

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

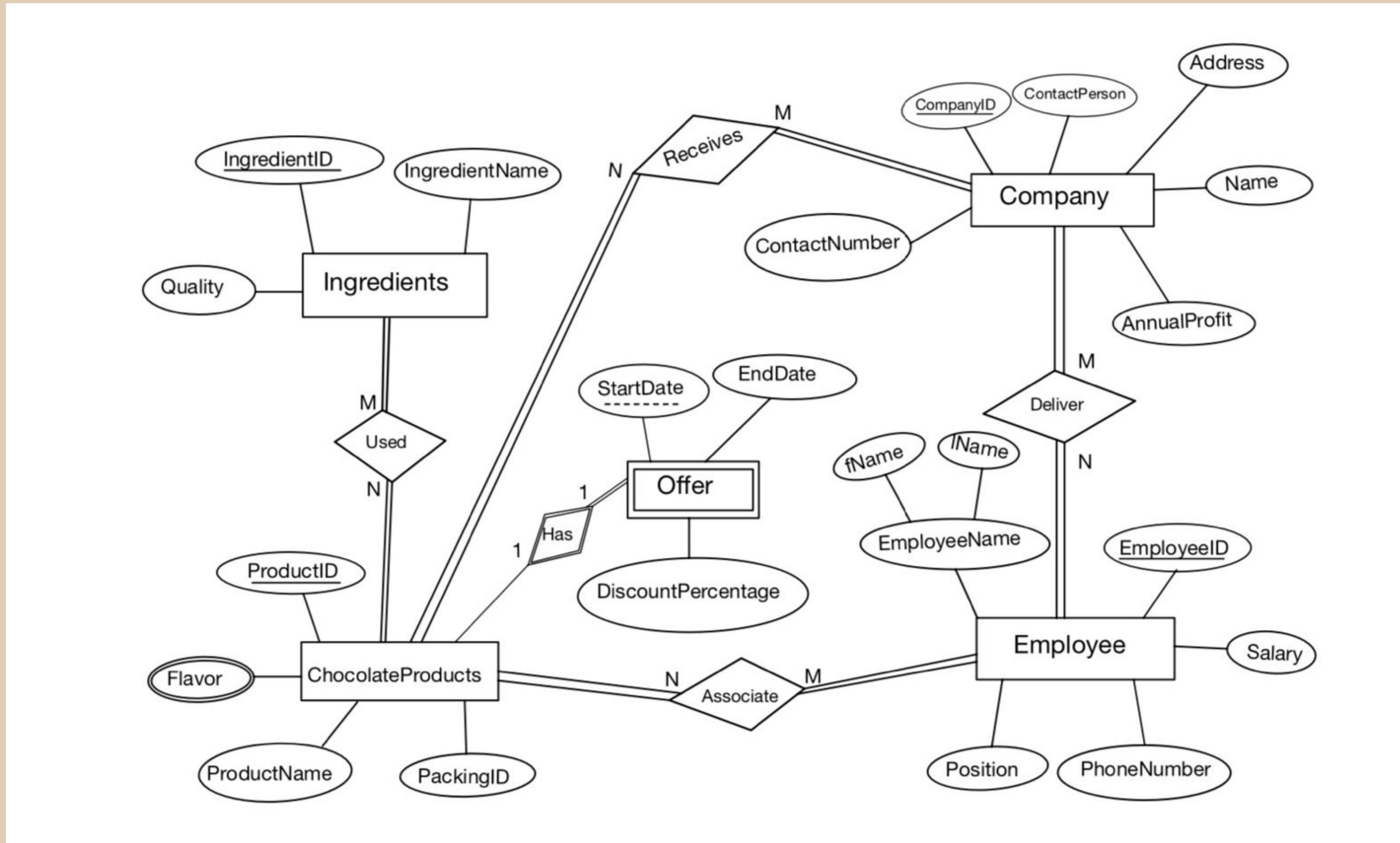
The Fourth Table is Employees:

- * 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.

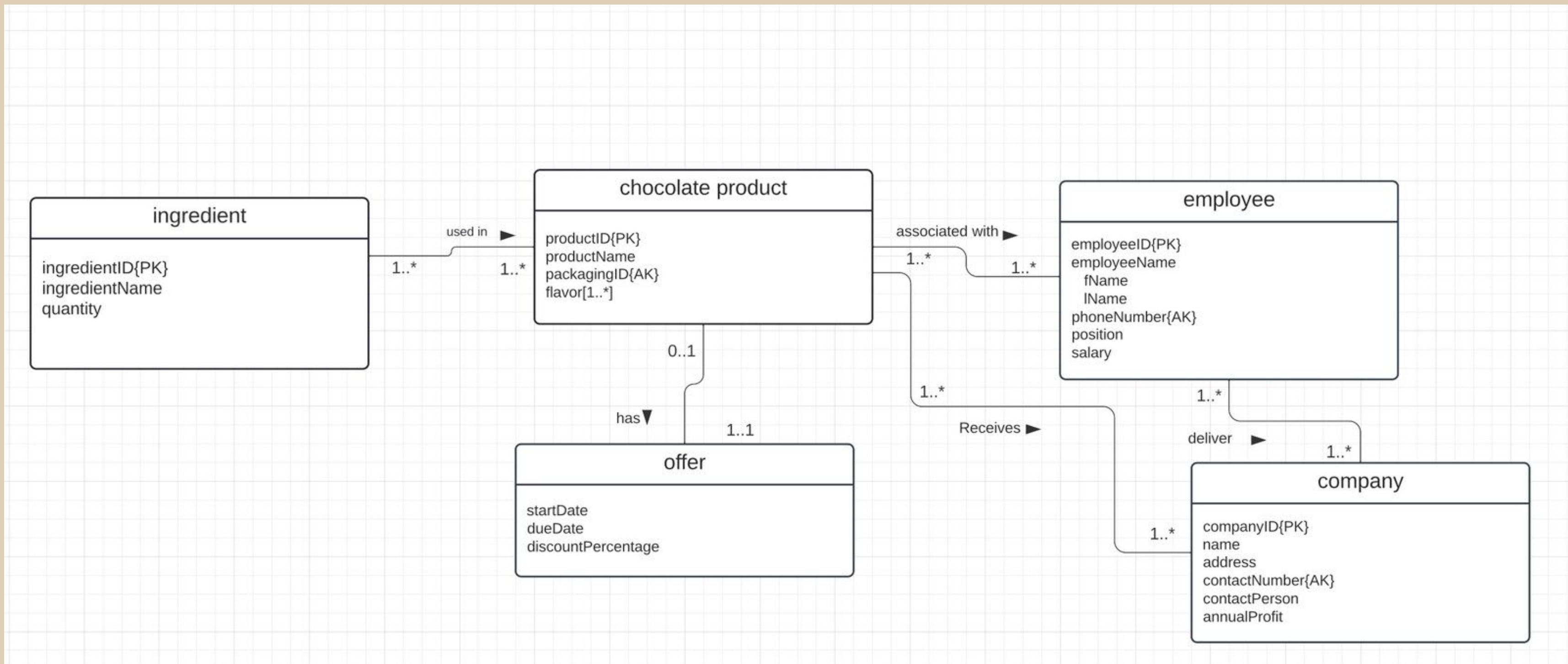
The last Table is Companies:

- * 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
-----------	-------------	-------------

Employee Table

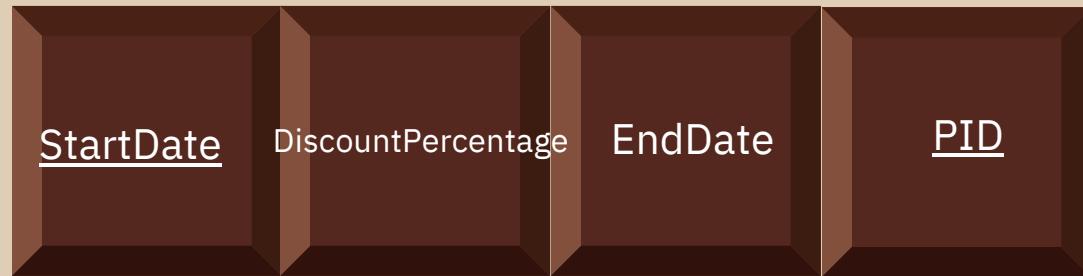
EmployeeID	fName	lName	PhoneNumber	Salary	Position
------------	-------	-------	-------------	--------	----------

Company Table

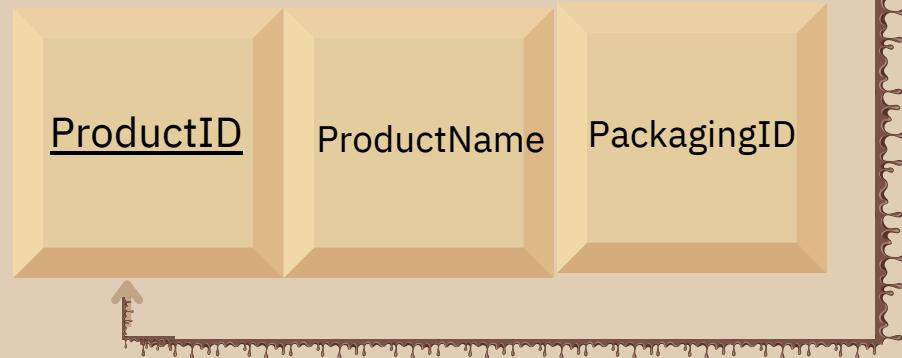
CompanyID	ContactPerson	Name	AnnualProfit	Address	ContactNumber
-----------	---------------	------	--------------	---------	---------------

Step 2- Mapping of Weak Entity Types

Offer Table



ChocolateProducts Table

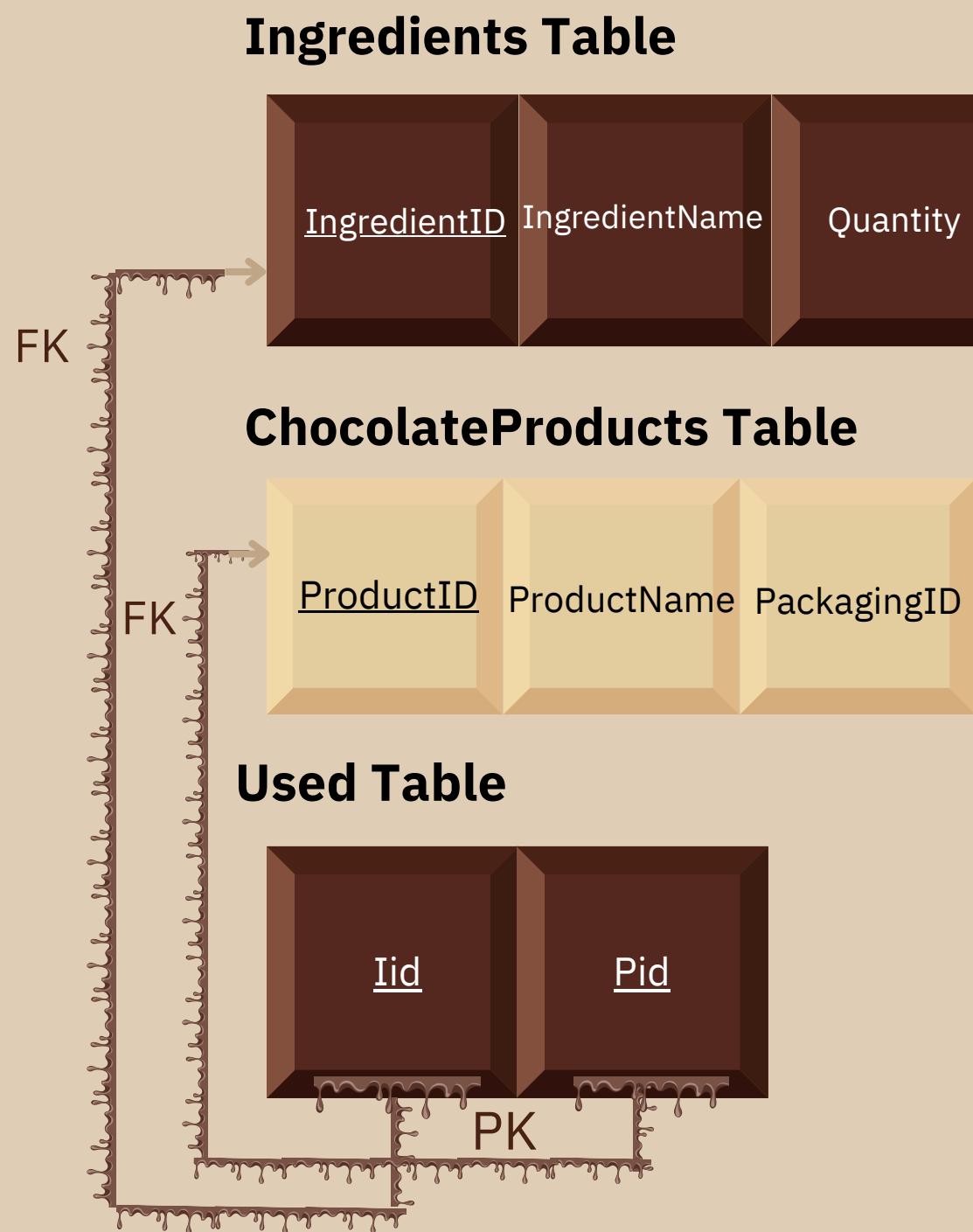


Step 3- Mapping of Binary 1:1 Relationship Types

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

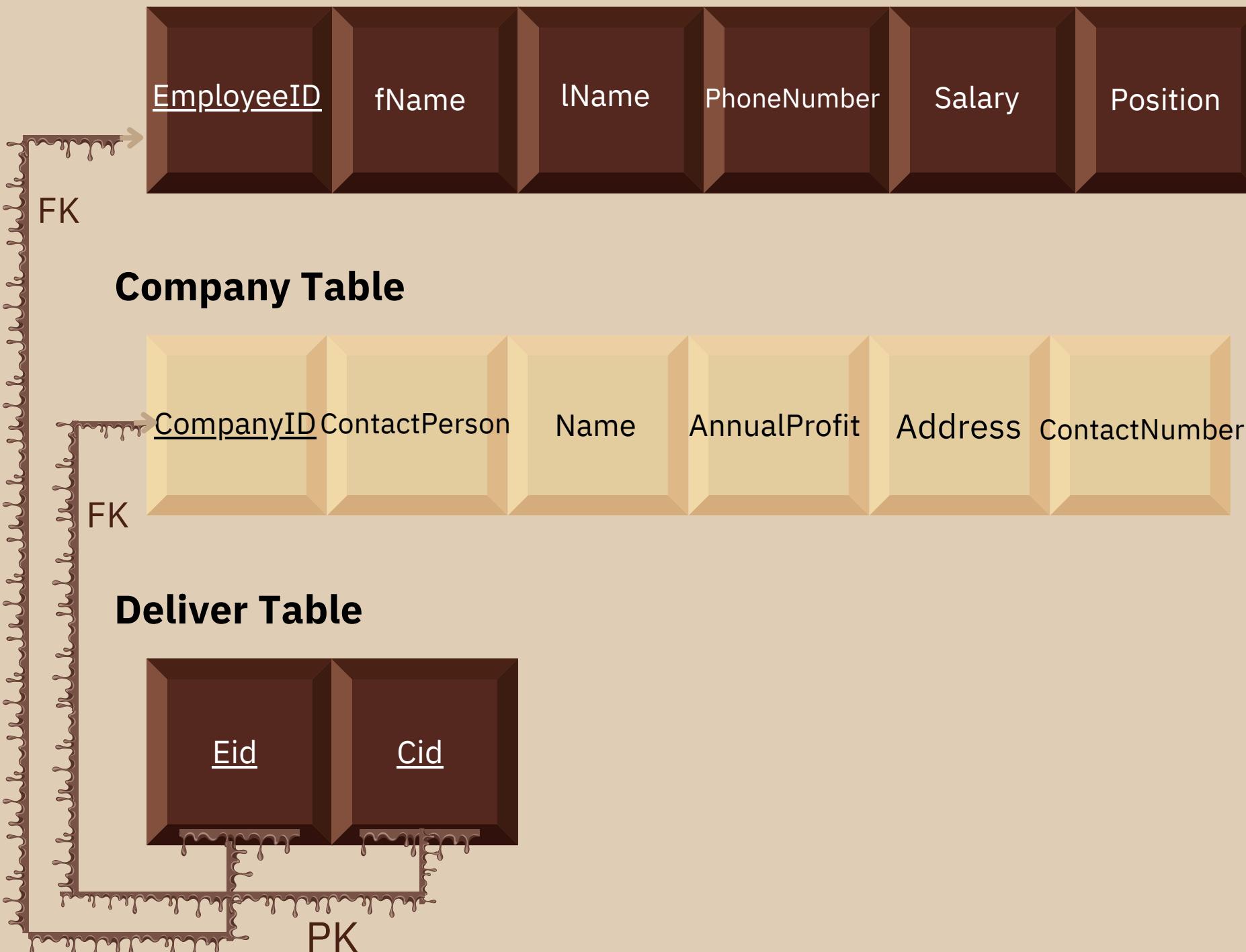
FK	ProductID	ProductName	PackagingID
----	-----------	-------------	-------------

Associate Table

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

Deliver relationship type

Employee Table

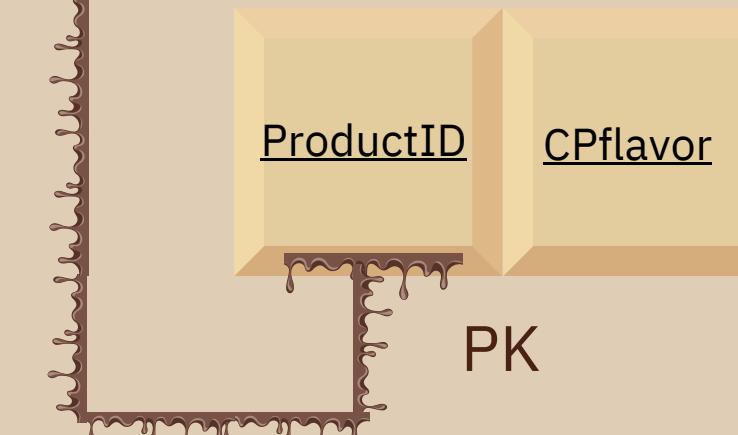


Step 6 - Mapping of Multivalued Attributes

ChocolateProducts Table

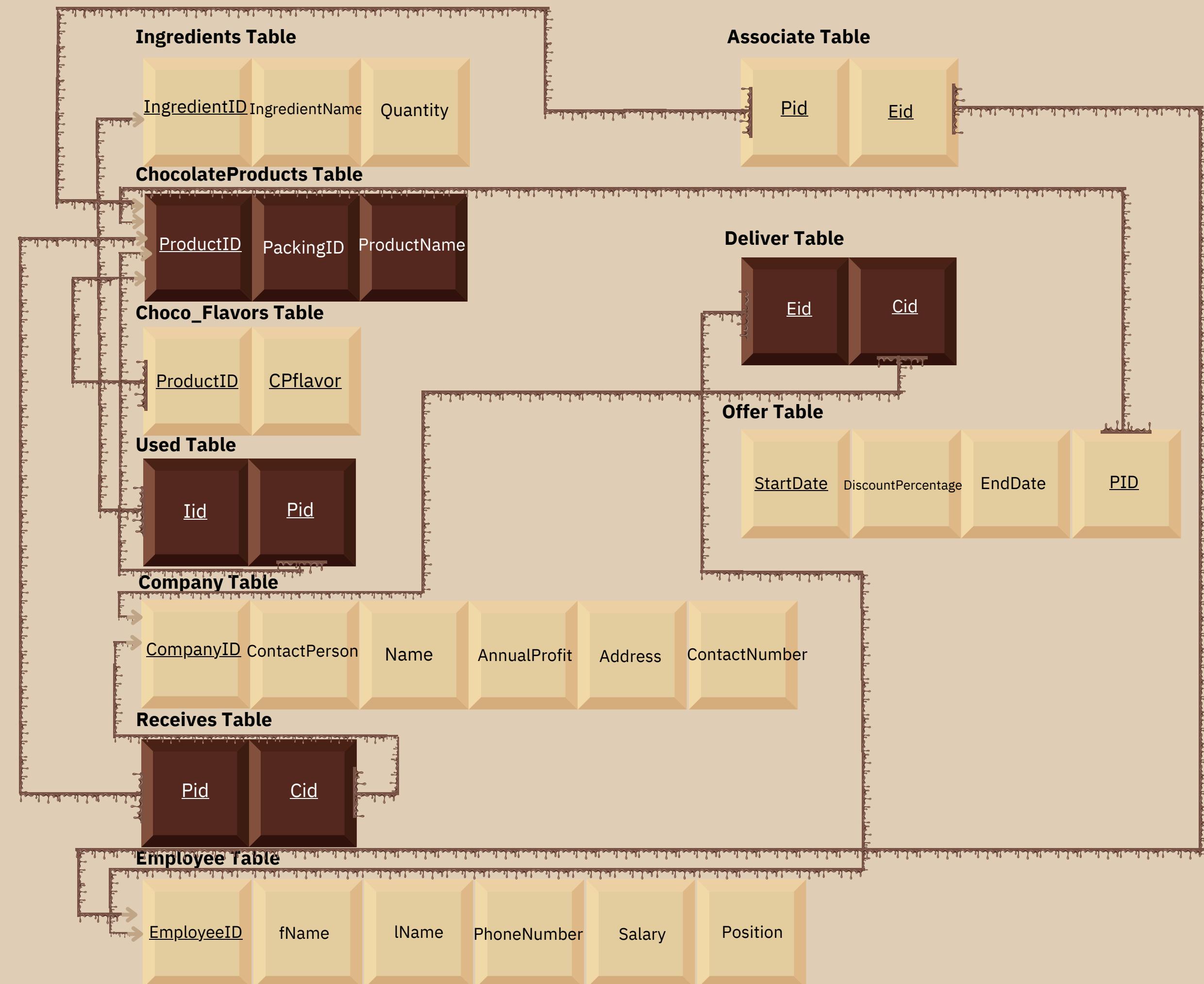


Choco_Flavors Table



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)

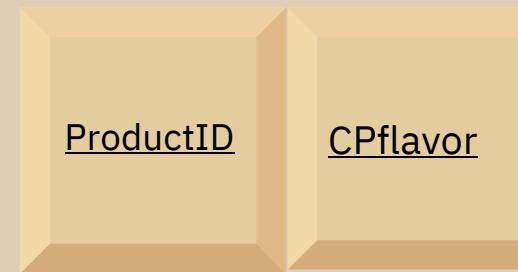
No partial dependencie,so the table is in Second Normal Form (2NF)

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
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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)

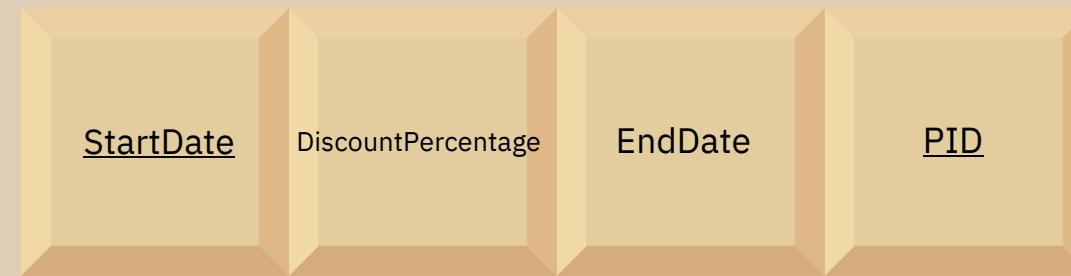
No partial dependencie,so the table is in Second Normal Form (2NF)

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*'. The main pane displays the following SQL 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 at line 1 is highlighted in red, while the rest of the code is blue. The 'USE' command at line 3 is also highlighted in blue.

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 "payment" table is selected, and its "amount" column is highlighted.
- Action Output:** A table showing the execution history of the query:

Time	Action	Response	Duration / Fetch Time
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...
13:29:21	SELECT * FROM sakila22.category LIMIT 0, 1000	16 row(s) returned	0.0012 sec / 0.00001...
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...
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...
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...
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
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 other standard SQL editor icons.
- Result Grid**:
 - Table structure: ingredient_id (NULL), ingredient_name (NULL), quantity (NULL).
 - Empty data grid with 10 rows.
 - Buttons: Result Grid, Filter Rows, Search, Edit, Export/Import.
- Object Info** tab: No object selected.
- Action Output** tab:

	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:

- Schemas:** A tree view of schemas including courseDB, database, database2, database4, database5, Farmacy, mydatabase, mydatabase3, myuni, Retal, sakila, sakila22, sys, and WillyWonkaFactoryDB.
- Query Editor:** Displays the SQL code for creating the WillyWonkaFactoryDB database and its two tables, Ingredients and ChocolateProducts.
- Object Info:** Shows "No object selected".
- Action Output:** Shows "Time" and "Action" columns.

```
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
```

Result:

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

- Administration** tab is selected.
- Schemas** tab is selected.
- Query 7**, **Ingredients**, and **ChocolateProducts** tabs are also present in the top bar.
- SCHEMAS** pane on the left lists various databases: courseDB, database, database2, database4, database5, Farmacy, mydatabase, mydatabase3, myuni, Retal, sakila, sakila22, sys, and WillyWonkaFactoryDB.
- ChocolateProducts** table is selected under the WillyWonkaFactoryDB schema.
- Query Editor**: The query `SELECT * FROM WillyWonkaFactoryDB.ChocolateProducts;` is entered.
- Result Grid**: The result grid shows the following columns: product_id, product_name, and packing_id. The first row contains `NULL` for all three columns.
- Toolbar**: Includes icons for file operations, search, and other database management functions.
- Filter Rows** and **Search** fields are located near the result grid.
- Edit** and **Export/Import** buttons are available.
- Object Info** and **Session** tabs are at the bottom left.
- No object selected** message is displayed.
- Right Sidebar**: A vertical sidebar with icons for Result Grid, Form Editor, Field Types, Query Stats, and Execution Plan.
- Action Output** section at the bottom.
- Time**, **Action**, **Response**, and **Duration / Fetch Time** columns in the bottom right.

Creating the Offer tables with their attribute .

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

- Schemas:** A tree view on the left lists various schemas: Farmacy, mydatabase, mydatabase3, myuni, Retal, sakila, and sakila22. The **WillyWonkaFactoryDB** schema is expanded, showing its **Tables**, **Views**, **Stored Procedures**, and **Functions**. The **Tables** node is currently selected.
- Query Editor:** The main pane displays the SQL code for creating three tables: **Ingredients**, **ChocolateProducts**, and **Offer**.
- Code:**

```
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:** Below the query editor, the "Action Output" section shows 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
44 18:38:26	SELECT * FROM WillyWonkaFactoryDB.Offers LIMIT 0,1000		0.0000 sec / 0.0000 sec

Result:

The screenshot shows the MySQL Workbench interface. The left sidebar displays the database schema structure under the 'WillyWonkaFactoryDB' schema, including tables like ChocolateProducts, Ingredients, and Offer, along with their columns and various object types like Views, Stored Procedures, and Functions.

The main workspace is titled 'Offer' and contains a query editor with the following content:

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

Below the query editor is a 'Result Grid' showing the results of the query. The grid has four columns: StartDate, DiscountPercent, EndDate, and PID. All four columns show 'NULL' as the value for all rows.

	StartDate	DiscountPercent	EndDate	PID
1	NULL	NULL	NULL	NULL
2				
3				
4				
5				
6				
7				
8				
9				
10				

The bottom right corner of the result grid area features a vertical toolbar with icons for Result Grid, Form Editor, Field Types, and 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, including courseDB, database, database2, database4, database5, Farmacy, mydatabase, mydatabase3, myuni, Retal, sakila, sakila22 (selected), sys, and others.
- 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:** The bottom pane shows the execution results of the last two 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)	7 row(s) affected Records: 7 Duplicates: 0 Warnings... 0.0014 sec	

Result:

Schemas

Administration Schemas WillyWonkaFactoryDB* Assessment1 Company

SCHEMAS

Filter objects

> database2
> database4
> database5
> Farmacy
> mydatabase
> mydatabase3
> myuni
> Retai
> sakila
> sakila22
> sys

> WillyWonkaFactoryDB

Tables

ChocolateProducts
Company
Ingredients
Offer

Views
Stored Procedures
Functions

Object Info Session

No object selected

1 • `SELECT * FROM WillyWonkaFactoryDB.Company;`

Limit to 1000 rows

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

CompanyID ContactPerson Name AnnualProfit Address ContactNumb...

NULL NULL NULL NULL NULL NULL

Company 1

Action Output Time Action Response Duration / Fetch Time

Result Grid
Form Editor
Field Types
Query Stats

Creating the Employee tables with their attribute .

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

- Schemas:** courseDB, database, database2, database4 (selected).
- Tables in database4:** animals, Course, Instructor, TeachingAssistant.
- TeachingAssistant Table Columns:** teachingAssist..., SSN, studentID, salary (selected).
- Object Info (salary column):**
 - Definition:** salary decimal(7,2)
- SQL Editor Content:**

```
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 );|
```
- Toolbars and Status:** Top toolbar icons include file operations, search, and refresh. Bottom status bar shows 100% zoom, 18:42 time, and Action Output tab.

Result:

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

- Toolbar:** Administration, Schemas, WillyWonkaFactoryDB*, Assessment1*, Employee.
- Schemas Panel:** Shows various databases: database4, database5, Farmacy, mydatabase, mydatabase3, myuni, Retal, sakila, sakila22, sys, and WillyWonkaFactoryDB. The WillyWonkaFactoryDB database is expanded, showing Tables, Views, Stored Procedures, and Functions.
- Query Editor:** A query is entered: `1 • SELECT * FROM WillyWonkaFactoryDB.Employee;`. There are buttons for running the query, canceling, and refreshing.
- Result Grid:** The results of the query are displayed in a grid. The columns are EmployeeID, fName, lName, PhoneNumber, Salary, and Position. All cells in the first row are empty (NULL). The grid has 1000 rows visible.
- Right Sidebar:** A vertical sidebar with icons for Result Grid, Form Editor, Field Types, and Query Stats.
- Bottom Navigation:** Buttons for Employee 1, Apply, and Revert.
- Action Output:** A table with columns Time, Action, Response, and Duration / Fetch Time.

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 schema.
- Assessment1*** is also listed in the tabs.
- SCHEMAS** pane on the left lists various databases: database4, database5, Farmacy, mydatabase, mydatabase3, myuni, Retai, sakila, sakila22, sys, and WillyWonkaFactoryDB. The WillyWonkaFactoryDB node is expanded, showing Tables, Views, Stored Procedures, and Functions.
- Object Info** tab is selected in the bottom-left panel.
- No object selected** message is displayed in the bottom-left panel.
- Code Editor**: The SQL code for creating the Choco_Flavors table is shown. The code includes foreign key constraints linking to the ChocolateProducts table.

```
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
```

The status bar at the bottom shows "100% 15:50". The bottom navigation bar includes Action Output, Time, Action, Response, and Duration / Fetch Time.

Result:

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

- Top Bar:** Administration, Schemas, WillyWonkaFactoryDB*, Assessment1*, Choco_Flavors.
- 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 SQL query is entered: `1 • SELECT * FROM WillyWonkaFactoryDB.Choco_Flavors;`. There are buttons for running the query, canceling, and refreshing.
- Result Grid:** The results of the query are displayed in a grid. The columns are CPflavor and Product_ID. The first row shows NULL values for both columns.
- Toolbars:** Filter Rows, Search, Edit, Export/Import.
- Right Sidebar:** A vertical toolbar titled "Result Grid" with icons for Result Grid, Form Editor, Field Types, Query Stats, and a collapse arrow.
- Bottom Navigation:** Action Output, Time, Action, Response, Duration / Fetch Time.

Creating the Used tables with their attribute .

The screenshot shows the MySQL Workbench interface with the 'Schemas' tab selected. In the left sidebar, under the 'WillyWonkaFactoryDB' schema, the 'Tables' folder is expanded, showing 'Choco_Flavors', 'ChocolateProducts', 'Company', 'Employee', 'Ingredients', 'Offer', 'Views', and 'Stored Procedures'. The main pane displays the SQL code for creating three tables:

```
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 uses standard SQL syntax to define three tables: 'Employee', 'Choco_Flavors', and 'Used'. The 'Employee' table has columns for EmployeeID (primary key), fName, lName, PhoneNumber, Salary, and Position. The 'Choco_Flavors' table has columns for CPflavor (primary key) and Product_ID, with a foreign key constraint linking to the 'ChocolateProducts' table. The 'Used' table has columns for Iid and Pid, with foreign key constraints linking to the 'Ingredients' and 'ChocolateProducts' tables respectively.

Result:

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

- Administration** and **Schemas** tabs are selected in the top navigation bar.
- The **Schemas** panel lists various databases: database4, database5, Farmacy, mydatabase, mydatabase3, myuni, Retal, sakila, sakila22, sys, and WillyWonkaFactoryDB. The WillyWonkaFactoryDB database is expanded, showing its **Tables** and **Views**.
- The **Tables** section under WillyWonkaFactoryDB contains the following tables: Choco_Flavors, ChocolateProducts, Company, Employee, Ingredients, Offer, and Used.
- The **Used** table is selected in the main pane, and its schema is displayed in the SQL editor:

```
1 •  SELECT * FROM WillyWonkaFactoryDB.Used;
```
- The **Result Grid** pane shows the first row of the query results:

lid	Pid
NULL	NULL
- The **Action Output** pane at the bottom shows the following table:

	Time	Action	Response	Duration / Fetch Time
Used 1				
- A vertical toolbar on the right side of the interface includes icons for Result Grid, Form Editor, Field Types, and Query Stats.

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
```

Result:

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

- Administration** tab is selected.
- Schemas** tab is selected.
- Current Schema**: WillyWonkaFactoryDB*
- Selected Table**: Receives
- Query Editor**:
 - Text area: `1 • SELECT * FROM WillyWonkaFactoryDB.Receives;`
 - Buttons: Filter objects, Limit to 1000 rows, etc.
- Object Navigator**:
 - SCHEMAS**: database4, database5, Farmacy, mydatabase, mydatabase3, myuni, Retal, sakila, sakila22, sys, WillyWonkaFactoryDB (selected).
 - Tables**: Choco_Flavors, ChocolateProducts, Company, Employee, Ingredients, Offer, Receives, Used.
- Result Grid**:
 - Columns: Pid, Cid
 - Data: One row with values `NULL` and `NULL`.
 - Buttons: Result Grid, Form Editor, Field Types, Query Stats.
- Action Output**: Receives 1
- Bottom Navigation**: Time, Action, Response, Duration / Fetch Time.

Creating the Deliver 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 a 'Tables' folder with several tables: Choco_Flavors, ChocolateProducts, Company, Employee, Ingredients, Offer, Receives, and Used.

The main pane shows the SQL code for creating two tables:

```
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
```

The code uses numbered lines (54 to 84) to indicate the sequence of statements. Lines 62 and 73 are currently being edited, as indicated by the cursor and the '• -' symbol.

Result:

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

- Top Bar:** Administration, Schemas, WillyWonkaFactoryDB*, Assessment1*, Deliver.
- Schemas Panel:** Shows a list of schemas: mydatabase, mydatabase3, myuni, Retal, sakila, sakila22, sys, and WillyWonkaFactoryDB. The WillyWonkaFactoryDB schema is expanded, showing Tables, Views, and Stored Procedures.
- Query Editor:** A query is entered: `1 • SELECT * FROM WillyWonkaFactoryDB.Deliver;`. Below the query, the results are displayed in a grid.
- Result Grid:** The results show two columns: Eid and Cid. The first row contains NULL values for both columns.
- Grid Tools:** Filter Rows, Search, Edit, Export/Import buttons are available.
- Right Sidebar:** A vertical sidebar with icons for Result Grid, Form Editor, Field Types, Query Stats, and a double-headed arrow icon.
- Bottom Buttons:** Deliver 1, Apply, Revert.
- Action Output:** A table with columns Time, Action, Response, and Duration / Fetch Time.

Creating the Associate tables with their attribute .

The screenshot shows the MySQL Workbench interface with the 'Schemas' tab selected. The left sidebar lists various databases, with 'WillyWonkaFactoryDB' expanded to show its tables: Choco_Flavors, ChocolateProducts, Company, Deliver, Employee, Ingredients, Offer, Receives, and Used. The 'Tables' section is currently active.

The main pane displays the SQL code for creating two tables:

```
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
```

The code uses MySQL syntax to define the 'Deliver' and 'Associate' tables. The 'Deliver' table has columns Eid (INT) and Cid (INT). It includes foreign key constraints 'fk_employee' (referencing Employee.EmployeeID) and 'fk_CompanyD' (referencing Company.CompanyID), and a primary key constraint on (Eid, Cid). The 'Associate' table has columns Pid (INT) and Eid (INT). It includes foreign key constraints 'fk_ChocProductAS' (referencing ChocolateProducts.product_id) and 'fk_employeeAS' (referencing Employee.EmployeeID), and a primary key constraint on (Pid, Eid).

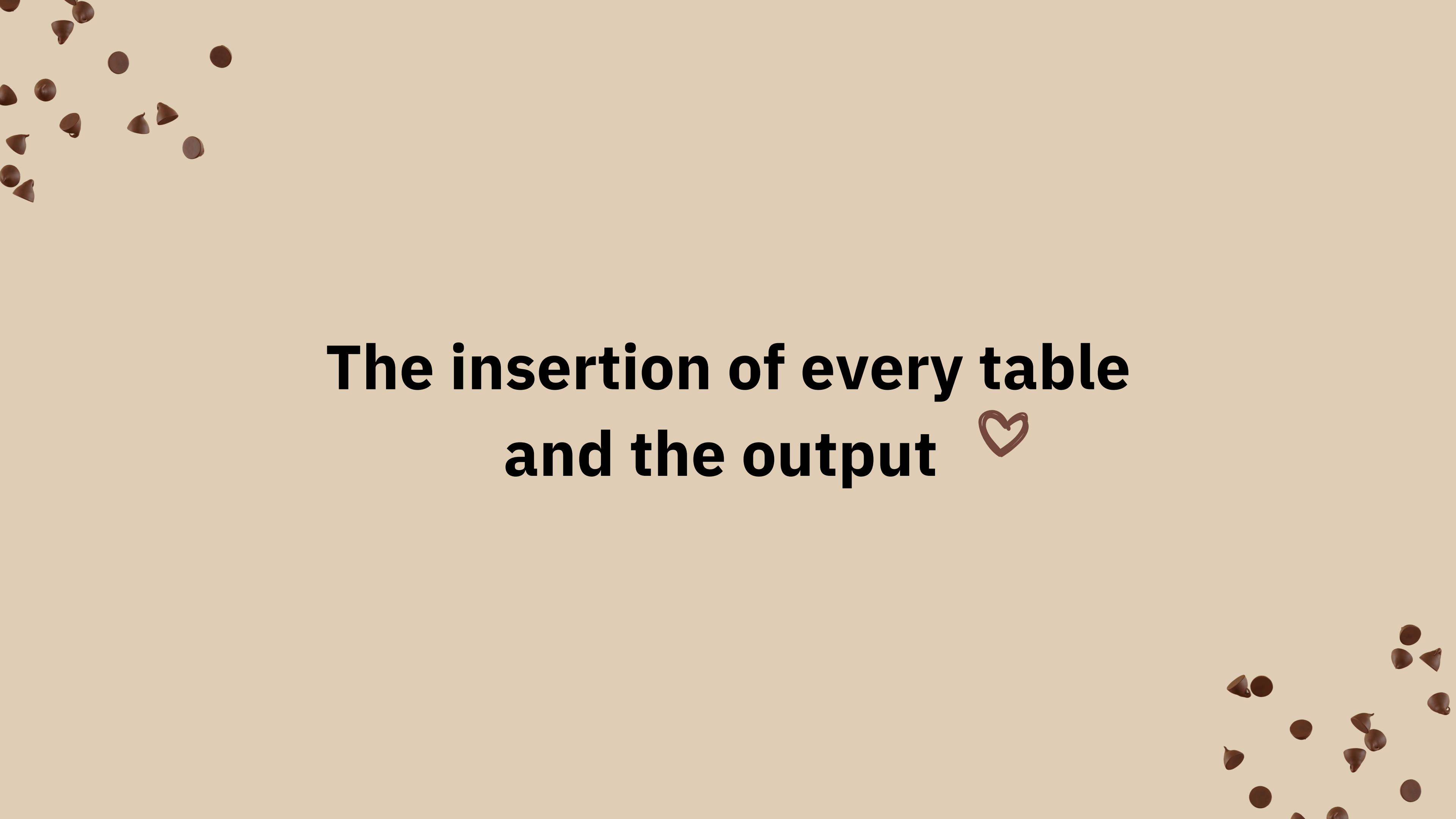
At the bottom, the 'Action Output' pane shows the results of the query execution:

Time	Action	Response	Duration / Fetch Time
19:46:58	SELECT * FROM WillyWonkaFactoryDB.Used LIMIT 0, 1000	12 row(s) returned	0.000099 sec / 0.000...
20:46:40	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 with the following details:

- Administration** and **Schemas** tabs are selected at the top.
- The main title bar shows the current databases: **WillyWonkaFactoryDB***, **Assessment1***, and **Associate**.
- SCHEMAS** panel:
 - Search bar: **Filter objects**
 - List of schemas: mydatabase, mydatabase3, myuni, Retal, sakila, sakila22, sys, and **WillyWonkaFactoryDB** (selected).
 - Tables under WillyWonkaFactoryDB: Associate, Choco_Flavors, ChocolateProducts, Company, Deliver, Employee, Ingredients, Offer, Receives, Used, and Views.
- Query Editor**:
 - Text area: **1 • SELECT * FROM WillyWonkaFactoryDB.Associate;**
 - Toolbar icons: folder, save, lightning, refresh, magnifying glass, etc.
 - Text input: **Limit to 1000 rows**
 - Result Grid panel:
 - Header: Pid, Eid
 - Data row: **NULL, NULL**
 - Buttons: Result Grid, Filter Rows, Search, Edit, Export/Import.
 - Action Output panel:
 - Header: Action Output
 - Table:| | Time | Action | Response | Duration / Fetch Time |
| --- | --- | --- | --- | --- |
| 6 | 20:11:48 | CREATE TABLE Associate(Pid INT, Eid INT, CONSTRAINT fk_ChocProductAS FOREIGN...) | 0 row(s) affected | 0.100 sec |
 - Right Sidebar**:
 - Result Grid, Form Editor, Field Types buttons.
 - Status Bar**:
 - Zoom: 100%
 - Ratio: 1:1
 - Bottom Status**:
 - Associate 1
 - Buttons: Apply, Revert



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 an `INSERT` statement into the `Ingredients` table. The `Associate` table has columns `Pid` and `Eid`, with foreign keys referencing `ChocolateProducts` and `Employee` respectively. The `Ingredients` table insert statement adds five rows with `ingredient_id` values 1 through 5 and their respective names and quantities.

At the bottom of the screen, the Action Output pane shows the results of the last two statements:

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, pid) VALUES(1,1),(2,1),(3,1),(4,1),(5,1),(6,1),(7,1),(8,1),(9,1),(10,1) 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:** SELECT * FROM WillyWonkaFactoryDB.Ingredients;
- Result Grid:** Displays the following data:

	ingredient...	ingredient_na...	quantity
1	Cocoa Powder	100	
2	Sugar	200	
3	Milk	150	
4	Vanilla Extract	50	
5	Cocoa Butter	300	
HULL	HULL	HULL	

- Object Info:** No object selected.
- Action Output:** Shows two rows of log output:

	Time	Action	Response	Duration / Fetch Time
18	16:08:59	INSERT INTO Used (lid, Pid) 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)	12 row(s) affected Records: 12 Duplicates: 0 Warnings: 0	0.00096 sec
19	16:10:35	SELECT * FROM WillyWonkaFactoryDB.Ingredients LIMIT 0, 1000	5 row(s) returned	0.0010 sec / 0.00000 sec

Inserting values into ChocolateProducts table.

Administration Schemas WillyWonkaFactoryDB* Ingredients

SCHEMAS Filter objects

- > mydatabase
- > mydatabase3
- > myuni
- > Retal
- > sakila
- > sakila22
- > sys
- WillyWonkaFactoryDB
 - Tables
 - > Associate
 - > Choco_Flavors
 - > ChocolateProducts
 - > Company
 - > Deliver
 - > Employee
 - > Ingredients
 - > Offer
 - > Receives
 - > Used
 - Views

Object Info Session

No object selected

```
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:

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

- Toolbar:** Administration, Schemas, WillyWonkaFactoryDB*, Ingredients, ChocolateProducts.
- Schemas Panel:** mydatabase, mydatabase3, myuni, Retal, sakila, sakila22, sys, WillyWonkaFactoryDB (selected).
- Query Editor:** SELECT * FROM WillyWonkaFactoryDB.ChocolateProducts;
- Result Grid:** Shows the data from the ChocolateProducts table.

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:** No object selected.
- Action Output:** Shows the history of actions taken on the database.

Inserting values into Used table.

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

- Schemas:** Administration, Schemas, WillyWonkaFactoryDB*, Ingredients, ChocolateProducts.
- Tables:** Associate, Choco_Flavors, ChocolateProducts, Company, Deliver, Employee, Ingredients, Offer, Receives, Used.
- Code Editor:** SQL editor showing the creation of the Associate table and the insertion of data into the Used table.
- 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.ChocolateProducts LIMIT 0, 1000		0.0000 sec / 0.00000...

Result:

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

- Administration** and **Schemas** tabs are selected in the top bar.
- The current schema is **WillyWonkaFactoryDB***.
- The **Used** table is selected in the object browser.
- A query window displays the SQL 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	0.00004 sec / 0.000...

Inserting values into choco_flavors table.

The screenshot shows a SQL Management Studio interface with the following details:

- Navigator:** Shows the database schema with the **willywonkafactorydb** database selected.
- SQL File 3* WillyWonkaFactoryDB***: The current query tab contains the following SQL code:

```
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
```

- Information:** Shows the schema is **willywonkafactorydb**.
- Output:** Shows the execution results in the Action Output tab.

#	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

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 X

1 • SELECT * FROM willywonkafactorydb.choco_flavors;

Limit to 1000 rows

Result Grid | Filter Rows: Edit: Export/Import: Wrap Cell Content: Result Grid Form Editor Field Types Query Stats Execution Plan

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 query window contains the following SQL code:

```
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 • 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 • 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
```
- Output:** A table showing the execution history and results of the queries.

#	Time	Action	Message	Duration / Fetch
1	21:07:34	SELECT * FROM willywonkafactorydb.choco_flavors LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
2	21:08:15	INSERT INTO Employee (EmployeeID,fName,lName,PhoneNumber,Salary,Position)VALUES(1,'Jhon','...')	Error Code: 1136. Column count doesn't match value count at row 1	0.015 sec
3	21:10:47	SELECT * FROM coursedb.instructor LIMIT 0, 1000	4 row(s) returned	0.000 sec / 0.000 sec
4	21:11:05	SELECT * FROM coursedb.teachingassistant LIMIT 0, 1000	2 row(s) returned	0.000 sec / 0.000 sec
5	21:26:51	INSERT INTO Employee (EmployeeID,fName,lName,PhoneNumber,Salary,Position)VALUES(1,'Jhon','...')	Error Code: 1406. Data too long for column 'Position' at row 1	0.015 sec

Result:

Schemas

Filter objects

- aghared
- coursedb
- farmacy
- myunidb
- myunidb2
- suha
- sys
- willywonkafactorydb
 - Tables
 - associate
 - choco_flavors
 - chocolateproducts
 - company
 - deliver
 - employee
 - ingredients
 - offer
 - receives
 - used

Administration Schemas

Information

Column: salary

Definition:

```
salary decimal(7,2)
```

SQL File 3* WillyWonkaFactoryDB* choco_flavors employee

1 • `SELECT * FROM willywonkafactorydb.employee;`

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

	EmployeeID	FName	IName	PhoneNumber	Salary	Position
▶	1	Jhon	Doe	555548917	2500.00	Production
▶	2	Jane	Smith	59099034	4300.00	Deliver
▶	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	NULL

Result Grid | Form Editor | Field Types | Query Stats | Execution Plan

employee 1 ×

Action Output

#	Time	Action	Message	Duration / Fetch
3	21:08:15	INSERT INTO Employee (EmployeeID,fName,IName,PhoneNumber,Salary,Position) VALUES(1,'Jhon','Doe',555548917,2500.00,'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,IName,PhoneNumber,Salary,Position) VALUES(1,'Jhon','Doe',555548917,2500.00,'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,IName,PhoneNumber,Salary,Position) VALUES(1,'Jhon','Doe',555548917,2500.00,'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 schema tree for the **willywonkafactorydb** database, including **Tables**, **Views**, **Stored Procedures**, and **Functions**.
- SQL File 3*** tab: The current tab, showing the SQL script being run.
- Script pane:** Displays the following SQL code:

```
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 • 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 • INSERT INTO Employee (EmployeeID, fName, lName, PhoneNumber, Salary, Position)
120     VALUES(1, 'Jhon', 'Doc', '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);
```
- Output pane:** Shows the execution log with the following entries:

#	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', 'Do...', ...)	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

Result:

Schemas

Filter objects

- farmacy
- myunidb
- myunidb2
- suh
- sys
- willywonkafactorydb
 - Tables
 - associate
 - choco_flavors
 - chocolateproducts
 - company
 - deliver
 - employee
 - ingredients
 - offer

Administration Schemas

Information

Table: associate

Columns:

- Pid int PK
- Eid int PK

SQL File 3* WillyWonkaFactoryDB* associate x

Limit to 1000 rows

1 • SELECT * FROM willywonkafactorydb.associate;

Result Grid | Filter Rows: Edit: Export/Import: Wrap Cell Contents: Result Grid Form Editor Field Types Query Stats Execution Plan

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

associate 1 x

Output

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', 'Doe', '123-4567890', 50000, 'Manager')	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

Object Info Session

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. The main editor area contains the following SQL script:

```
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 execution results:

Time	Action	Response	Duration / Fetch Time
22:05:55	SELECT * FROM WillyWonkaFactoryDB.Used LIMIT 0, 1000	12 row(s) returned	0.000077 sec / 0.000000
22:06:12	INSERT INTO Deliver (Eid, Oid) 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.	0.00042 sec

Result:

The screenshot shows the MySQL Workbench application interface. The left sidebar displays the database schema structure under 'WillyWonkaFactoryDB'. The main area contains a query editor with the following SQL code:

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

The result grid shows the following data:

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

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

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	
18 22:16:43	SELECT * FROM WillyWonkaFactoryDB.Company LIMIT 0, 1000	5 row(s) returned	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 WillyWonkaFactoryDB schema is expanded, showing its internal structure.
- Code Area:** Displays a sequence of SQL statements numbered 118 to 147. The statements are:

```
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
```
- Status Bar:** Shows 100% completion and a timestamp of 1:149.
- Action Output:** A table showing the execution of the last statement:

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	
18 22:16:43	SELECT * FROM WillyWonkaFactoryDB.Companies LIMIT 0, 1000	7 rows(s) returned	0.0060 sec / 0.0000 sec

Result:

Schemas Administration Schemas WillyWonkaFactoryDB_NEW* Receives

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.Receives;`

100% 1:1

Result Grid Filter Rows: Search Edit: Export/Import: Result Grid Form Editor Field Types

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

Receives 1 Apply Revert

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 22:18:38	SELECT * FROM WillyWonkaFactoryDB.Receives LIMIT 0, 1000	7 row(s) returned	0.0010 sec / 0.0000...

Inserting values into Offer table.

The screenshot shows the Oracle SQL Developer interface. The left pane displays the 'SCHEMAS' tree, which includes the 'Administration' tab, 'Schemas' tab, and the current schema 'WillyWonkaFactoryDB_NEW*'. Under 'WillyWonkaFactoryDB', there are tables like 'Associate', 'Choco_Flavors', 'ChocolateProducts', 'Company', 'Deliver', 'Employee', 'Ingredients', 'Offer', 'Receives', 'Used', 'Views', 'Stored Procedures', and 'Functions'. The right pane shows a code editor with the following SQL script:

```
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
```

The bottom pane shows the 'Action Output' tab with two rows of log entries:

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:

Schemas Administration Schemas WillyWonkaFactoryDB_NEW* Receives Offer

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.Offer;`

100% 1:1

Result Grid Filter Rows: Search Edit: Export/Import: Result Grid Form Editor Field Types

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
HULL	HULL	HULL	HULL

No object selected

Offer 1 Apply Revert

Action Output

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...

Inserting values into Deliver table.

The screenshot shows a database interface with the following details:

- Schemas:** Administration, Schemas, WillyWonkaFactoryDB_NEW*, Receives, Offer.
- Tables:** Tables, Views, Stored Procedures, Functions, sys, WillyWonkaFactoryDB, Tables, Associate, Choco_Flavors, ChocolateProducts, Company, Deliver, Employee, Ingredients, Offer, Receives, Used, Views, Stored Procedures, Functions.
- Code Area:** Displays SQL code for inserting data into various tables. The code includes:
 - INSERT INTO Associate (Pid, Eid) VALUES (1, 4), (2, 1), (3, 3), (4, 5), (5, 2), (2, 5), (4, 3);
 - INSERT INTO Company (CompanyID, ContactPerson, Name, AnnualProfit, Address, ContactNumber) VALUES (1, 'Malek', 'Velvet Truffles', 27.0, '123 Main Street', '0555531471'), (2, 'Ahmed', 'Cocoa Couture', 35.0, '456 Elm Street', '0555537487'), (3, 'Tala', 'Cocoa Haven', 17.0, '789 Oak Street', '0555576163'), (4, 'Omar', 'Cocoa Kingdom', 12.0, '123 Main Street', '0506080922'), (5, 'Shatha', 'Chocolate Breeze', 19.0, '456 Elm Street', '0555576164');
 - INSERT INTO Receives (Pid, Cid) VALUES (1, 4), (2, 1), (3, 3), (4, 5), (5, 2), (2, 5), (4, 3);
 - INSERT INTO Offer (StartDate, DiscountPercentage, EndDate, PID) VALUES ('2024-02-22', 30, '2024-02-27', 1), ('2024-09-23', 50, '2024-09-28', 2), ('2024-11-29', 20, '2024-12-03', 3), ('2024-02-14', 22, '2024-02-19', 4), ('2024-12-26', 25, '2024-12-31', 5);
 - INSERT INTO Deliver (Eid, Cid) VALUES (4, 3), (4, 5), (3, 3), (2, 1), (5, 2), (2, 5), (1, 4);
- Action Output:** Shows the results of the last two queries:

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
22:19:56	SELECT * FROM WillyWonkaFactoryDB.Offer LIMIT 0, 1000	5 row(s) returned	0.0015 sec / 0.00000...
22:20:20	SELECT * FROM WillyWonkaFactoryDB.Deliver LIMIT 0, 1000	7 row(s) returned	0.0010 sec / 0.00000...
- Right Panel:** A sidebar with three tabs: Result Grid (selected), Form Editor, and Field Types.



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 SQL developer interface with the following details:

- Toolbar:** Administration, Schemas, WillyWonkaFactoryDB_NEW*
- Schemas Tree:** Shows SCHEMAS, sys, WillyWonkaFactoryDB, and its sub-tables: Associate, Choco_Flavors, ChocolateProducts, Company, Deliver, Employee, Ingredients, Offer, Receives, Used, Views, Stored Procedures, Functions.
- Query Editor:** Displays the following SQL code:

```
145      ('2024-12-26', 25, '2024-12-31', 5); -- Offer for Chocolate Spread
146
147 • INSERT INTO Deliver (Eid, Cid)
148   VALUES (4,3),
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';
```
- Result Grid:** Shows the results of the query. The table has columns: EmployeeID, fName, lName, PhoneNumber, Salary, Position. One row is displayed:

EmployeeID	fName	lName	PhoneNumber	Salary	Position
3	Retal	Malki	558906427	5000.00	Manager
- Action Output:** Shows the history of actions taken:

Time	Action	Response	Duration / Fetch Time
23 22:26:51	SELECT ingredient_name FROM Ingredients LIMIT 0, 1000	5 row(s) returned	0.0016 sec / 0.00001...
24 22:26:55	SELECT * FROM Employee WHERE fName = 'Retal' LIMIT 0, 1000	1 row(s) returned	0.002 sec / 0.00001...

Retrieves the product_name column from the "ChocolateProducts" table for products that have a product_id value equal to 2.

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

- Left Panel (Schemas):** Shows the database structure. Under the schema **WillyWonkaFactoryDB**, there is a table named **ChocolateProducts**.
- Central Panel (Query Editor):** Displays the following SQL 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;
```
- Result Grid:** Shows the output of the last query:

product_name
Milk Chocolate Bar
- Action Output:** Shows the execution 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	0.022 sec / 0.000050...
- Right Panel (Tool Buttons):** Includes buttons for Result Grid, Form Editor, Field Types, and a Read Only status indicator.

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
NONE	NONE	NONE

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 "List instructor ID, name, and SSN of all instructors, arranged in descending order of instructorI". The grid 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

The status bar at the bottom indicates "Output" and "Action Output". The action output log shows the following history:

#	Time	Action	Message	Duration / Fetch
1	18:29:00	DROP DATABASE 'willywonkafactorydb'	10 row(s) affected	0.078 sec
2	18:32:28	SELECT * FROM willywonkafactorydb.choco_flavors LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
3	18:32:42	SELECT * FROM willywonkafactorydb.employee LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
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

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 query editor displays the following SQL code:

```
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, the results are displayed in a grid:

	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 interface, there is a vertical toolbar with four options: Result Grid (selected), Form Editor, Field Types, and Query Stats. Below the toolbar, there is a tab labeled "employee 5" and an "Output" section. The "Action Output" table shows the following information:

#	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

On the right side, there is a vertical toolbar with icons for different features: Result Grid (selected), Form Editor, Field Types, and Query Stats. Below the toolbar, the status bar shows "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. At the top, there's a toolbar with various icons. Below it is the SQL editor window containing the following 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;
```

Below the SQL editor is the Result Grid window, which displays the following data:

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

On the right side of the interface, there's a vertical toolbar with four items: Result Grid (selected), Form Editor, Field Types, and Query Stats.

At the bottom left, there's a "Result 15" tab and an "Output" section. The Output section contains an "Action Output" table with the following data:

#	Time	Action	Message	Duration / Fetch
32	19:23:29	SELECT * FROM willywonkafactorydb.chocolateproducts LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
33	19:25:29	SELECT CPflavor, COUNT(*) AS Product_count FROM choco_flavors cf JOIN chocolateproducts p ON cf.p...	Error Code: 1054. Unknown column 'cf.choco_flavors' in 'group statement'	0.000 sec
34	19:25:38	SELECT CPflavor, COUNT(Product_ID) AS Product_count FROM choco_flavors cf JOIN chocolateproducts p ON cf.p...	Error Code: 1052. Column 'Product_ID' in field list is ambiguous	0.000 sec
35	19:26:27	SELECT cf.CPflavor, COUNT(Product_ID) AS Product_count FROM choco_flavors cf JOIN chocolateproducts p ON cf.p...	Error Code: 1052. Column 'Product_ID' in field list is ambiguous	0.000 sec
36	19:26:47	SELECT cf.CPflavor, COUNT(Product_ID) AS Product_count FROM choco_flavors cf JOIN chocolateproducts p ON cf.p...	Error Code: 1052. Column 'Product_ID' in field list is ambiguous	0.000 sec
37	19:28:18	SELECT cf.CPflavor, COUNT(*) AS product_count FROM choco_flavors cf JOIN chocolateproducts p ON cf.p...	5 row(s) returned	0.000 sec / 0.000 sec

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

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

- Query Editor:** Displays a multi-line SQL query. The first part selects product names from ChocolateProducts where their product_id is in a subquery of offers valid until CURDATE(). The second part adds a column for delivery counts by joining Company and Deliver tables.
- Result Grid:** Shows the output of the query, listing five product names: Darch Chocolate Bar, Milk Chocolate Bar, White Chocolate Bar, Assorted Chocolates, and Chocolate Spread.
- Session History:** A table at the bottom shows the execution history of the query, listing 16 rows from ID 62 to 74, each detailing a SELECT statement and its execution time, response count, duration, and fetch time.
- Toolbar:** Includes standard icons for file operations, database management, and search.
- Schemas:** A sidebar showing available databases like db2, Farmacy, sakila, sql_hr, sql_inventory, sql_invoicing, sql_store, sys, unidb, and WillyWonkaFactoryDB.

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

Local instance 3306

Administration Schemas

SCHEMAS

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

Result Grid Filter Rows: Search Export:

Company_Contact	delivery_cou...
Malek	1
Ahmed	1
Tala	2
Ormar	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

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	♥	♥	♥