows the MySQL Workbench interface with the following details:

- Toolbar:** Administration, Schemas, WillyWonkaFactoryDB, Ingredients, ChocolateProducts, Used, WillyWonkaFactoryDB\*, SQL File 7\*, Ingredients.
- Schemas Panel:** mydatabase, mydatabase3, myuni, Retal, sakila, sakila22, sys, WillyWonkaFactoryDB (selected).
- Query Editor:** A query is entered: `1 • SELECT * FROM WillyWonkaFactoryDB.Ingredients;`. The result set has 100% completion and a 1:1 ratio.
- Result Grid:** The results are displayed in a grid with three columns: ingredient\_id, ingredient\_name, and quantity. The data is as follows:

ingredient_id	ingredient_name	quantity
1	Cocoa Powder	100
2	Sugar	200
3	Milk	150
4	Vanilla Extract	50
5	Cocoa Butter	300
NULL	NULL	NULL

- Right Sidebar:** Shows icons for Result Grid, Form Editor, Field Types, Query Stats, and Execution Plan.
- Bottom Panels:** Object Info (No object selected), Session, Action Output (with log entries), and a toolbar with Apply and Revert buttons.

# Inserting values into ChocolateProducts table.

The screenshot shows the MySQL Workbench interface with the following details:

- Schemas:** The current schema is "WillyWonkaFactoryDB\*".
- Tables:** The "Associate" table is selected in the tree view.
- SQL Editor:** The main pane displays the following SQL code:

```
81     REFERENCES Company(CompanyID),
82     PRIMARY KEY(Eid,Cid)
83   );
84 • CREATE TABLE Associate(
85     Pid INT,
86     Eid INT,
87     CONSTRAINT fk_ChocProductAS
88     FOREIGN KEY (Pid)
89     REFERENCES ChocolateProducts(product_id),
90     CONSTRAINT fk_employeeAS
91     FOREIGN KEY (Eid)
92     REFERENCES Employee(EmployeeID),
93     PRIMARY KEY(Pid,Eid)
94   );
95
96 • INSERT INTO Ingredients(ingredient_id, ingredient_name, quantity)
97   VALUES(1, 'Cocoa Powder', 100),
98   (2, 'Sugar', 200),
99   (3, 'Milk', 150),
100  (4, 'Vanilla Extract', 50);
101
102 • INSERT INTO ChocolateProducts(product_id, product_name, packing_id)
103   VALUES(1, 'Darck Chocolate Bar', 1001),
104   (2, 'Milk Chocolate Bar', 1001),
105   (3, 'White Chocolate Bar', 1001),
106   (4, 'Assorted Chocolates', 1002),
107   (5, 'Chocolate Spread', 1003);
108
109
110
```

**Action Output:**

Time	Action	Response	Duration / Fetch Time
20:12:25	SELECT * FROM WillyWonkaFactoryDB.Associate LIMIT 0, 1000	0 row(s) returned	0.0035 sec / 0.00001...

# Result:

Schemas Administration Schemas WILLYWONKAFACTORYDB\* Ingredients ChocolateProducts

Filter objects

SCHEMAS mydatabase mydatabase3 myuni Retal sakila sakila22 sys WILLYWONKAFACTORYDB

Tables Associate Choco\_Flavors ChocolateProducts Company Deliver Employee Ingredients Offer Receives Used Views

100% 1:1

Result Grid Filter Rows: Search Edit: Export/Import:

product_id	product_name	packing_id
1	Darck Chocolate Bar	1001
2	Milk Chocolate Bar	1001
3	White Chocolate Bar	1001
4	Assorted Chocolates	1002
5	Chocolate Spread	1003
NULL	NULL	NULL

Object Info Session

No object selected

ChocolateProducts 1 Apply Revert

Action Output

Time	Action	Response	Duration / Fetch Time
8 20:13:14	SELECT * FROM WillyWonkaFactoryDB.Ingredients LIMIT 0, 1000	4 row(s) returned	0.0016 sec / 0.00001...
8 20:13:14	SELECT * FROM WillyWonkaFactoryDB.ChocolateProducts LIMIT 0, 1000	5 row(s) returned	0.0008 sec / 0.00000...

Result Grid Form Editor Field Types

# Inserting values into Used table.

The screenshot shows the MySQL Workbench interface with the following details:

- Schemas:** mydatabase, mydatabase3, myuni, Retal, sakila, sakila22, sys, WillyWonkaFactoryDB (selected).
- Tables:** Associate, Choco\_Flavors, ChocolateProducts, Company, Deliver, Employee, Ingredients, Offer, Receives, Used.
- Code Editor:** SQL script for creating the Associate table and inserting data into the Ingredients, ChocolateProducts, and Used tables.
- Action Output:** Shows the execution of a SELECT query on the Ingredients table.

```
83      );
84 • CREATE TABLE Associate(
85         Pid INT,
86         Eid INT,
87             CONSTRAINT fk_ChocProductAS
88             FOREIGN KEY (Pid)
89             REFERENCES ChocolateProducts(product_id),
90                 CONSTRAINT fk_employeeAS
91                 FOREIGN KEY (Eid)
92                 REFERENCES Employee(EmployeeID),
93                     PRIMARY KEY(Pid,Eid)
94     );
95
96 • INSERT INTO Ingredients(ingredient_id, ingredient_name, quantity)
97     VALUES(1,'Cocoa Powder',100),
98     (2,'Sugar',200),
99     (3,'Milk',150),
100    (4,'Vanilla Extract',50);
101
102 • INSERT INTO ChocolateProducts(product_id, product_name, packing_id)
103     VALUES(1,'Darck Chocolate Bar',1001),
104     (2,'Milk Chocolate Bar',1001),
105     (3,'White Chocolate Bar',1001),
106     (4,'Assorted Chocolates',1002),
107     (5,'Chocolate Spread',1003);
108
109 • INSERT INTO Used (Iid, Pid)
110     VALUES(1,1),(2,1),(2,2),(3,2),(4,3),(1,4),(2,4),(3,4),(4,4),(1,5),(2,5),(3,5);|
111
112
```

Action Output:

Time	Action	Response	Duration / Fetch Time
8 20:13:14	SELECT * FROM WillyWonkaFactoryDB.Ingredients LIMIT 0, 1000	4 row(s) returned	0.0016 sec / 0.00001...
8 20:13:14	SELECT * FROM WillyWonkaFactoryDB.Ingredients LIMIT 0, 1000	4 row(s) returned	0.0000 sec / 0.00000...

# Result:

The screenshot shows the MySQL Workbench interface with the following details:

- Administration** tab is selected.
- Schemas** tab is selected.
- The current schema is **WillyWonkaFactoryDB\***.
- The **Used** table is selected.
- The query editor displays the command: `SELECT * FROM WillyWonkaFactoryDB.Used;`
- The result grid shows the following data:

lid	Pid
1	1
2	1
2	2
3	2
4	3
1	4
2	4
3	4
4	4
1	5
2	5
3	5
NULL	NULL

- The status bar at the bottom indicates "Used 1".
- The Action Output pane shows the following log entries:

Time	Action	Response	Duration / Fetch Time
9 20:13:36	SELECT * FROM WillyWonkaFactoryDB.ChocolateProducts LIMIT 0, 1000	5 row(s) returned	0.0033 sec / 0.00000...
10 20:13:36	SELECT * FROM WillyWonkaFactoryDB.Used LIMIT 0, 1000	10 row(s) returned	0.000004 sec / 0.0000...

# Inserting values into choco\_flavors table.

The screenshot shows the SSMS interface with the following details:

- Navigator:** Shows the database schema, including the **willywonkafactorydb** database which contains **Tables**, **Views**, **Stored Procedures**, and **Functions**.
- SQL File 3\* WillyWonkaFactoryDB.x**: The current query window displays an SQL script with numbered lines. Lines 94-100 insert data into the **Ingredients** table. Lines 102-108 insert data into the **ChocolateProducts** table. Lines 109-110 insert data into the **Used** table. Lines 112-117 insert data into the **choco\_flavors** table.
- Output:** The output pane shows the results of the last query (line 112). It includes a header for Action Output and a table with columns: #, Time, Action, Message, and Duration / Fetch. One row is shown: # 1, Time 21:04:34, Action INSERT INTO choco\_flavors (Product\_ID, CPflavor) VALUES(1, 'Dark'), (2, 'Milk'), (3, 'White'), (4, 'Assorted'), ..., Message 5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0, Duration / Fetch 0.000 sec.

```
94      );
95
96 •  INSERT INTO Ingredients(ingredient_id, ingredient_name, quantity)
97     VALUES(1,'Cocoa Powder',100),
98     (2,'Sugar',200),
99     (3,'Milk',150),
100    (4,'Vanilla Extract',50);
101
102 •  INSERT INTO ChocolateProducts(product_id, product_name, packing_id)
103     VALUES(1,'Dark Chocolate Bar',1001),
104     (2,'Milk Chocolate Bar',1001),
105     (3,'White Chocolate Bar',1001),
106     (4,'Assorted Chocolates',1002),
107     (5,'Chocolate Spread',1003);
108
109 •  INSERT INTO Used (Iid, Pid)
110     VALUES(1,1),(2,1),(2,2),(3,2),(4,3),(1,4),(2,4),(3,4),(4,4),(1,5),(2,5),(3,5);
111
112 •  INSERT INTO choco_flavors (Product_ID, CPflavor)
113     VALUES(1, 'Dark'),
114     (2, 'Milk'),
115     (3, 'White'),
116     (4, 'Assorted'),
117     (5, 'Hazelnut');
118
119
120
```

# Result:

Schemas

Filter objects

- aghared
- coursedb
- farmacy
- myunidb
- myunidb2
- suhu
- sys
- willywonkafactorydb
  - Tables
    - associate
    - choco\_flavors
    - chocolateproducts
    - company
    - deliver
    - employee
    - ingredients
    - offer
    - receives
    - used

Administration Schemas

Information

Schema: willywonkafactorydb

SQL File 3\* WillyWonkaFactoryDB\* choco\_flavors

1 • SELECT \* FROM willywonkafactorydb.choco\_flavors;

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: |

CPflavor	Product_ID
Dark	1
Milk	2
White	3
Assorted	4
Hazelnut	5
NULL	NULL

hoco\_flavors 1 X

Output

Action Output

#	Time	Action	Message	Duration / Fetch
1	21:04:34	INSERT INTO choco_flavors (Product_ID, CPflavor) VALUES(1, 'Dark'), (2, 'Milk'), (3, 'White'), (4, 'Assorted'), ...	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.000 sec
2	21:07:34	SELECT * FROM willywonkafactorydb.choco_flavors LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec

# Inserting values into Employee table.

The screenshot shows the SSMS interface with the following details:

- Schemas:** A list of databases and their tables. The "willywonkafactorydb" database is selected, showing its tables: associate, choco\_flavors, chocolateproducts, company, deliver, employee, ingredients, offer, receives, and used.
- SQL File 3\*:** The current tab contains an SQL script for inserting data into the "Employee" table. The script includes code for inserting products into ChocolateProducts, used items into Used, and various flavors into choco\_flavors. It also includes a section for inserting data into the Employee table itself.
- Output:** A table showing the results of the executed actions. It includes columns for Action, Time, Message, and Duration / Fetch.

#	Action	Message	Duration / Fetch
2	SELECT * FROM willywonkafactorydb.choco_flavors LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
3	INSERT INTO Employee (EmployeeID, fName, lName, PhoneNumber, Salary, Position) VALUES(1, 'Jhon', 'Doe', '0555548917', '2500.00', 'Production')	Error Code: 1136. Column count doesn't match value count at row 1	0.015 sec
4	SELECT * FROM coursedb.instructor LIMIT 0, 1000	4 row(s) returned	0.000 sec / 0.000 sec
5	SELECT * FROM coursedb.teachingassistant LIMIT 0, 1000	2 row(s) returned	0.000 sec / 0.000 sec
6	INSERT INTO Employee (EmployeeID, fName, lName, PhoneNumber, Salary, Position) VALUES(1, 'Jhon', 'Doe', '0555548917', '2500.00', 'Production')	Error Code: 1406. Data too long for column 'Position' at row 1	0.015 sec

# Result:

Schemas

Filter objects

employee

1 • `SELECT * FROM willywonkafactorydb.employee;`

Result Grid

EmployeeID	FName	IName	PhoneNumber	Salary	Position
1	Jhon	Doe	555548917	2500.00	Production
2	Jane	Smith	59099034	4300.00	Delivery
3	Retal	Malki	558906427	5000.00	Manager
4	Jennifer	Furman	542219078	3800.00	Production
5	Andy	Chou	573438678	4800.00	Supervisor
*	NULL	NULL	NULL	NULL	NULL

Form Editor

Field Types

Query Stats

Execution Plan

Column: salary

Definition:

salary decimal(7,2)

Output

Action Output

#	Time	Action	Message	Duration / Fetch
3	21:08:15	INSERT INTO Employee (EmployeeID, fName, lName, PhoneNumber, Salary, Position) VALUES(1, 'Jhon', 'Doe', 2500.00, 'Production')	Error Code: 1136. Column count doesn't match value count at row 1	0.015 sec
4	21:10:47	SELECT * FROM coursedb.instructor LIMIT 0, 1000	4 row(s) returned	0.000 sec / 0.000 sec
5	21:11:05	SELECT * FROM coursedb.teachingassistant LIMIT 0, 1000	2 row(s) returned	0.000 sec / 0.000 sec
6	21:26:51	INSERT INTO Employee (EmployeeID, fName, lName, PhoneNumber, Salary, Position) VALUES(1, 'Jhon', 'Doe', 2500.00, 'Production')	Error Code: 1406. Data too long for column 'Position' at row 1	0.015 sec
7	21:31:10	INSERT INTO Employee (EmployeeID, fName, lName, PhoneNumber, Salary, Position) VALUES(1, 'Jhon', 'Doe', 2500.00, 'Production')	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.000 sec

# Inserting values into Associate table.

The screenshot shows the SSMS interface with the following details:

- Navigator:** Shows the database schema tree. The **willywonkafactorydb** schema is expanded, showing Tables, Views, Stored Procedures, Functions, and world.
- SQL File 3\*** tab: The current query editor tab.
- WillyWonkaFactoryDB\***: The current database selected.
- Code:** The SQL script being run, which includes multiple `INSERT INTO` statements for different tables: ChocolateProducts, Used, choco\_flavors, Employee, and Associate.
- Output:** Action Output pane showing the execution log with 4 actions:
  - Action 1: DROP DATABASE 'willywonkafactorydb' - Message: 10 row(s) affected, Duration / Fetch: 0.125 sec
  - Action 2: INSERT INTO choco\_flavors (Product\_ID, CPflavor) VALUES(1, 'Dark'), (2, 'Milk'), (3, 'White'), (4, 'Assorted') - Message: 5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0, Duration / Fetch: 0.031 sec
  - Action 3: INSERT INTO Employee (EmployeeID, fName, lName, PhoneNumber, Salary, Position) VALUES(1, 'Jhon', 'Doc', '0555548917', '2500.00', 'Production'), (2, 'Jane', 'Smith', '059099034', '4300.00', 'Deliver'), (3, 'Retai', 'Malki', '0556906427', '5000.00', 'Manager'), (4, 'Jennifer', 'Furman', '0542219078', '3800.00', 'Production'), (5, 'Andy', 'Chou', '0573438678', '4800.00', 'Supervisor') - Message: 5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0, Duration / Fetch: 0.016 sec
  - Action 4: INSERT INTO Associate (Pid,Eid) VALUES(1, 4), (2, 1), (3, 3), (4, 5), (5, 2), (2, 5), (4,3) - Message: 7 row(s) affected Records: 7 Duplicates: 0 Warnings: 0, Duration / Fetch: 0.016 sec
- Object Info** and **Session** tabs at the bottom.

# Result:

Schemas: **willywonkafactorydb**

Tables: **associate**

Pid	Eid
2	1
5	2
3	3
4	3
1	4
2	5
4	5
NULL	NULL

Table: **associate**

Columns:

Pid	Eid
int PK	int PK

Action Output

#	Time	Action	Message	Duration / Fetch
1	16:35:22	DROP DATABASE 'willywonkafactorydb'	10 row(s) affected	0.125 sec
2	16:40:03	INSERT INTO choco_flavors (Product_ID, CPflavor) VALUES(1, 'Dark'), (2, 'Milk'), (3, 'White'), (4, 'Assorted'), ...	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.031 sec
3	16:40:22	INSERT INTO Employee (EmployeeID, fName, lName, PhoneNumber, Salary, Position) VALUES(1, 'Jhon', 'D...', ...)	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.016 sec
4	16:41:49	INSERT INTO Associate (Pid,Eid) VALUES(1,4), (2,1), (3,3), (4,5), (5,2), (2,5), (4,3)	7 row(s) affected Records: 7 Duplicates: 0 Warnings: 0	0.016 sec
5	16:42:13	SELECT * FROM willywonkafactorydb.associate LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec

# Inserting values into Company table.

The screenshot shows the Oracle SQL Developer interface. The top navigation bar has tabs for Administration, Schemas, and the current database connection, WillyWonkaFactoryDB\_NEW\*. The left sidebar shows the schema structure under SCHEMAS, with 'Tables' selected under WillyWonkaFactoryDB. The main editor area contains the following SQL code:

```
115 (3, 'White'),
116 (4, 'Assorted'),
117 (5, 'Hazelnut');

118 • INSERT INTO Employee (EmployeeID, fName, lName, PhoneNumber, Salary, Position)
119 VALUES(1, 'Jhon', 'Doe', '0555548917', '2500.00', 'Production'),
120 (2, 'Jane', 'Smith', '059099034', '4300.00', 'Deliver'),
121 (3, 'Retal', 'Malki', '0558906427', '5000.00', 'Manager'),
122 (4, 'Jennifer', 'Furman', '0542219078', '3800.00', 'Production'),
123 (5, 'Andy', 'Chou', '0573438678', '4800.00', 'Supervisor');

124 • INSERT INTO Associate (Pid,Eid)
125 VALUES(1, 4), (2, 1), (3, 3), (4, 5), (5, 2), (2, 5), (4,3);

126 • INSERT INTO Company (CompanyID, ContactPerson, Name, AnnualProfit, Address, ContactNumber)
127 VALUES (1, 'Malek', 'Velvet Truffles', 27.0, '123 Main Street', '0555531471'),
128 (2, 'Ahmed', 'Cocoa Couture', 35.0, '456 Elm Street', '0555537487'),
129 (3, 'Tala', 'Cocoa Haven', 17.0, '789 Oak Street', '0555576163'),
130 (4, 'Omar', 'Cocoa Kingdom', 12.0, '123 Main Street', '0506080922'),
131 (5, 'Shatha', 'Chocolate Breeze', 19.0, '456 Elm Street', '0555576164');

132
133
134
135
136
137
138
139
140
141
142
143
```

The bottom pane, titled 'Action Output', shows the results of the last two queries:

Time	Action	Response	Duration / Fetch Time
16 22:05:55	SELECT * FROM WillyWonkaFactoryDB.Used LIMIT 0, 1000	12 row(s) returned	0.000077 sec / 0.0000...
17 22:16:42	INSERT INTO Deliver (Eid, Cid) VALUES (1, 4), (2, 1), (3, 3), (4, 5), (5, 2), (2, 5), (4,3);	7 row(s) affected. Rows selected: 7. Duration: 0.00042 sec.	

# Result:

Schemas Administration Schemas WillyWonkaFactoryDB\_NEW\* Company

SCHEMAS Filter objects

- > Tables
- > Views
- > Stored Procedures
- > Functions
- > sys
- WillyWonkaFactoryDB
  - Tables
    - Associate
    - Choco\_Flavors
    - ChocolateProducts
    - Company
    - Deliver
    - Employee
    - Ingredients
    - Offer
    - Receives
    - Used
  - Views
  - Stored Procedures
  - Functions

1 • `SELECT * FROM WillyWonkaFactoryDB.Company;`

100% 1:1

Result Grid Filter Rows: Search Edit: Export/Import:

CompanyID	ContactPerson	Name	AnnualProfit	Address	ContactNumber...
1	Malek	Velvet Truffles	27.0	123 Main Street	555531471
2	Ahmed	Cocoa Couture	35.0	456 Elm Street	555537487
3	Tala	Cocoa Haven	17.0	789 Oak Street	555576163
4	Omar	Cocoa Kingdom	12.0	123 Main Street	506080922
5	Shatha	Chocolate Breeze	19.0	456 Elm Street	555576164
NULL	NULL	NULL	NULL	NULL	NULL

Object Info Session

No object selected

Result Grid Form Editor Field Types

Company 1 Apply Revert

Action Output

Time	Action	Response	Duration / Fetch Time
17 22:16:43	INSERT INTO Deliver (Eid, Cid) VALUES (1, 4), (2, 1), (3, 3), (4, 5), (5, 2), (2, 5), (4, 3)	7 row(s) affected Records: 7 Duplicates: 0 Warnings:... 0.0042 sec	0.0000 sec / 0.0000 sec
18 22:16:43	SELECT * FROM WillyWonkaFactoryDB.Company LIMIT 0, 1000	0.0000 sec / 0.0000 sec	

# Inserting values into Receives table.

The screenshot shows a database management interface with the following details:

- Toolbar:** Administration, Schemas, WillyWonkaFactoryDB\_NEW\*. Includes icons for file operations, search, and navigation.
- Schemas:** Filtered to show Tables, Views, Stored Procedures, Functions under SCHEMAS. The sys schema is also listed.
- WillyWonkaFactoryDB:** Expanded to show Tables, Views, Stored Procedures, Functions. The Tables section lists Associate, Choco\_Flavors, ChocolateProducts, Company, Deliver, Employee, Ingredients, Offer, Receives, Used.
- Code Area:** Displays numbered SQL statements 118 through 147. Statements 119, 126, 129, 136, and 137 are highlighted with blue and orange colors, indicating they are part of the current session or selected for execution.
- Action Output:** Shows the results of the last executed statement (147). It includes a table with columns Time, Action, Response, and Duration / Fetch Time. The response shows 7 row(s) affected, Records: 7, Duplicates: 0, Warnings: 0, Duration: 0.0042 sec.

```
118
119 • INSERT INTO Employee (EmployeeID, fName, lName, PhoneNumber, Salary, Position)
120 VALUES(1, 'Jhon', 'Doe', '0555548917', '2500.00', 'Production'),
121 (2, 'Jane', 'Smith', '059099034', '4300.00', 'Deliver'),
122 (3, 'Retal', 'Malki', '0558906427', '5000.00', 'Manager'),
123 (4, 'Jennifer', 'Furman', '0542219078', '3800.00', 'Production'),
124 (5, 'Andy', 'Chou', '0573438678', '4800.00', 'Supervisor);
125
126 • INSERT INTO Associate (Pid,Eid)
127 VALUES(1, 4), (2, 1), (3, 3), (4, 5), (5, 2), (2, 5), (4,3);
128
129 • INSERT INTO Company (CompanyID, ContactPerson, Name, AnnualProfit, Address, ContactNumber)
130 VALUES (1, 'Malek', 'Velvet Truffles', 27.0, '123 Main Street', '0555531471'),
131 (2, 'Ahmed', 'Cocoa Couture', 35.0, '456 Elm Street', '0555537487'),
132 (3, 'Tala', 'Cocoa Haven', 17.0, '789 Oak Street', '0555576163'),
133 (4, 'Omar', 'Cocoa Kingdom', 12.0, '123 Main Street', '0506080922'),
134 (5, 'Shatha', 'Chocolate Breeze', 19.0, '456 Elm Street', '0555576164);
135
136 • INSERT INTO Receives (Pid, Cid)
137 VALUES (1, 4), (2, 1), (3, 3), (4, 5), (5, 2), (2, 5), (4,3);
138
139
140
141
142
143
144
145
146
147
```

Action Output

Time	Action	Response	Duration / Fetch Time
17 22:16:43	INSERT INTO Deliver (Eid, Cid) VALUES (1, 4), (2, 1), (3, 3), (4, 5), (5, 2), (2, 5), (4,3)	7 row(s) affected Records: 7 Duplicates: 0 Warnings: 0 0.0042 sec	0.0042 sec / 0.0000 sec
18 22:16:43	SELECT * FROM WillyWonkaFactoryDB_Company LIMIT 0, 1000	Execution terminated	0.0000 sec / 0.0000 sec

# Result:

The screenshot shows a database management interface with the following details:

- Toolbar:** Administration, Schemas, WillyWonkaFactoryDB\_NEW\*, Receives.
- Schemas:** Filter objects, Tables, Views, Stored Procedures, Functions, sys, WillyWonkaFactoryDB (selected), Tables, Associate, Choco\_Flavors, ChocolateProducts, Company, Deliver, Employee, Ingredients, Offer, Receives, Used, Views, Stored Procedures, Functions.
- Query Bar:** Limit to 1000 rows, SELECT \* FROM WillyWonkaFactoryDB.Receives;
- Result Grid:** Pid, Cid, Data (rows 1-7).
- Action Output:** Time, Action, Response, Duration / Fetch Time (rows 18, 19).
- Right Panel:** Result Grid, Form Editor, Field Types.

Pid	Cid
2	1
5	2
3	3
4	3
1	4
2	5
4	5

Time	Action	Response	Duration / Fetch Time
18	22:18:38	SELECT * FROM WillyWonkaFactoryDB.Company LIMIT 0, 1000	5 row(s) returned 0.0060 sec / 0.0000...
19	22:18:38	SELECT * FROM WillyWonkaFactoryDB.Receives	0.0010 sec / 0.0000...

# Inserting values into Offer table.

The screenshot shows the Oracle SQL Developer interface. The left sidebar displays the schema tree for 'WillyWonkaFactoryDB'. The main area shows a script editor with numbered SQL statements for inserting data into various tables. The bottom right corner shows the execution history and duration of recent queries.

```
119 • INSERT INTO Employee (EmployeeID, fName, lName, PhoneNumber, Salary, Position)
120   VALUES(1, 'Jhon', 'Doe', '0555548917', '2500.00', 'Production'),
121   (2, 'Jane', 'Smith', '059099034', '4300.00', 'Deliver'),
122   (3, 'Retal', 'Malki', '0558906427', '5000.00', 'Manager'),
123   (4, 'Jennifer', 'Furman', '0542219078', '3800.00', 'Production'),
124   (5, 'Andy', 'Chou', '0573438678', '4800.00', 'Supervisor);
125
126 • INSERT INTO Associate (Pid,Eid)
127   VALUES(1, 4), (2, 1), (3, 3), (4, 5), (5, 2), (2, 5), (4,3);
128
129 • INSERT INTO Company (CompanyID, ContactPerson, Name, AnnualProfit, Address, ContactNumber)
130   VALUES (1, 'Malek', 'Velvet Truffles', 27.0, '123 Main Street', '0555531471'),
131   (2, 'Ahmed', 'Cocoa Couture', 35.0, '456 Elm Street', '0555537487'),
132   (3, 'Tala', 'Cocoa Haven', 17.0, '789 Oak Street', '0555576163'),
133   (4, 'Omar', 'Cocoa Kingdom', 12.0, '123 Main Street', '0506080922'),
134   (5, 'Shatha', 'Chocolate Breeze', 19.0, '456 Elm Street', '0555576164);
135
136 • INSERT INTO Receives (Pid, Cid)
137   VALUES (1, 4), (2, 1), (3, 3), (4, 5), (5, 2), (2, 5), (4,3);
138
139 • INSERT INTO Offer (StartDate, DiscountPercentage, EndDate, PID)
140   VALUES
141   ('2024-02-22', 30, '2024-02-27', 1), -- Offer for Dark Chocolate Bar
142   ('2024-09-23', 50, '2024-09-28', 2), -- Offer for Milk Chocolate Bar
143   ('2024-11-29', 20, '2024-12-03', 3), -- Offer for White Chocolate Bar
144   ('2024-02-14', 22, '2024-02-19', 4), -- Offer for Assorted Chocolates
145   ('2024-12-26', 25, '2024-12-31', 5); -- Offer for Chocolate Spread
146
147
```

Action Output

Time	Action	Response	Duration / Fetch Time
18 22:18:38	SELECT * FROM WillyWonkaFactoryDB.Company LIMIT 0, 1000	5 row(s) returned	0.0060 sec / 0.0000...
19 22:19:34	SELECT * FROM WillyWonkaFactoryDB.Receives LIMIT 0, 1000	7 row(s) returned	0.0016 sec / 0.00001...

# Result:

The screenshot shows a database management interface with the following details:

- Toolbar:** Administration, Schemas, WillyWonkaFactoryDB\_NEW\*, Receives, Offer.
- Schemas:** Filter objects, Tables, Views, Stored Procedures, Functions, sys, WillyWonkaFactoryDB (selected), Tables, Associate, Choco\_Flavors, ChocolateProducts, Company, Deliver, Employee, Ingredients, Offer, Receives, Used, Views, Stored Procedures, Functions.
- Query Bar:** Limit to 1000 rows, SELECT \* FROM WillyWonkaFactoryDB.Offer;
- Result Grid:** Shows the results of the query. The columns are StartDate, DiscountPercentage, EndDate, and PID. The data is as follows:

StartDate	DiscountPercentage	EndDate	PID
2024-02-14	22	2024-02-19	4
2024-02-22	30	2024-02-27	1
2024-09-23	50	2024-09-28	2
2024-11-29	20	2024-12-03	3
2024-12-26	25	2024-12-31	5
NULL	NULL	NULL	NULL

- Action Output:** Shows two log entries:

Time	Action	Response	Duration / Fetch Time
19 22:19:34	SELECT * FROM WillyWonkaFactoryDB.Receives LIMIT 0, 1000	7 row(s) returned	0.0016 sec / 0.00001...
20 22:19:56	SELECT * FROM WillyWonkaFactoryDB.Offer LIMIT 0, 1000	5 row(s) returned	0.0015 sec / 0.00000...

- Right Panel:** Result Grid, Form Editor, Field Types.

# Inserting values into Deliver table.

The screenshot shows a database management interface with the following details:

- Administration** tab is selected.
- Schemas** tab is selected.
- WillyWonkaFactoryDB\_NEW\*** is the current schema.
- Tables**, **Views**, **Stored Procedures**, and **Functions** are listed under the schema tree.
- Deliver** is selected under the **Tables** section.
- Receives** and **Offer** are also visible in the top navigation bar.
- Action Output** pane at the bottom shows the execution of the following SQL code:

```
121 (2, 'Jane', 'Smith', '059099034', '4300.00', 'Deliver'),  
122 (3, 'Retal', 'Malki', '0558906427', '5000.00', 'Manager'),  
123 (4, 'Jennifer', 'Furman', '0542219078', '3800.00', 'Production'),  
124 (5, 'Andy', 'Chou', '0573438678', '4800.00', 'Supervisor);  
125  
126 • INSERT INTO Associate (Pid,Eid)  
127 VALUES(1, 4), (2, 1), (3, 3), (4, 5), (5, 2), (2, 5), (4,3);  
128  
129 • INSERT INTO Company (CompanyID, ContactPerson, Name, AnnualProfit, Address, ContactNumber)  
130 VALUES (1, 'Malek', 'Velvet Truffles', 27.0, '123 Main Street', '0555531471'),  
131 (2, 'Ahmed', 'Cocoa Couture', 35.0, '456 Elm Street', '0555537487'),  
132 (3, 'Tala', 'Cocoa Haven', 17.0, '789 Oak Street', '0555576163'),  
133 (4, 'Omar', 'Cocoa Kingdom', 12.0, '123 Main Street', '0506080922'),  
134 (5, 'Shatha', 'Chocolate Breeze', 19.0, '456 Elm Street', '0555576164);  
135  
136 • INSERT INTO Receives (Pid, Cid)  
137 VALUES (1, 4), (2, 1), (3, 3), (4, 5), (5, 2), (2, 5), (4,3);  
138  
139 • INSERT INTO Offer (StartDate, DiscountPercentage, EndDate, PID)  
140 VALUES  
141 ('2024-02-22', 30, '2024-02-27', 1), -- Offer for Dark Chocolate Bar  
142 ('2024-09-23', 50, '2024-09-28', 2), -- Offer for Milk Chocolate Bar  
143 ('2024-11-29', 20, '2024-12-03', 3), -- Offer for White Chocolate Bar  
144 ('2024-02-14', 22, '2024-02-19', 4), -- Offer for Assorted Chocolates  
145 ('2024-12-26', 25, '2024-12-31', 5); -- Offer for Chocolate Spread  
146  
147 • INSERT INTO Deliver (Eid, Cid)  
148 VALUES (4,3), (4, 5), (3, 3), (2, 1), (5, 2), (2, 5), (1, 4);  
149
```

The Action Output pane also shows the results of the last two statements:

Time	Action	Response	Duration / Fetch Time
19 22:19:34	SELECT * FROM WillyWonkaFactoryDB.Receives LIMIT 0, 1000	7 row(s) returned	0.0016 sec / 0.00001...
20 22:19:36	SELECT * FROM WillyWonkaFactoryDB.Offer LIMIT 0, 1000	5 row(s) returned	0.0015 sec / 0.00000...

# Result:

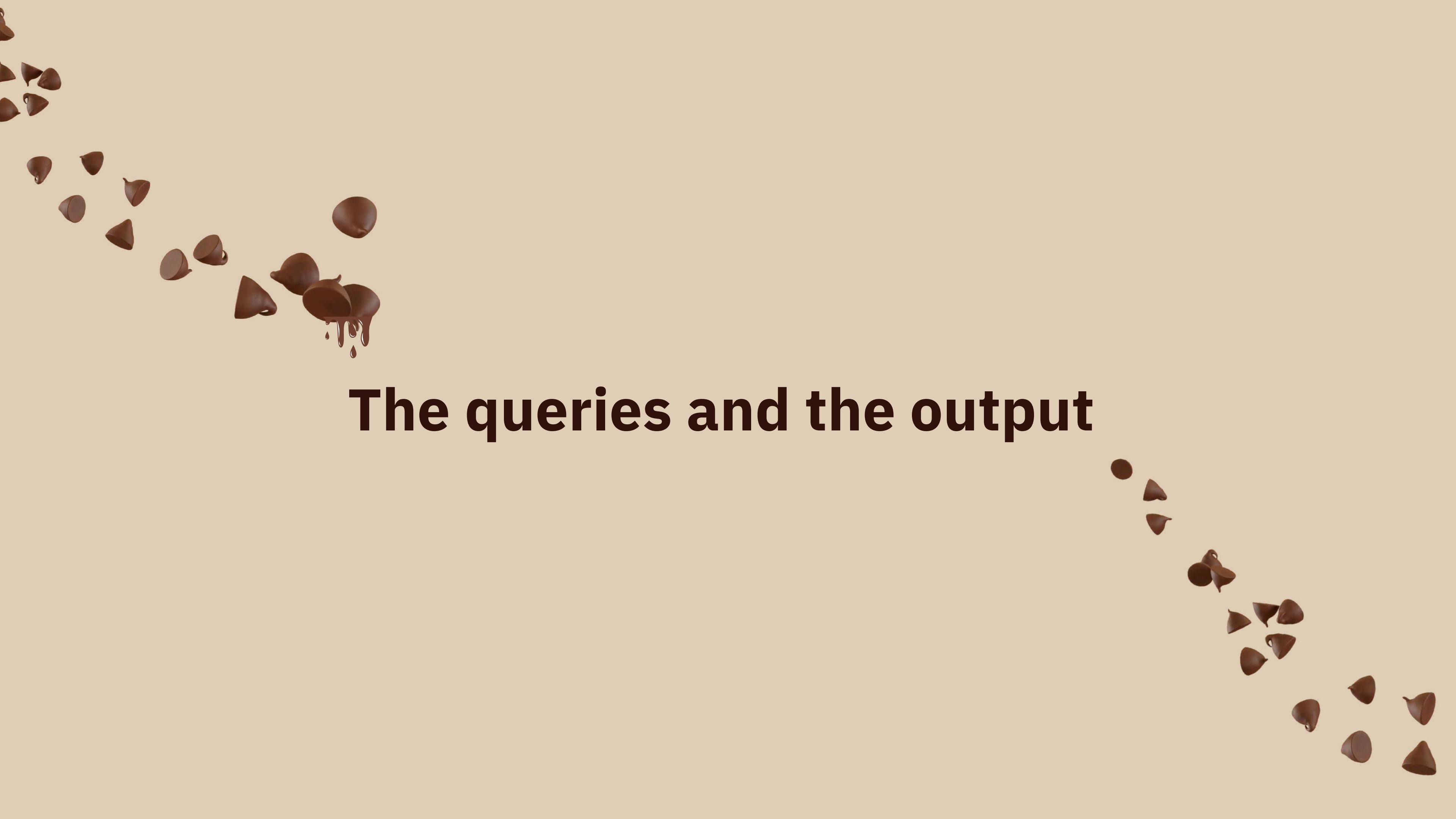
The screenshot shows the MySQL Workbench interface with the following details:

- Toolbar:** Standard database management icons.
- Navigation:** Administration tab selected, Schemas list showing SCHEMAS, sys, and WillyWonkaFactoryDB. The WillyWonkaFactoryDB schema is expanded to show Tables, Views, Stored Procedures, and Functions.
- Query Editor:** A query is run against the Deliver table:

```
1 •  SELECT * FROM WillyWonkaFactoryDB.Deliver;
```
- Result Grid:** The results of the query are displayed in a grid format. The columns are Eid and Cid. The data is as follows:

Eid	Cid
2	1
5	2
3	3
4	3
1	4
2	5
4	5
HULL	HULL
- Action Output:** Shows the history of actions taken:

Time	Action	Response	Duration / Fetch Time
20 22:19:56	SELECT * FROM WillyWonkaFactoryDB.Offer LIMIT 0, 1000	5 row(s) returned	0.0015 sec / 0.00000...
21 22:20:20	SELECT * FROM WillyWonkaFactoryDB.Deliver LIMIT 0, 1000	7 row(s) returned	0.0010 sec / 0.00000...
- Right Panel:** Shows Result Grid, Form Editor, and Field Types tabs.



# The queries and the output

## Retrieves ingredient\_name column from the "Ingredients" table.

```
53      (2, 5),  
54      (1, 4);  
55  
56 • SELECT ingredient_name FROM Ingredients;  
0% 1:155 |
```

result Grid    Filter Rows:    Search    Export:

ingredient_na...
Cocoa Powder
Sugar
Milk
Vanilla Extract
Cocoa Butter

Ingredients 1

Action Output

Time	Action	Response
22 22:25:21	SELECT * FROM WillyWonkaFactoryDB.Deliver LIMIT 0, 1000	7 row(s) returned
23 22:26:51	SELECT ingredient_name FROM Ingredients LIMIT 0, 1000	5 row(s) returned

# Retrieves all columns from the "Employee" table for The employee whose first name is 'Retal'.

The screenshot shows a database management interface with the following details:

- Toolbar:** Administration, Schemas, WillyWonkaFactoryDB\_NEW\*. Includes icons for file operations, search, and navigation.
- Schemas:** Tables, Views, Stored Procedures, Functions, sys, WillyWonkaFactoryDB (selected), Tables, Associate, Choco\_Flavors, ChocolateProducts, Company, Deliver, Employee, Ingredients, Offer, Receives, Used, Views, Stored Procedures, Functions.
- Query Editor:** Shows a multi-line SQL script with numbered lines 145 through 160. Lines 145-154 show an INSERT INTO Deliver statement. Lines 156-160 show a SELECT statement for the Employee table where fName = 'Retal'. The WHERE clause is highlighted in blue.
- Result Grid:** Displays the results of the last query. The grid has columns: EmployeeID, fName, lName, PhoneNumber, Salary, Position. A single row is shown for the employee with EmployeeID 3, fName 'Retal', lName 'Malki', PhoneNumber '558906427', Salary '5000.00', and Position 'Manager'. The row is highlighted in light gray.
- Result Grid Sidebar:** Options include Result Grid, Form Editor, Field Types, and a dropdown arrow.
- Action Output:** Shows the history of actions taken. The last two entries are:
  - 23 22:26:51 SELECT ingredient\_name FROM Ingredients LIMIT 0, 1000
  - 24 22:26:55 SELECT \* FROM Employee WHERE fName = 'Retal' LIMIT 0, 1000Both entries show a green checkmark icon and the text "5 row(s) returned".

**Retrieves the product\_name column from the "ChocolateProducts" table for products that have a product\_id value equal to 2.**

The screenshot shows the Oracle SQL Developer interface. The top navigation bar displays 'Administration' and 'Schemas' tabs, with the current session titled 'WillyWonkaFactoryDB\_NEW\*'. The left sidebar under 'SCHEMAS' shows the database structure, including 'Tables', 'Views', 'Stored Procedures', 'Functions', and the 'WillyWonkaFactoryDB' schema which contains 'Tables' like 'Associate', 'Choco\_Flavors', 'ChocolateProducts', etc. The main workspace displays a SQL editor with the following code:

```
149 (4, 5),
150 (3, 3),
151 (2, 1),
152 (5, 2),
153 (2, 5),
154 (1, 4);
155
156 • SELECT ingredient_name FROM Ingredients;
157
158 • SELECT *
159   FROM Employee
160 WHERE fName ='Retal';
161
162 • SELECT product_name
163   FROM ChocolateProducts
164 WHERE product_id =2;
```

The SQL statement at line 162 is highlighted. The results pane below shows a single row in a 'Result Grid' table:

product_name
Milk Chocolate Bar

The bottom section shows the 'Action Output' log with two entries:

Time	Action	Response	Duration / Fetch Time
24 22:29:25	SELECT * FROM Employee WHERE fName ='Retal' LIMIT 0, 1000	1 row(s) returned	0.022 sec / 0.000040...
25 22:29:26	SELECT product_name FROM ChocolateProducts WHERE product_id =2 LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000050...

## Updating the quantity in the Ingredients table for a specific attribute.

```
10  
11  
12  
13 • UPDATE Ingredients  
14   SET quantity=120  
15 WHERE ingredient_id=1;
```

100% 23:15

Result Grid Filter Rows: Search Edit: Export/Import:

ingredient...	ingredient_na...	quantity
1	Cocoa Powder	120
2	Sugar	200
3	Milk	150
4	Vanilla Extract	50
5	Cocoa Butter	300
HULL	HULL	HULL

Ingredients 1

Action Output

Time	Action	Response
26 22:34:34	UPDATE Ingredients SET quantity=120 WHERE ingredient_id=1	1 row(s) affected Rows matched: 1 Changed: 1
27 22:34:48	SELECT * FROM WillyWonkaFactoryDB.Ingredients LIMIT 0, 1000	5 row(s) returned

## Updating the Name in the Company table for a specific attribute.

```
9  
10  
11  
12  
13 • UPDATE Company  
14     SET Name='R5KM'  
15     WHERE AnnualProfit=35.0;  
16
```

100% 1:12

**Result Grid** Filter Rows: Search Edit: Export/Import:

CompanyID	ContactPerson	Name	AnnualProfit	Address	ContactNum...
1	Malek	Velvet Truffles	27.0	123 Main Street	555531471
2	Ahmed	R5KM	35.0	456 Elm Street	555537487
3	Tala	Cocoa Haven	17.0	789 Oak Street	555576163
4	Omar	Cocoa Kingdom	12.0	123 Main Street	506080922
5	Shatha	Chocolate Breeze	19.0	456 Elm Street	555576164
NULL	NULL	NULL	NULL	NULL	NULL

Company 1

Action Output

Time	Action	Response
28 22:38:12	UPDATE Company SET Name='R5KM' WHERE AnnualProfit=35.0	1 row(s) affected Rows matched: 1 Changed: 1 W...
29 22:38:17	SELECT * FROM WillyWonkaFactoryDB.Company LIMIT 0, 1000	5 row(s) returned

## Deleting specific row in the Used table.

```
11
12 •   DELETE FROM Used
13     WHERE Iid AND Pid =1;
```

100% 22:13

**Result Grid** Filter Rows: Search Edit: Export/Import:

Iid	Pid
2	2
3	2
4	3
1	4
2	4
3	4
4	4
1	5
2	5
3	5
NULL	NULL

Used 1

Action Output

Time	Action	Response
30 22:41:04	DELETE FROM Used WHERE Iid AND Pid =1	2 row(s) affected
31 22:41:10	SELECT * FROM WillyWonkaFactoryDB.Used LIMIT 0, 1000	10 row(s) returned

## Deleting the rows that contains the Eid 1 from the Deliver table.

```
cts
9
10
11
12
13
14 •  DELETE FROM Deliver
15      WHERE Eid =1;
```

100% 14:15

**Result Grid** Filter Rows: Search Edit: Export/Import:

Eid	Cid
2	1
5	2
3	3
4	3
2	5
4	5
NULL	NULL

Deliver 1

Action Output

Time	Action	Response
33 22:44:40	DELETE FROM Deliver WHERE Eid =1	1 row(s) affected
34 22:44:52	SELECT * FROM WillyWonkaFactoryDB.Deliver LIMIT 0, 1000	6 row(s) returned

List product\_name and packing\_id of all chocolateproducts, arranged in ascending order of product\_name. By using ORDER BY.

The screenshot shows the MySQL Workbench interface. The top section is a query editor with the following SQL code:

```
172 WHERE AnnualProfit=35.0;
173
174 • DELETE FROM Used
175 WHERE Iid AND Pid =1;
176
177 • DELETE FROM Deliver
178 WHERE Eid =1;
179
180 • SELECT product_name, packing_id
181 FROM chocolateproducts
182 ORDER BY product_name ASC;
```

The bottom section is a results grid titled "Result Grid" which displays the following data:

product_name	packing_id
Assorted Chocolates	1002
Chocolate Spread	1003
Darck Chocolate Bar	1001
Milk Chocolate Bar	1001
White Chocolate Bar	1001

A note above the results states: "List instructor ID, name, and SSN of all instructors, arranged in descending order of instructorI". The right sidebar contains icons for Result Grid, Form Editor, Field Types, and Query Stats. The bottom left shows the database connection name "chocolateproducts 1" and the bottom right shows "Read Only".

# List all details of all employees, with Salary in descending. By using ORDER BY.

The screenshot shows the MySQL Workbench interface. At the top, there is a toolbar with various icons. Below the toolbar, the code editor displays the following SQL queries:

```
176
177 • DELETE FROM Deliver
178 WHERE Eid =1;
179
180 • SELECT product_name, packing_id
181 FROM chocolateproducts
182 ORDER BY product_name ASC;
183
184 • SELECT *
185 FROM employee
186 ORDER BY Salary DESC;
```

Below the code editor is a horizontal separator line. Underneath it, the results are displayed in a grid format:

	EmployeeID	fName	lName	PhoneNumber	Salary	Position
▶	3	Retal	Malki	558906427	5000.00	Manager
	5	Andy	Chou	573438678	4800.00	Supervisor
	2	Jane	Smith	59099034	4300.00	Deliver
	4	Jennifer	Furman	542219078	3800.00	Production
*	1	Jhon	Doe	555548917	2500.00	Production
*	NULL	NULL	NULL	NULL	NULL	NULL

On the right side of the results grid, there is a vertical toolbar with four items: "Result Grid" (selected), "Form Editor", "Field Types", and "Query Stats". Below the results grid, there is a tab labeled "employee 5" and an "Output" section. The "Action Output" section at the bottom lists the following actions:

#	Time	Action	Message	Duration / Fetch
4	18:35:45	SELECT * FROM willywonkafactorydb.deliver LIMIT 0, 1000	6 row(s) returned	0.000 sec / 0.000 sec
5	18:43:44	SELECT product_name, packing_id FROM chocolateproducts ORDER BY product_name ASC LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
6	18:50:36	SELECT* FROM employee ORDER BY fName, lName ASC, Salary DESC LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
7	18:52:10	SELECT* FROM employee ORDER BY Salary DESC LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
8	18:52:23	SELECT* FROM employee ORDER BY Salary ASC LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
9	18:52:34	SELECT* FROM employee ORDER BY Salary DESC LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec

For each position type with more than one employee, this is the total number of employees and the sum of their Salary. By using HAVING and GROUP BY clauses.

The screenshot shows the MySQL Workbench interface. In the top-left pane, a SQL query is written:

```
181 FROM chocolateproducts
182 ORDER BY product_name ASC;
183
184 • SELECT *
185   FROM employee
186 ORDER BY Salary DESC;
187
188 • SELECT Position, COUNT(EmployeeID) AS count, SUM(Salary) AS sum
189   FROM employee
190  GROUP BY Position
191 HAVING COUNT(EmployeeID) > 1;
```

In the bottom-left pane, the results of the query are displayed in a grid:

Position	count	sum
Production	2	6300.00

The right side of the interface features a vertical toolbar with icons for different tools: Result Grid (selected), Form Editor, Field Types, and Query Stats. Below the toolbar, the status bar indicates "Result 6" and "Read Only".

# Show the total number of product by each chocolate flavors. By using JOIN and GROUP BY.

The screenshot shows the MySQL Workbench interface. The top part is a query editor window containing the following SQL code:

```
186 ORDER BY Salary DESC;
187
188 • SELECT Position, COUNT(EmployeeID) AS count, SUM(Salary) AS sum
189   FROM employee
190  GROUP BY Position
191 HAVING COUNT(EmployeeID) > 1;
192
193 • SELECT cf.CPflavor, COUNT(*) AS product_count
194   FROM choco_flavors cf
195   JOIN chocolateproducts p ON cf.Product_ID = p.product_id
196  GROUP BY cf.CPflavor;
```

The bottom part is a results grid titled "Result Grid" showing the output of the query:

CPflavor	product_count
Assorted	1
Dark	1
Hazelnut	1
Milk	1
White	1

The sidebar on the right contains icons for Result Grid, Form Editor, Field Types, and Query Stats. The status bar at the bottom indicates "Result 15" and "Read Only".

retrieves the names of chocolate products currently offered based on the validity of the offer's end date.

Local instance 3306

Administration Schemas

SCHEMAS

Filter objects

198  
199 • SELECT product\_name  
200 FROM ChocolateProducts  
201 WHERE product\_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE());  
202  
203  
204 • SELECT  
c.ContactPerson AS Company\_Contact,  
206 ( SELECT COUNT(\*)  
207 FROM Deliver d  
208 WHERE d.Cid = c.CompanyID  
210 ) AS delivery\_count  
211 FROM  
Company c;  
213

100% 72:201

Result Grid Filter Rows: Search Export:

product_name
Darch Chocolate Bar
Milk Chocolate Bar
White Chocolate Bar
Assorted Chocolates
Chocolate Spread

ChocolateProducts 16 Read Only

Object Info Session Action Output

No object selected

	Time	Action	Response	Duration / Fetch Time
62	22:47:14	SELECT c.Name AS Company, cp.product_name FROM Company c JOIN Receives r ON c.CompanyID = r.Cid JOIN ChocolateProducts cp ON r.Pid = cp.product_id LIMIT 0, 1000	7 row(s) returned	0.00051 sec / 0.0000...
63	20:03:11	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.058 sec / 0.00063...
64	20:03:34	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00066 sec / 0.000...
65	20:03:35	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00062 sec / 0.0000...
66	20:03:36	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00055 sec / 0.0000...
67	20:03:37	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00055 sec / 0.0000...
68	20:04:22	SELECT c.ContactPerson AS Company_Contact, ( SELECT COUNT(*) FROM Deliver d WHERE d.Cid = c.CompanyID ) AS delivery_count FROM...	5 row(s) returned	0.0042 sec / 0.00001...
69	20:05:28	SELECT i.ingredient_name, cp.product_name FROM Ingredients i JOIN Used u ON i.ingredient_id = u.id JOIN ChocolateProducts cp ON u.Pid = cp.product_id LIMIT...	10 row(s) returned	0.00081 sec / 0.0000...
70	20:06:11	SELECT c.Name AS Company, cp.product_name FROM Company c JOIN Receives r ON c.CompanyID = r.Cid JOIN ChocolateProducts cp ON r.Pid = cp.product_id LIMIT...	7 row(s) returned	0.00063 sec / 0.000...
71	20:06:59	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00053 sec / 0.0000...
72	20:08:16	SELECT c.ContactPerson AS Company_Contact, ( SELECT COUNT(*) FROM Deliver d WHERE d.Cid = c.CompanyID ) AS delivery_count FROM...	5 row(s) returned	0.00057 sec / 0.0000...
73	20:09:20	SELECT i.ingredient_name, cp.product_name FROM Ingredients i JOIN Used u ON i.ingredient_id = u.id JOIN ChocolateProducts cp ON u.Pid = cp.product_id LIMIT...	10 row(s) returned	0.00055 sec / 0.0000...
74	20:11:59	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00077 sec / 0.0000...

Query Completed

lists each company's contact person alongside the count of deliveries made by that company.

Local instance 3306

Administration Schemas

SCHEMAS

Filter objects

198  
199 • SELECT product\_name  
200 FROM ChocolateProducts  
201 WHERE product\_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE());  
202  
203  
204 • SELECT  
205 c.ContactPerson AS Company\_Contact,  
206 ( SELECT COUNT(\*)  
207 FROM Deliver d  
208 WHERE d.Cid = c.CompanyID  
209 ) AS delivery\_count  
210 ) AS delivery\_count  
211 FROM  
212 Company c;  
213

100% 15:212

Result Grid Filter Rows: Search Export:

Company_Contact	delivery_cou...
Malek	1
Ahmed	1
Tala	2
Omar	0
Shatha	2

Result 18 Read Only

Object Info Session Action Output

No object selected

	Time	Action	Response	Duration / Fetch Time
64	20:03:34	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00066 sec / 0.000...
65	20:03:35	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00062 sec / 0.000...
66	20:03:36	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00055 sec / 0.000...
67	20:03:37	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00055 sec / 0.000...
68	20:04:22	SELECT c.ContactPerson AS Company_Contact, ( SELECT COUNT(*) FROM Deliver d WHERE d.Cid = c.CompanyID ) AS delivery_count FROM...	5 row(s) returned	0.0042 sec / 0.00001...
69	20:05:28	SELECT i.ingredient_name, cp.product_name FROM Ingredients i JOIN Used u ON i.ingredient_id = u.id JOIN ChocolateProducts cp ON u.Pid = cp.product_id LIMIT...	10 row(s) returned	0.00081 sec / 0.000...
70	20:06:11	SELECT c.Name AS Company, cp.product_name FROM Company c JOIN Receives r ON c.CompanyID = r.Cid JOIN ChocolateProducts cp ON r.Pid = cp.product_id Li...	7 row(s) returned	0.00063 sec / 0.000...
71	20:06:59	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00053 sec / 0.000...
72	20:08:16	SELECT c.ContactPerson AS Company_Contact, ( SELECT COUNT(*) FROM Deliver d WHERE d.Cid = c.CompanyID ) AS delivery_count FROM...	5 row(s) returned	0.00057 sec / 0.000...
73	20:09:20	SELECT i.ingredient_name, cp.product_name FROM Ingredients i JOIN Used u ON i.ingredient_id = u.id JOIN ChocolateProducts cp ON u.Pid = cp.product_id LIMIT...	10 row(s) returned	0.00055 sec / 0.000...
74	20:11:59	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00077 sec / 0.000...
75	20:12:40	SELECT c.ContactPerson AS Company_Contact, ( SELECT COUNT(*) FROM Deliver d WHERE d.Cid = c.CompanyID ) AS delivery_count FROM...	5 row(s) returned	0.0012 sec / 0.00001...
76	20:12:52	SELECT c.ContactPerson AS Company_Contact, ( SELECT COUNT(*) FROM Deliver d WHERE d.Cid = c.CompanyID ) AS delivery_count FROM...	5 row(s) returned	0.00049 sec / 0.000...

Query Completed

# links ingredient names with the chocolate product names they are used in by joining relevant tables.

Local instance 3306

Administration Schemas

SCHEMAS Filter objects

db2 Farmacy sakila sql\_hr sql\_inventory sql\_invoicing sql\_store sys unidb WillyWonkaFactoryDB Tables Views Stored Procedures Functions

211 FROM Company c;

212 Company c;

213

214

215 • SELECT i.ingredient\_name, cp.product\_name

216 FROM Ingredients i

217 JOIN Used u ON i.ingredient\_id = u.Iid

218 JOIN ChocolateProducts cp ON u.Pid = cp.product\_id;

219

220 • SELECT c.Name AS Company, cp.product\_name

221 FROM Company c

222 JOIN Receives r ON c.CompanyID = r.Cid

223 JOIN ChocolateProducts cp ON r.Pid = cp.product\_id;

224

100% 52:218

Result Grid Filter Rows: Search Export:

ingredient_name	product_name
Cocoa Powder	Assorted Chocolates
Cocoa Powder	Chocolate Spread
Sugar	Milk Chocolate Bar
Sugar	Assorted Chocolates
Sugar	Chocolate Spread
Milk	Milk Chocolate Bar
Milk	Assorted Chocolates
Milk	Chocolate Spread
Vanilla Extract	White Chocolate Bar
Vanilla Extract	Assorted Chocolates

Result 19 Read Only

Object Info Session Action Output

No object selected

	Time	Action	Response	Duration / Fetch Time
65	20:03:35	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00062 sec / 0.0000...
66	20:03:36	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00055 sec / 0.0000...
67	20:03:37	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00055 sec / 0.0000...
68	20:04:22	SELECT c.ContactPerson AS Company_Contact, ( SELECT COUNT(*) FROM Deliver d WHERE d.Cid = c.CompanyID ) AS delivery_count FROM...	5 row(s) returned	0.0042 sec / 0.00001...
69	20:05:28	SELECT i.ingredient_name, cp.product_name FROM Ingredients i JOIN Used u ON i.ingredient_id = u.Iid JOIN ChocolateProducts cp ON u.Pid = cp.product_id LIMIT...	10 row(s) returned	0.00081 sec / 0.0000...
70	20:06:11	SELECT c.Name AS Company, cp.product_name FROM Company c JOIN Receives r ON c.CompanyID = r.Cid JOIN ChocolateProducts cp ON r.Pid = cp.product_id Li...	7 row(s) returned	0.00063 sec / 0.000...
71	20:06:59	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00053 sec / 0.0000...
72	20:08:16	SELECT c.ContactPerson AS Company_Contact, ( SELECT COUNT(*) FROM Deliver d WHERE d.Cid = c.CompanyID ) AS delivery_count FROM...	5 row(s) returned	0.00057 sec / 0.0000...
73	20:09:20	SELECT i.ingredient_name, cp.product_name FROM Ingredients i JOIN Used u ON i.ingredient_id = u.Iid JOIN ChocolateProducts cp ON u.Pid = cp.product_id LIMIT...	10 row(s) returned	0.00055 sec / 0.0000...
74	20:11:59	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00077 sec / 0.0000...
75	20:12:40	SELECT c.ContactPerson AS Company_Contact, ( SELECT COUNT(*) FROM Deliver d WHERE d.Cid = c.CompanyID ) AS delivery_count FROM...	5 row(s) returned	0.0012 sec / 0.00001...
76	20:12:52	SELECT c.ContactPerson AS Company_Contact, ( SELECT COUNT(*) FROM Deliver d WHERE d.Cid = c.CompanyID ) AS delivery_count FROM...	5 row(s) returned	0.00049 sec / 0.000...
77	20:13:28	SELECT i.ingredient_name, cp.product_name FROM Ingredients i JOIN Used u ON i.ingredient_id = u.Iid JOIN ChocolateProducts cp ON u.Pid = cp.product_id LIMIT...	10 row(s) returned	0.0021 sec / 0.00001...

Query Completed

# connects companies with the chocolate products they receive by joining relevant tables.

Local instance 3306

Administration Schemas

SCHEMAS

Filter objects

211 FROM Company c;

212 Company c;

213

214

215 • SELECT i.ingredient\_name, cp.product\_name

216 FROM Ingredients i

217 JOIN Used u ON i.ingredient\_id = u.Iid

218 JOIN ChocolateProducts cp ON u.Pid = cp.product\_id;

219

220 • SELECT c.Name AS Company, cp.product\_name

221 FROM Company c

222 JOIN Receives r ON c.CompanyID = r.Cid

223 JOIN ChocolateProducts cp ON r.Pid = cp.product\_id;

224

100% 52:223

Result Grid Filter Rows: Search Export:

Company	product_name
Velvet Truffles	Milk Chocolate Bar
R5KM	Chocolate Spread
Cocoa Haven	White Chocolate Bar
Cocoa Haven	Assorted Chocolates
Cocoa Kingdom	Dark Chocolate Bar
Chocolate Breeze	Milk Chocolate Bar
Chocolate Breeze	Assorted Chocolates

Result 22

Read Only

Object Info Session Action Output

No object selected

	Time	Action	Response	Duration / Fetch Time
68	20:04:22	SELECT c.ContactPerson AS Company_Contact, ( SELECT COUNT(*) FROM Deliver d WHERE d.Cid = c.CompanyID ) AS delivery_count FROM...	5 row(s) returned	0.0042 sec / 0.0000...
69	20:05:28	SELECT i.ingredient_name, cp.product_name FROM Ingredients i JOIN Used u ON i.ingredient_id = u.Iid JOIN ChocolateProducts cp ON u.Pid = cp.product_id LIMIT...	10 row(s) returned	0.00081 sec / 0.0000...
70	20:06:11	SELECT c.Name AS Company, cp.product_name FROM Company c JOIN Receives r ON c.CompanyID = r.Cid JOIN ChocolateProducts cp ON r.Pid = cp.product_id LI...	7 row(s) returned	0.00063 sec / 0.000...
71	20:06:59	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00053 sec / 0.0000...
72	20:08:16	SELECT c.ContactPerson AS Company_Contact, ( SELECT COUNT(*) FROM Deliver d WHERE d.Cid = c.CompanyID ) AS delivery_count FROM...	5 row(s) returned	0.00057 sec / 0.0000...
73	20:09:20	SELECT i.ingredient_name, cp.product_name FROM Ingredients i JOIN Used u ON i.ingredient_id = u.Iid JOIN ChocolateProducts cp ON u.Pid = cp.product_id LIMIT...	10 row(s) returned	0.00055 sec / 0.0000...
74	20:11:59	SELECT product_name FROM ChocolateProducts WHERE product_id IN (SELECT PID FROM Offer WHERE EndDate >= CURDATE()) LIMIT 0, 1000	5 row(s) returned	0.00077 sec / 0.0000...
75	20:12:40	SELECT c.ContactPerson AS Company_Contact, ( SELECT COUNT(*) FROM Deliver d WHERE d.Cid = c.CompanyID ) AS delivery_count FROM...	5 row(s) returned	0.0012 sec / 0.00001...
76	20:12:52	SELECT c.ContactPerson AS Company_Contact, ( SELECT COUNT(*) FROM Deliver d WHERE d.Cid = c.CompanyID ) AS delivery_count FROM...	5 row(s) returned	0.00049 sec / 0.000...
77	20:13:28	SELECT i.ingredient_name, cp.product_name FROM Ingredients i JOIN Used u ON i.ingredient_id = u.Iid JOIN ChocolateProducts cp ON u.Pid = cp.product_id LIMIT...	10 row(s) returned	0.0021 sec / 0.00001...
78	20:13:49	SELECT i.ingredient_name, cp.product_name FROM Ingredients i JOIN Used u ON i.ingredient_id = u.Iid JOIN ChocolateProducts cp ON u.Pid = cp.product_id LIMIT...	10 row(s) returned	0.00044 sec / 0.000...
79	20:14:28	SELECT i.ingredient_name, cp.product_name FROM Ingredients i JOIN Used u ON i.ingredient_id = u.Iid JOIN ChocolateProducts cp ON u.Pid = cp.product_id LIMIT...	10 row(s) returned	0.00046 sec / 0.000...
80	20:14:37	SELECT c.Name AS Company, cp.product_name FROM Company c JOIN Receives r ON c.CompanyID = r.Cid JOIN ChocolateProducts cp ON r.Pid = cp.product_id LI...	7 row(s) returned	0.00059 sec / 0.000...

Query Completed

# Task Distribution

## Phase 1:

	اغاريد	اروي	رتال
Business Rules	♥		
Chen Notation			♥
UML Notation		♥	
Review and modify everything			♥
report	♥		
Presentation		♥	

## Phase 2:

	اغاريد	اروي	رتال
Mapping	♥		♥
Normalzation		♥	
Presentation	♥	♥	♥

## Phase 3:

	اغاريد	اروي	رتال
SQL file	♥		♥
PDF file	♥	♥	♥