Hayley Wilkinson C170 PA

Requirement A.1a-A.1b

Second Normal Form (2NF)

BAGEL ORDER	
PK	Bagel Order ID
	Order Date
	First Name
	Last Name
	Address 1
	Address 2
	City
	State
	Zip
	Mobile Phone
	Delivery Fee
	Special Notes

1:M

BAGEL ORDER LINE ITEM	
PK / FK	Bagel Order ID
PK / FK	Bagel ID
	Bagel Quantity

M:1

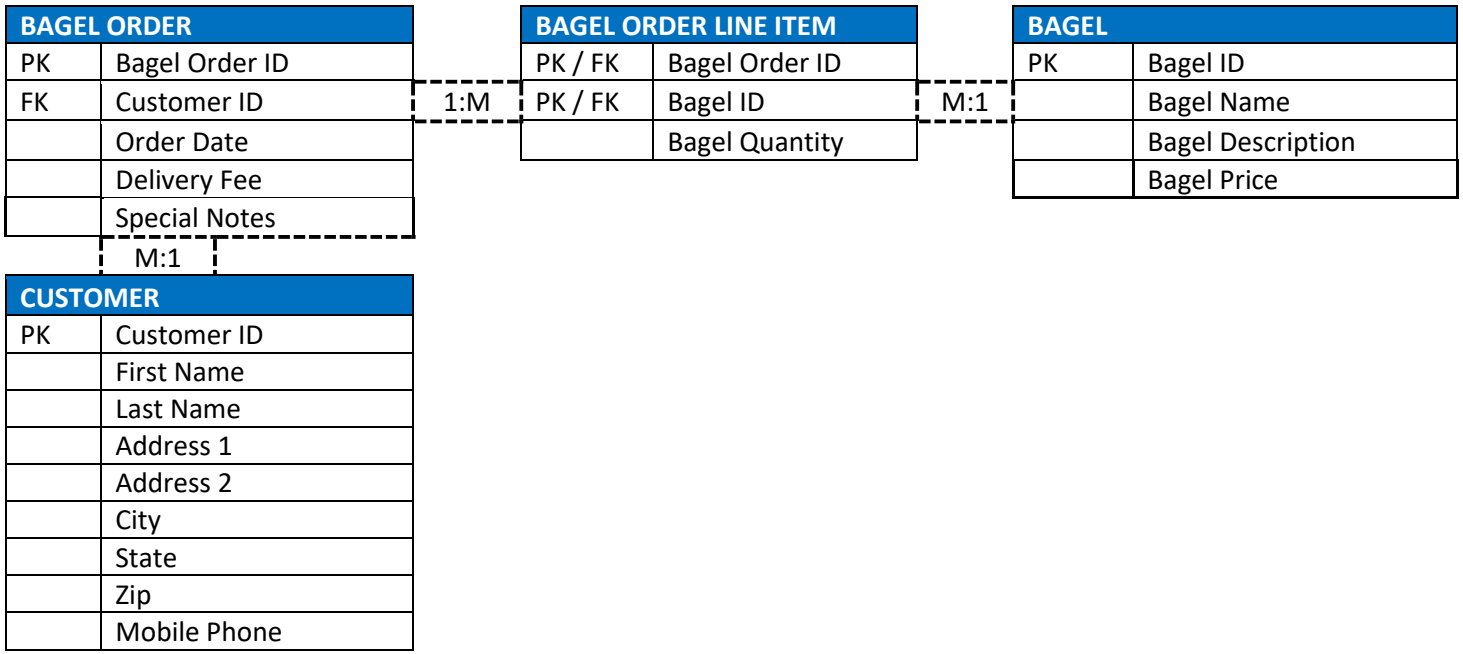
BAGEL	
PK	Bagel ID
	Bagel Name
	Bagel Description
	Bagel Price

Requirement A.1c

Each attribute was assigned based on its functional dependency on the Primary Key of the table it was placed in to be in line with 2NF criteria. The cardinality was determined based on the facts that one Bagel Order may contain any number of Bagel Order Line Items and each Bagel Order Line Item can only be associated with one Bagel Order, hence the 1:M cardinality. Each Bagel Order Line Item is associated with only one Bagel and a Bagel can be associated with many Bagel Order Line Items hence the M:1 cardinality.

Requirement A.2a-A.2c

Third Normal Form (3NF)

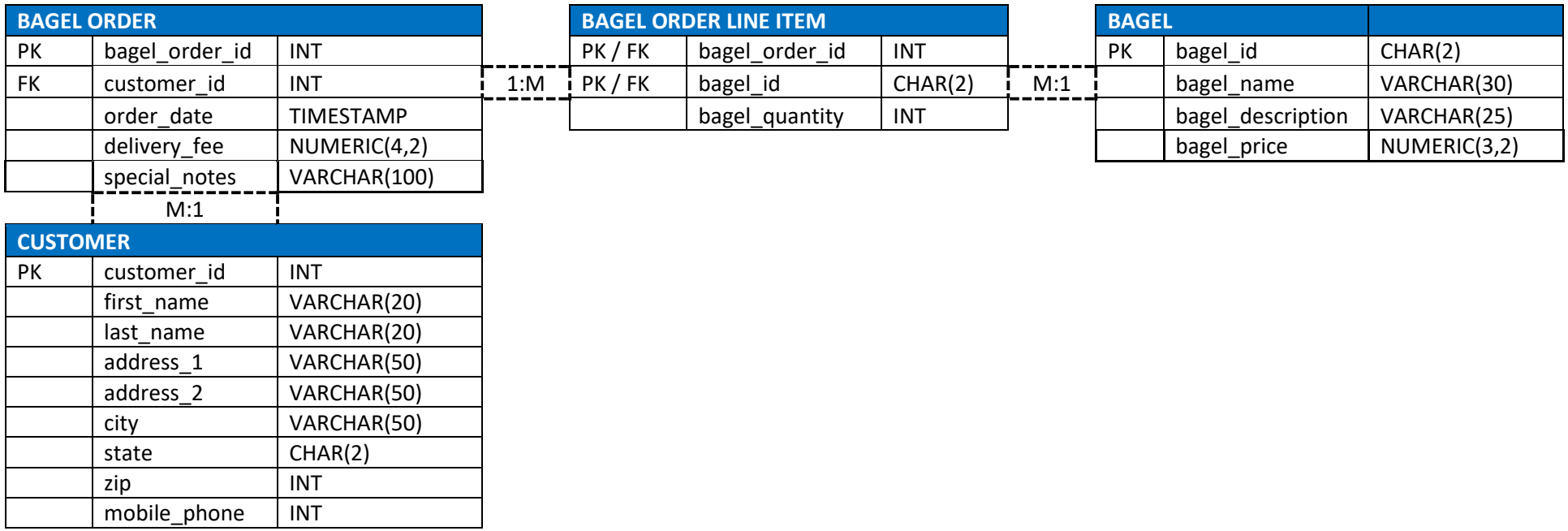


Requirement A.2d

Each attribute was assigned based on eliminating transitive dependency from the 2NF tables and attributes were placed in to be in line with 3NF criteria. The cardinality was determined based on each Bagel Order can be associated with many Bagel Order Line Items and each Bagel Order Line Item can only be associated with one Bagel Order, hence the 1:M cardinality. Each Bagel Order Line Item there is a single Bagel and a single Bagel can be associated with many Bagel Order Line Items which is M:1 cardinality. Each Bagel Order would be placed by one Customer and one Customer could place many different orders and so that is a M:1 cardinality.

Requirement A.3a-A.3b

Final Physical Database Model



Requirement B.1a-B.1b

```
CREATE TABLE COFFEE_SHOP (
  shop_id int,
  shop_name VARCHAR(50),
  city VARCHAR(50),
  state CHAR(2),
PRIMARY KEY (shop_id)
);

CREATE TABLE EMPLOYEE (
  employee_id INT,
  first_name VARCHAR(30),
  last_name VARCHAR(30),
  hire_date DATE,
  job_title VARCHAR(30),
  shop_id INT,
PRIMARY KEY (employee_id),
FOREIGN KEY (shop_id) REFERENCES COFFEE_SHOP (shop_id)
);

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

CREATE TABLE COFFEE (
  coffee_id INT,
  shop_id INT,
  supplier_id INT,
  coffee_name VARCHAR(30),
  price_per_pound DECIMAL(5,2),
PRIMARY KEY (coffee_id),
FOREIGN KEY (shop_id) REFERENCES COFFEE_SHOP (shop_id),
FOREIGN KEY (supplier_id) REFERENCES SUPPLIER (supplier_id)
);
```

Requirement B.1b

```
PRIMARY KEY (employee_id),
FOREIGN KEY (shop_id) REFERENCES COFFEE_SHOP (shop_id)
);

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

CREATE TABLE COFFEE (
  coffee_id INT,
  shop_id INT,
  supplier_id INT,
  coffee_name VARCHAR(30),
  price_per_pound DECIMAL(5,2),
PRIMARY KEY (coffee_id),
FOREIGN KEY (shop_id) REFERENCES COFFEE_SHOP (shop_id),
FOREIGN KEY (supplier_id) REFERENCES SUPPLIER (supplier_id)
);
```

Build Schema | Edit Fullscreen | Browser | [;]

✔ Schema Ready

Schema Browser

- coffee (TABLE)
  - coffee_id INT(10)
  - shop_id INT(10)
  - supplier_id INT(10)
  - coffee_name VARCHAR(30)
  - price_per_pound DECIMAL(5)
- coffee_shop (TABLE)
  - shop_id INT(10)
  - shop_name VARCHAR(50)
  - city VARCHAR(50)
  - state CHAR(2)
- employee (TABLE)
  - employee_id INT(10)
  - first_name VARCHAR(30)
  - last_name VARCHAR(30)
  - hire_date DATE(10)
  - job_title VARCHAR(30)
  - shop_id INT(10)
- supplier (TABLE)
  - supplier_id INT(10)

DDL Editor

✔ Schema Ready

Requirement B.2a

```
INSERT INTO COFFEE_SHOP (shop_id, shop_name, city, state)
VALUES (1, 'Jaunty Coffee', 'Portsmouth', 'VA'),
    (2, 'Java by Jaunty', 'Raleigh', 'NC'),
    (3, 'Cuppa Jaunty Java', 'Charleston', 'SC');

INSERT INTO EMPLOYEE (employee_id, first_name, last_name, hire_date, job_title, shop_id)
VALUES (157, 'Jonathan', 'Carrinton', '2019-11-5', 'Manager', 2),
    (218, 'Hannah', 'St James', '2020-3-13', 'Assistant Manager', 3),
    (588, 'Karl', 'Shippe', '2022-7-9', 'Barista', 1);

INSERT INTO SUPPLIER (supplier_id, company_name, country, sales_contact_name, email)
VALUES (861, 'Beans Squared', 'United States', 'Tyler', 'tyler.bishop@beanssquared.com'),
    (327, 'Allago Farms', 'Cuba', 'Daniel', 'danielchavez@allago.com'),
    (1082, 'Cassiopia', 'Ethiopia', 'Kassan', 'kassanunbago@cassiopiacoffeellc.com');

INSERT INTO COFFEE (coffee_id, shop_id, supplier_id, coffee_name, price_per_pound)
VALUES (443, 2, 861, 'Creme Brulee', '12.95'),
    (729, 1, 1082, 'Yirgacheffe', '16.50'),
    (161, 3, 327, 'Serrano', '8.99');
```

Requirement B.2b

```
FOREIGN KEY (shop_id) REFERENCES COFFEE_SHOP (shop_id),
FOREIGN KEY (supplier_id) REFERENCES SUPPLIER (supplier_id)
);

INSERT INTO COFFEE_SHOP (shop_id, shop_name, city, state)
VALUES (1, 'Jaunty Coffee', 'Portsmouth', 'VA'),
       (2, 'Java by Jaunty', 'Raleigh', 'NC'),
       (3, 'Cuppa Jaunty Java', 'Charleston', 'SC');

INSERT INTO EMPLOYEE (employee_id, first_name, last_name, hire_date, job_title, shop_id)
VALUES (157, 'Jonathan', 'Carrinton', '2019-11-5', 'Manager', 2),
       (218, 'Hannah', 'St James', '2020-3-13', 'Assistant Manager', 3),
       (588, 'Karl', 'Shippe', '2022-7-9', 'Barista', 1);

INSERT INTO SUPPLIER (supplier_id, company_name, country, sales_contact_name, email)
VALUES (861, 'Beans Squared', 'United States', 'Tyler', 'tyler.bishop@beanssquared.com'),
       (327, 'Allago Farms', 'Cuba', 'Daniel', 'danielchavez@allago.com'),
       (1082, 'Cassiopia', 'Ethiopia', 'Kassan', 'kassanunbago@cassiopiacoffeellc.com');

INSERT INTO COFFEE (coffee_id, shop_id, supplier_id, coffee_name, price_per_pound)
VALUES (443, 2, 861, 'Creme Brulee', '12.95'),
       (729, 1, 1082, 'Yirgacheffe', '16.50'),
       (161, 3, 327, 'Serrano', '8.99');
```

Build Schema | Edit Fullscreen | Browser | [;]

✔ Schema Ready

Requirement B.3a

CREATE VIEW EmployeeView

AS SELECT employee_id, concat(first_name,' ', last_name) AS employee_full_name, hire_date, job_title, shop_id

FROM EMPLOYEE;

Requirement B.3b

```
INSERT INTO COFFEE_SHOP (shop_id, shop_name, city, state)
VALUES (1, 'Jaunty Coffee', 'Portsmouth', 'VA'),
       (2, 'Java by Jaunty', 'Raleigh', 'NC'),
       (3, 'Cuppa Jaunty Java', 'Charleston', 'SC');

INSERT INTO EMPLOYEE (employee_id, first_name, last_name, hire_date, job_title, shop_id)
VALUES (157, 'Jonathan', 'Carrinton', '2019-11-5', 'Manager', 2),
       (218, 'Hannah', 'St James', '2020-3-13', 'Assistant Manager', 3),
       (588, 'Karl', 'Shippe', '2022-7-9', 'Barista', 1);

INSERT INTO SUPPLIER (supplier_id, company_name, country, sales_contact_name, email)
VALUES (861, 'Beans Squared', 'United States', 'Tyler', 'tyler.bishop@beanssquared.com'),
       (327, 'Allago Farms', 'Cuba', 'Daniel', 'danielchavez@allago.com'),
       (1082, 'Cassiopia', 'Ethiopia', 'Kassan', 'kassanunbago@cassiopiacoffeellc.com');

INSERT INTO COFFEE (coffee_id, shop_id, supplier_id, coffee_name, price_per_pound)
VALUES (443, 2, 861, 'Creme Brulee', '12.95'),
       (729, 1, 1082, 'Yirgacheffe', '16.50'),
       (161, 3, 327, 'Serrano', '8.99');

CREATE VIEW EmployeeView
AS SELECT employee_id, concat(first_name,' ', last_name) AS employee_full_name, hire_date, job_title, shop_id
FROM EMPLOYEE;
```

Build Schema | Edit Fullscreen | Browser | [;]

✔ Schema Ready

Schema Browser

- + coffee (TABLE)
- + coffee_shop (TABLE)
- − employee (TABLE)
  - employee_id INT(10)
  - first_name VARCHAR(30)
  - last_name VARCHAR(30)
  - hire_date DATE(10)
  - job_title VARCHAR(30)
  - shop_id INT(10)
- + supplier (TABLE)
- − employeeview (VIEW)
  - employee_id INT(10)
  - employee_full_name VARCHAR(61)
  - hire_date DATE(10)
  - job_title VARCHAR(30)
  - shop_id INT(10)

DDL Editor

✔ Schema Ready

Requirement B.4a

CREATE INDEX Coffees

ON COFFEE (coffee_name);

Requirement B.4b

```
43        (3, 'Cuppa Jaunty Java', 'Charleston', 'SC');
44
45  INSERT INTO EMPLOYEE (employee_id, first_name, last_name, hire_date, job_title, shop_id)
46  VALUES (157, 'Jonathan', 'Carrinton', '2019-11-5', 'Manager', 2),
47         (218, 'Hannah', 'St James', '2020-3-13', 'Assistant Manager', 3),
48         (588, 'Karl', 'Shippe', '2022-7-9', 'Barista', 1);
49
50  INSERT INTO SUPPLIER (supplier_id, company_name, country, sales_contact_name, email)
51  VALUES (861, 'Beans Squared', 'United States', 'Tyler', 'tyler.bishop@beanssquared.com'),
52         (327, 'Allago Farms', 'Cuba', 'Daniel', 'danielchavez@allago.com'),
53         (1082, 'Cassiopia', 'Ethiopia', 'Kassan', 'kassanunbago@cassiopiacoffeellc.com');
54
55  INSERT INTO COFFEE (coffee_id, shop_id, supplier_id, coffee_name, price_per_pound)
56  VALUES (443, 2, 861, 'Creme Brulee', '12.95'),
57         (729, 1, 1082, 'Yirgacheffe', '16.50'),
58         (161, 3, 327, 'Serrano', '8.99');
59
60  CREATE VIEW EmployeeView
61  AS SELECT employee_id, concat(first_name,' ', last_name) AS employee_full_name, hire_date, job_title, shop_id
62  FROM EMPLOYEE;
63
64  CREATE INDEX Coffees
65  ON COFFEE (coffee_name);
```

Build Schema | Edit Fullscreen | Browser | [;]

✔ Schema Ready

Requirement B.5a

```
SELECT *
FROM EMPLOYEE
WHERE hire_date > '2020-1-1';
```

Requirement B.5b

```
(3, 'Cuppa Jaunty Java', 'Charleston', 'SC');

INSERT INTO EMPLOYEE (employee_id, first_name, last_name, hire_date, job_title, shop_id)
VALUES (157, 'Jonathan', 'Carrinton', '2019-11-5', 'Manager', 2),
       (218, 'Hannah', 'St James', '2020-3-13', 'Assistant Manager', 3),
       (588, 'Karl', 'Shippe', '2022-7-9', 'Barista', 1);

INSERT INTO SUPPLIER (supplier_id, company_name, country, sales_contact_name, email)
VALUES (861, 'Beans Squared', 'United States', 'Tyler', 'tyler.bishop@beanssquared.com'),
       (327, 'Allago Farms', 'Cuba', 'Daniel', 'danielchavez@allago.com'),
       (1082, 'Cassiopia', 'Ethiopia', 'Kassan', 'kassanunbago@cassiopiacoffeellc.com');

INSERT INTO COFFEE (coffee_id, shop_id, supplier_id, coffee_name, price_per_pound)
VALUES (443, 2, 861, 'Creme Brulee', '12.95'),
       (729, 1, 1082, 'Yirgacheffe', '16.50'),
       (161, 3, 327, 'Serrano', '8.99');

CREATE VIEW EmployeeView
AS SELECT employee_id, concat(first_name,' ', last_name) AS employee_full_name, hire_date, job_title, shop_id
FROM EMPLOYEE;

CREATE INDEX Coffees
ON COFFEE (coffee_name);
```

Build Schema | Edit Fullscreen | Browser | [;]

```
SELECT *
FROM EMPLOYEE
WHERE hire_date > '2020-1-1';
```

Run SQL | Edit Fullscreen | [;]

employee_id	first_name	last_name	hire_date	job_title	shop_id
218	Hannah	St James	2020-03-13	Assistant Manager	3
588	Karl	Shippe	2022-07-09	Barista	1

Record Count: 2; Execution Time: 15ms | View Execution Plan | link

Requirement B.6a

SELECT COFFEE_shop.shop_id, shop_name, SUPPLIER.supplier_id, company_name, coffee_id, coffee_name, price_per_pound

FROM COFFEE_SHOP, SUPPLIER, COFFEE

WHERE COFFEE_SHOP.shop_id = COFFEE.shop_id AND SUPPLIER.supplier_id = COFFEE.supplier_id

Requirement B.6b

```
  first_name VARCHAR(30),
  last_name VARCHAR(30),
  hire_date DATE,
  job_title VARCHAR(30),
  shop_id INT,
PRIMARY KEY (employee_id),
FOREIGN KEY (shop_id) REFERENCES COFFEE_SHOP (shop_id)
);

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

CREATE TABLE COFFEE (
  coffee_id INT,
  shop_id INT,
  supplier_id INT,
  coffee_name VARCHAR(30),
```

Build Schema | Edit Fullscreen | Browser | [;]

```
SELECT COFFEE_shop.shop_id, shop_name, SUPPLIER.supplier_id, company_name, coffee_id, coffee_name, price_per_pound
FROM COFFEE_SHOP, SUPPLIER, COFFEE
WHERE COFFEE_SHOP.shop_id = COFFEE.shop_id AND SUPPLIER.supplier_id = COFFEE.supplier_id
```

Run SQL | Edit Fullscreen | [;]

shop_id	shop_name	supplier_id	company_name	coffee_id	coffee_name	price_per_pound
1	Jaunty Coffee	1082	Cassiopia	729	Yirgacheffe	16.5
2	Java by Jaunty	861	Beans Squared	443	Creme Brulee	12.95
3	Cuppa Jaunty Java	327	Allago Farms	161	Serrano	8.99

Record Count: 3; Execution Time: 8ms | View Execution Plan | link