

## Nora's Bagel Bin Database Blueprints

### 1. Nora's Bagel Bin: 2NF

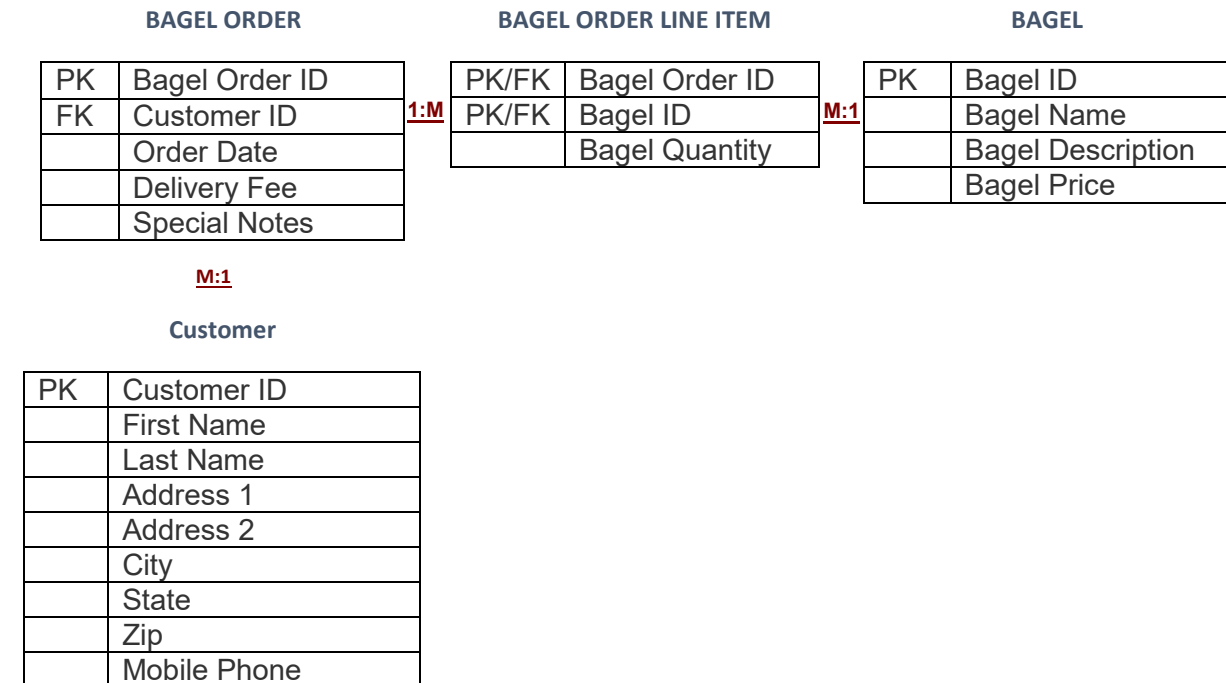
BAGEL ORDER			BAGEL ORDER LINE ITEM			BAGEL	
PK	Bagel Order ID	1:M	PK/FK	Bagel Order ID	M:1	PK	Bagel ID
	Order Date		PK/FK	Bagel ID			Bagel Name
	First Name			Bagel Quantity			Bagel Description
	Last Name						Bagel Price
	Address 1						
	Address 2						
	City						
	State						
	Zip						
	Mobile Phone						
	Delivery Fee						
	Special Notes						

---

To transition from 1NF to 2NF three tables were created. The tables above are “Bagel Order”, “Bagel Order Line Item”, and “Bagel”. The three tables were created because 2NF does not have any non-attribute keys that is functionally dependent on any candidate key. “Bagel Order” and “Bagel” tables has Primary keys while the “Bagel Order Line Item” has both primary keys that intersects both tables.

The relationship between “Bagel Order” and “Bagel Order Line Item” from left to right is one-to-many. A “Bagel Order” has many orders line items. From right to left, “Bagel Order Line Item” has one bagel order. The “Bagel Order Line Item” has many-to-one relationship with “Bagel”. From left to right, “Bagel Order Line Item” has one “Bagel”. From right to left, “Bagel” has many “Bagel Order Line Items”.

## 2. Third normal form (3NF) “Nora’s Bagel Bin Database Blueprints”:

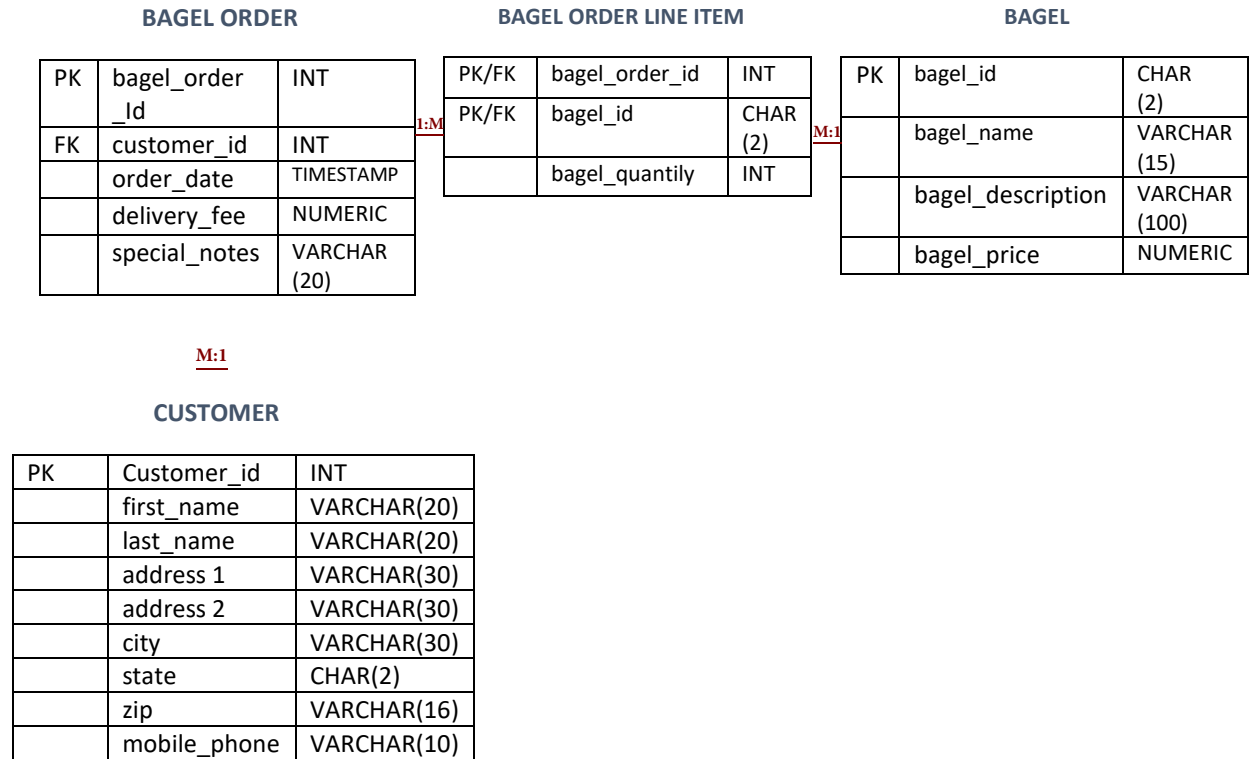


For a table to be considered in 3NF all transitive dependencies must be removed. The “Customer” table was added to remove the transitive dependencies; making it a foreign key in the “Bagel Order” table.

The table above shows from up-to-down that the “Bagel Order” table has a many-to-one relationship with the “customer” table; “Bagel Order” has one customer; customer has many “Bagel Orders”. The “Bagel order” table has a one-to-many relationship with the “Bagel Order Line Item” table; from left-to-right, the “bagel order” has many order line items; from right-to-left, the “Bagel order line items” has one bagel. The “Bagel Order Line Item” has a many-to-one relationship with the “Bagel” table; from left-to-right, “Bagel Order Line Item” has one bagel; read from right-to-left “Bagel” has many “Bagel Order Line Items”.

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**VHT2 Task 1: NORMALIZATION AND DATABASE DESIGN**  
**Albreian Joseph**

**3. "Final Physical Database Model": “Nora’s Bagel Bin Database Blueprints”:**



## Jaunty Coffee Co. ERD

### 1. SQL code “Jaunty Coffee Co. ERD”:

```
CREATE TABLE EMPLOYEE
(
  employee_id INT NOT NULL,
  first_name VARCHAR(30),
  last_name VARCHAR(30),
  hire_date DATE,
  job_title VARCHAR(30),
  shop_id INT,
  PRIMARY KEY (employee_id),
);
```

```
CREATE TABLE COFFEE_SHOP
(
  shop_id INT NOT NULL,
  shop_name VARCHAR(30),
  city VARCHAR(30),
  state CHAR(2),
  PRIMARY KEY (shop_id)
);
```

```
CREATE TABLE COFFEE
(
  coffee_id INT NOT NULL,
  shop_id INT,
  supplier_id INT,
  coffee_name VARCHAR(30),
  price_per_pound NUMERIC(5,2),
  PRIMARY KEY (coffee_id),
  FOREIGN KEY (shop_id) REFERENCES COFFEE_SHOP (shop_id)
);
```

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## VHT2 Task 1: NORMALIZATION AND DATABASE DESIGN

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CREATE TABLE SUPPLIER

```
(  
  supplier_id INT NOT NULL,  
  company_name VARCHAR(50),  
  country VARCHAR(30),  
  sales_contact_name VARCHAR(60),  
  email VARCHAR(50) NOT NULL,  
  PRIMARY KEY (supplier_id),  
);
```

ALTER TABLE COFFEE

ADD FOREIGN KEY (supplier\_id) REFERENCES SUPPLIER (supplier\_id);

```
1 CREATE TABLE EMPLOYEE  
2 (  
3   employee_id INT,  
4   first_name VARCHAR(30),  
5   last_name VARCHAR(30),  
6   hire_date DATE,  
7   job_title VARCHAR(30),  
8   shop_id INT,  
9   PRIMARY KEY (employee_id)  
10 );  
11  
12 CREATE TABLE COFFEE_SHOP  
13 (  
14   shop_id INT,  
15   shop_name VARCHAR(30),  
16   city VARCHAR(30),  
17   state CHAR(2),  
18   PRIMARY KEY (shop_id)  
19 );  
20  
21 ALTER TABLE EMPLOYEE  
22 ADD FOREIGN KEY (shop_id) REFERENCES COFFEE_SHOP (shop_id);  
23  
24 CREATE TABLE COFFEE  
25 (  
26   coffee_id INT,  
27   shop_id INT,  
28   supplier_id INT,  
29   coffee_name VARCHAR(30),  
30   price_per_pound NUMERIC(5,2),  
31   PRIMARY KEY (coffee_id),  
32   FOREIGN KEY (shop_id) REFERENCES COFFEE_SHOP (shop_id)
```

[Build Schema](#) [Edit Fullscreen](#) [Browser](#) [\[.\]](#)

✓ Record Count: 0; Execution Time: 9ms [View Execution Plan](#) [link](#)

✓ Record Count: 0; Execution Time: 6ms [View Execution Plan](#) [link](#)

✓ Record Count: 0; Execution Time: 4ms [View Execution Plan](#) [link](#)

✓ Record Count: 0; Execution Time: 9ms [View Execution Plan](#) [link](#)

```
1 SELECT *  
2 FROM EMPLOYEE;  
3  
4 SELECT *  
5 FROM COFFEE_SHOP;  
6  
7 SELECT *  
8 FROM COFFEE;  
9  
10 SELECT *  
11 FROM SUPPLIER;  
12  
13  
14
```

[Run SQL](#) [Edit Fullscreen](#) [\[.\]](#)

**2. SQL code to populate *each* table:**

```
INSERT INTO COFFEE_SHOP (shop_id, shop_name, city, state) VALUES  
(10, 'NOLA CAFE', 'NEW ORLEANS', 'LA'),  
(20, 'FRENCH CAFE', 'HARVEY', 'LA'),  
(30, 'CANAL CAFE', 'METAIRIE', 'LA');
```

```
INSERT INTO EMPLOYEE (employee_id, first_name, last_name, hire_date, job_title,  
shop_id) VALUES  
(100, 'EDWARD', 'GORDON', '2023-01-12', 'waiter', 50),  
(200, 'BRANDON', 'DAVIS', '2023-02-15', 'waiter', 100),  
(300, 'CHRIS', 'HORTON', '2023-03-10', 'cook', 150);
```

```
INSERT INTO SUPPLIER (supplier_id, company_name, country,  
sales_contact_name, email) VALUES  
(40, 'HALLOW BEAN', 'USA', 'TOMMY BROWN', 'tbrown@company.com'),  
(50, 'SPOOKY BUCKS', 'CANADA', 'JILL DAVIS', 'jdavis@company.com'),  
(60, 'COCO BEAN', 'PUERTO RICO', 'JOSE SAN', 'jsan@company.com');
```

```
INSERT INTO COFFEE (coffee_id, shop_id, supplier_id, coffee_name, price_per_pound)  
VALUES  
(5, 10, 60, 'HOT BEAN', 1.50),  
(10, 30, 40, 'SPOOKE', 2.00),  
(15, 20, 50, 'MIDNIGHT', 2.50);
```

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employee_id	first_name	last_name	hire_date	job_title	shop_id
100	EDWARD	ORDON	2023-01-12	waiter	50
200	BRANDON	DAVIS	2023-02-15	waiter	100
300	CHRIS	HORTON	2023-03-10	cook	150

Record Count: 3, Execution Time: 6ms [View Execution Plan](#) [Link](#)

shop_id	shop_name	city	state
10	NOLA CAFE	NEW ORLEANS	LA
20	FRENCH CAFE	HARVEY	LA
30	CANAL CAFE	METairie	LA

Record Count: 3, Execution Time: 23ms [View Execution Plan](#) [Link](#)

coffee_id	shop_id	supplier_id	coffee_name	price_per_pound
5	10	80	HOT BEAN	1.5
10	30	40	SPOOKE	2
15	20	50	MIDNIGHT	2.5

Record Count: 3, Execution Time: 2ms [View Execution Plan](#) [Link](#)

supplier_id	company_name	country	sales_contact_name	email
40	HALLOW BEAN	USA	TOMMY BROWN	tbrown@company.com
50	SPOOKY BUCKS	CANADA	JILL DAVIS	jdavis@company.com
60	COCO BEAN	PUERTO RICO	JOSE SAN	jsan@company.com

Record Count: 3, Execution Time: 3ms [View Execution Plan](#) [Link](#)

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#### 3. Create a view:

CREATE VIEW EMPLOYEE\_VIEW

AS SELECT employee\_id,

CONCAT (first\_name,' ',last\_name)

AS employee\_full\_name, hire\_date, job\_title, shop\_id

FROM EMPLOYEE;

The screenshot displays a database management interface. On the left, a SQL editor contains a script with various database operations, including table creation, data insertion, and view creation. The script is as follows:

```
39 sales_contact_name VARCHAR(50);
40 email VARCHAR(50) NOT NULL,
41 PRIMARY KEY (supplier_id),
42 );
43
44 ALTER TABLE COFFEE
45 ADD FOREIGN KEY (supplier_id) REFERENCES SUPPLIER (supplier_id);
46
47 INSERT INTO COFFEE_SHOP (shop_id, shop_name, city, state) VALUES
48 (10, 'NOLA CAFE', 'NEW ORLEANS', 'LA'),
49 (20, 'FRENCH CAFE', 'HARVEY', 'LA'),
50 (30, 'CANAL CAFE', 'METAIRIE', 'LA');
51
52 INSERT INTO EMPLOYEE (employee_id, first_name, last_name, hire_date, job_title, shop_id) VALUES
53 (100, 'EDWARD', 'GORDON', '2023-01-12', 'waiter', 50),
54 (200, 'BRANDON', 'DAVIS', '2023-02-15', 'waiter', 100),
55 (300, 'CHRIS', 'HORTON', '2023-03-10', 'cook', 150);
56
57 INSERT INTO SUPPLIER (supplier_id, company_name, country, sales_contact_name, email) VALUES
58 (40, 'HALLOW BEAN', 'USA', 'TOMMY BROWN', 'tbrown@company.com'),
59 (50, 'SPOOKY BUCKS', 'CANADA', 'JILL DAVIS', 'jddavis@company.com'),
60 (60, 'COCO BEAN', 'PUERTO RICO', 'JOSE SAN', 'jsan@company.com');
61
62 INSERT INTO COFFEE (coffee_id, shop_id, supplier_id, coffee_name, price_per_pound) VALUES
63 (510, 60, 'HOT BEAN', 1.50),
64 (10, 30, 40, 'SPOOKE', 2.00),
65 (15, 20, 50, 'MIDNIGHT', 2.50);
66
67 CREATE VIEW EMPLOYEE_VIEW
68 AS SELECT employee_id,concat(first_name,' ', last_name)
69 AS employee_full_name, hire_date, job_title, shop_id
70 FROM EMPLOYEE;
```

On the right, a query window shows the execution of a SELECT statement:

```
1 SELECT *
2 FROM EMPLOYEE_VIEW
3
4
```

Below the SQL editor, a table displays the results of the query. The table has five columns: employee\_id, employee\_full\_name, hire\_date, job\_title, and shop\_id. It contains three rows of data:

employee_id	employee_full_name	hire_date	job_title	shop_id
100	EDWARDGORDON	2023-01-12	waiter	50
200	BRANDONDAVIS	2023-02-15	waiter	100
300	CHRISHORTON	2023-03-10	cook	150

At the bottom, a status bar indicates: Record Count: 3, Execution Time: 5ms, View Execution Plan, and a link.

#### 4. Create an index:

CREATE INDEX coffee\_name

ON COFFEE (coffee\_name);

The screenshot shows a database management interface with a SQL editor on the left and a schema status bar at the bottom. The SQL editor contains the following script:

```
71
72 CREATE INDEX coffee_name ON COFFEE (coffee_name);
73
74
75
76
```

Below the SQL editor, a status bar indicates: Schema Ready.



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### VHT2 Task 1: NORMALIZATION AND DATABASE DESIGN

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#### 5. Create an SFW (SELECT-FROM-WHERE):

```
SELECT supplier_id  
FROM SUPPLIER  
WHERE supplier_id >= 40;
```

The screenshot displays a SQL IDE interface. The main editor contains a script with the following SQL statements:

```
45 ADD FOREIGN KEY (supplier_id) REFERENCES SUPPLIER (supplier_id);  
46  
47 INSERT INTO COFFEE_SHOP (shop_id, shop_name, city, state) VALUES  
48 (10, 'NOLA CAFE', 'NEW ORLEANS', 'LA'),  
49 (20, 'FRENCH CAFE', 'HARVEY', 'LA'),  
50 (30, 'CANAL CAFE', 'METAIRIE', 'LA');  
51  
52 INSERT INTO EMPLOYEE (employee_id, first_name, last_name, hire_date, job_title, shop_id) VALUES  
53 (100, 'EDWARD', 'GORDON', '2023-01-12', 'waiter', 50),  
54 (200, 'BRANDON', 'DAVIS', '2023-02-15', 'waiter', 100),  
55 (300, 'CHRIS', 'HORTON', '2023-03-10', 'cook', 150);  
56  
57 INSERT INTO SUPPLIER (supplier_id, company_name, country, sales_contact_name, email) VALUES  
58 (40, 'HALLOW BEAN', 'USA', 'TOMMY BROWN', 'tbrown@company.com'),  
59 (50, 'SPOOKY BUCKS', 'CANADA', 'JILL DAVIS', 'jdavis@company.com'),  
60 (60, 'COCO BEAN', 'PUERTO RICO', 'JOSE SAN', 'jsan@company.com');  
61  
62 INSERT INTO COFFEE (coffee_id, shop_id, supplier_id, coffee_name, price_per_pound) VALUES  
63 (5, 10, 60, 'HOT BEAN', 1.50),  
64 (10, 30, 40, 'SPOOKE', 2.00),  
65 (15, 20, 50, 'MIDNIGHT', 2.50);  
66  
67 CREATE VIEW EMPLOYEE_VIEW  
68 AS SELECT employee_id, concat(first_name, ' ', last_name)  
69 AS employee_full_name, hire_date, job_title, shop_id  
70 FROM EMPLOYEE;  
71  
72 CREATE INDEX coffee_index ON COFFEE (coffee_name);  
73  
74  
75  
76
```

Below the script, there are buttons: "Build Schema", "Edit Fullscreen", "Browser", and a dropdown menu. To the right, a smaller editor shows the query being executed:

```
1 SELECT supplier_id  
2 FROM SUPPLIER  
3 WHERE supplier_id >= 40;  
4  
5
```

Below these editors, there are buttons: "Run SQL", "Edit Fullscreen", and a dropdown menu. The execution results are displayed in a table:

supplier_id
40
50
60

At the bottom, a status bar shows: "Record Count: 3; Execution Time: 41ms" with links to "View Execution Plan" and "link".

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## VHT2 Task 1: NORMALIZATION AND DATABASE DESIGN

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#### 6. Create table joins query:

```
SELECT *  
  
FROM EMPLOYEE M FULL JOIN COFFEE C  
  
ON m.shop_id=c.shop_id  
  
FULL JOIN COFFEE_SHOP CS  
  
ON c.shop_id=m.shop_id;
```

```
35 supplier_id INT NOT NULL,  
36 company_name VARCHAR(50),  
37 country VARCHAR(50),  
38 sales_contact_name VARCHAR(50),  
39 email VARCHAR(50) NOT NULL,  
40 PRIMARY KEY (supplier_id),  
41 );  
42  
43 ALTER TABLE COFFEE  
44 ADD FOREIGN KEY (shop_id) REFERENCES SUPPLIER (supplier_id);  
45  
46 INSERT INTO COFFEE_SHOP (shop_id, shop_name, city, state) VALUES  
47 (10, 'NOLA CAFE', 'NEW ORLEANS', 'LA'),  
48 (20, 'FRENCH CAFE', 'HARVEY', 'LA'),  
49 (30, 'CANAL CAFE', 'METAIRIE', 'LA');  
50  
51 INSERT INTO EMPLOYEE (employee_id, first_name, last_name, hire_date, job_title, shop_id) VALUES  
52 (100, 'EDWARD', 'GORDON', '2023-01-12', 'waiter', 50),  
53 (200, 'BRANDON', 'DAVIS', '2023-02-15', 'waiter', 100),  
54 (300, 'CHRIS', 'HORTON', '2023-03-10', 'cook', 150);  
55  
56 INSERT INTO SUPPLIER (supplier_id, company_name, country, sales_contact_name, email) VALUES  
57 (40, 'HOLLID BEANS', 'USA', 'TOMMY BROWN', 'tbr@company.com'),  
58 (50, 'SPICY BEETS', 'CANADA', 'JILL DAVIS', 'jldavis@company.com'),  
59 (60, 'COCO BEAN', 'PUERTO RICO', 'JOSE SAN', 'jsan@company.com');  
60  
61  
62 CREATE INDEX coffee_name ON COFFEE (coffee_name);  
63  
64  
65
```

```
1 SELECT *  
2 FROM EMPLOYEE M FULL JOIN COFFEE C  
3 ON m.shop_id=c.shop_id  
4 FULL JOIN COFFEE_SHOP CS  
5 ON c.shop_id=m.shop_id  
6
```

Build Schema

Edit Fullscreen

Browser

[-]

Run SQL

Edit Fullscreen

[-]

employee_id	first_name	last_name	hire_date	job_title	shop_id	coffee_id	shop_id	supplier_id	coffee_name	price_per_pound	shop_id	shop_name	city	state
100	EDWARD	GORDON	2023-01-12	waiter	50	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)
200	BRANDON	DAVIS	2023-02-15	waiter	100	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)
300	CHRIS	HORTON	2023-03-10	cook	150	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)
(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	10	NOLA CAFE	NEW ORLEANS	LA
(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	20	FRENCH CAFE	HARVEY	LA
(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	(null)	30	CANAL CAFE	METAIRIE	LA

Record Count: 6, Execution Time: 73ms

View Execution Plan

Link