Matthew Belizaire
IST659 Project

3 BOYS ENTERPRISES LAUNDROMAT

Store Database

Contents

Part One

Summary

3 Boys Enterprises Laundromat is a family-owned Laundromat located in Spring Valley, New York, and has been in operation since 2010. Since then, the business has evolved drastically, but still resorts to inefficient methods for tracking customer purchases, inventory/stock, drop-off service customer information, employee data, as well as the most recent addition of customer laundromat cards. To evolve the business further and improve the tracking of relevant data, I will build an all-encompassing data base to contain it for storage and retrieval.

Stakeholders

- 3 Boys Enterprises Management/Employees
  - People within the business who perform many operations for the store

- 3 Boys Enterprises Customers
  - Recurring and new consumers of the business

- Suppliers
  - Companies who provide inventory for the laundromat

Business Rules

- Every customer who washes and dries is will be identified by the ID on their laundromat card, but first/last name, address, email, phone number are optional identifiers (If card is lost, it is convenient to have all info present).

- Customers who utilize drop off service are required to be identified by their first/last name, and phone number. Address, email address, and laundromat card ID are optional. Weight of clothes will also be calculated

- Employees are required to have their first/last name, address, phone number, and email address available in database.

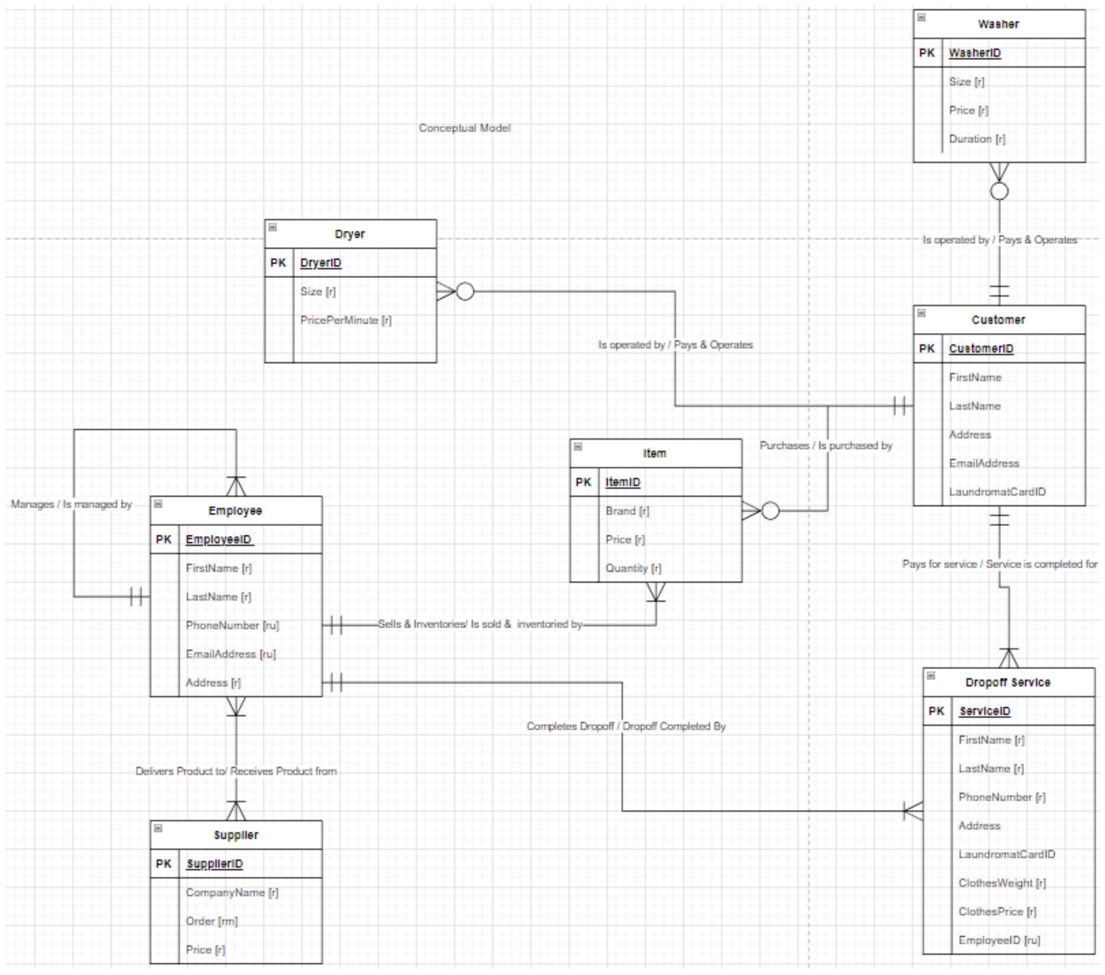
- Employees manage stock by documenting sales (transactions) made to customers

- Suppliers on delivery day give employees the product to be stored or stocked on shelves

Data Questions

- How much do we generate from washers and dryers on a given day?
    - Track a card's payment on given day by its ID
- What is the average weight of drop-off service clothes?
    - Use customer drop-off weight information to calculate average for reasonable sample size
- What employees complete the most transactions?
    - View Transactions made to customers and which employee assisted
- More!

Conceptual Model



Logical Model

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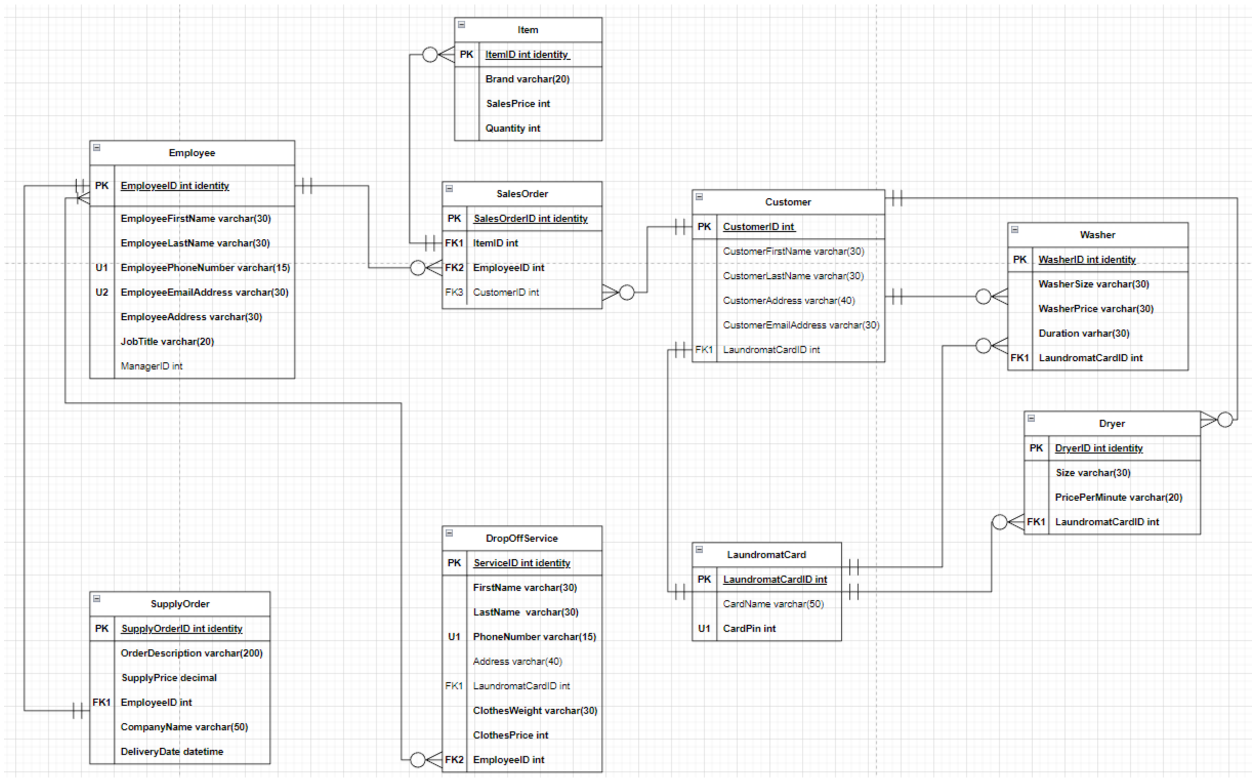


Part Two

Data Definition Language: Creating Tables and Constraints

```
--Creating the Supplier Table
CREATE TABLE Supplier(
--Columns for Supplier Table
       SupplierID int identity,
       CompanyName varchar(50) not null,
       DeliveryDate datetime not null default GetDate(),
       SupplyPrice int not null,
       SupplyOrderID int not null,
--Constraints on the Supplier Table
CONSTRAINT PK_Supplier PRIMARY KEY (SupplierID)
)

--Creating the SupplyOrder Table
CREATE TABLE SupplyOrder(
--Columns for SupplyOrder Table
       SupplyOrderID int identity,
       OrderDescription varchar(200) not null,
	SupplyPrice int not null,
	ItemID int not null,
	EmployeeID int not null,
--Constraints on the Supply Order Table
CONSTRAINT PK_SupplyOrder PRIMARY KEY (SupplyOrderID)
)

--Adding Constraint for SupplyOrderID FK on Supplier Table
ALTER TABLE Supplier
ADD CONSTRAINT FK_SupplyOrderID FOREIGN KEY (SupplyOrderID) REFERENCES
SupplyOrder(SupplyOrderID)

--Creating the Employee Table
CREATE TABLE Employee(
--Columns for the Employee Table
	EmployeeID int identity,
	EmployeeFirstName varchar(30) not null,
	EmployeeLastName varchar(30) not null,
	EmployeePhoneNumber varchar(15) not null,
	EmployeeEmailAddress varchar(30) not null,
	EmployeeAddress varchar(30) not null,
	JobTitle varchar(20) not null,
	ManagerID int,
--Constraints on the Employee Table
CONSTRAINT PK_Employee PRIMARY KEY (EmployeeID),
CONSTRAINT U1_Employee UNIQUE (EmployeePhoneNumber),
CONSTRAINT U2_Employee UNIQUE (EmployeeEmailAddress)
)

--Adding Constraint for EmployeeID FK on SupplyOrder Table
ALTER TABLE SupplyOrder
ADD CONSTRAINT FK_EmployeeID FOREIGN KEY (EmployeeID) REFERENCES Employee(EmployeeID)

--Creating the Item Table
CREATE TABLE Item(
--Columns for the Item Table
	ItemID int identity,
	Brand varchar(20) not null,
	SalesPrice int not null,
	Quantity int not null,
--Constraints on the Item Table
CONSTRAINT PK_Item PRIMARY KEY (ItemID)
)

--Adding Constraint for ItemID FK on SupplyOrder Table
ALTER TABLE SupplyOrder
ADD CONSTRAINT FK_ItemID FOREIGN KEY (ItemID) REFERENCES Item(ItemID)

--Creating the SaleOrder Table
CREATE TABLE SalesOrder(
--Columns for the SalesOrder Table
	SalesOrderID int identity,
	ItemID int not null,
	EmployeeID int not null,
	CustomerID int,
--Constraints on the SalesOrder Table
CONSTRAINT PK_SalesOrder PRIMARY KEY (SalesOrderID),
```

```sql
CONSTRAINT FK1_SalesOrder FOREIGN KEY (ItemID) REFERENCES Item(ItemID),
CONSTRAINT FK2_SalesOrder FOREIGN KEY (EmployeeID) REFERENCES Employee(EmployeeID)
)

--Creating the Customer Table
CREATE TABLE Customer(
--Columns for the Customer Table
	CustomerID int,
	CustomerFirstName varchar(30),
	CustomerLastName varchar(30),
	CustomerAddress varchar(40),
	CustomerEmailAddress varchar(30),
	LaundromatCardID int
--Constraints on the Customer Table
CONSTRAINT PK_Customer PRIMARY KEY (CustomerID)
)

--Adding Constraint for CustomerID on the SalesOrder Table
ALTER TABLE SalesOrder
ADD CONSTRAINT FK_CustomerID FOREIGN KEY (CustomerID) REFERENCES Customer(CustomerID)

--Creating the LaundromatCard Table
CREATE TABLE LaundromatCard(
--Columns for the LaundromatCard Table
	LaundromatCardID int,
	CardName varchar(50),
	CardPin int not null,
--Constraints on the LaundromatCard Table
CONSTRAINT PK_LaundromatCard PRIMARY KEY (LaundromatCardID),
CONSTRAINT U1_LaundromatCard UNIQUE (CardPin)
)

--Creating the Washer Table
CREATE TABLE Washer(
--Columns for the Washer Table
	WasherID int identity,
	WasherSize varchar(30) not null,
	WasherPrice varchar(30) not null,
	Duration varchar(30) not null,
	LaundromatCardID int not null,
--Constraints on the Washer Table
CONSTRAINT PK_Washer PRIMARY KEY (WasherID),
CONSTRAINT FK1_Washer FOREIGN KEY (LaundromatCardID) REFERENCES
LaundromatCard(LaundromatCardID)
)

--Creating the Dryer Table
CREATE TABLE Dryer(
--Columns for the Dryer Table
	DryerID int identity,
	Size varchar(30) not null,
	PricePerMinute varchar(20) not null,
	LaundromatCardID int,
--Constraints on the Dryer Table
CONSTRAINT PK_Dryer PRIMARY KEY (DryerID),
CONSTRAINT FK1_Dryer FOREIGN KEY (LaundromatCardID) REFERENCES
LaundromatCard(LaundromatCardID)
```

```
)

--Creating ther DropOffService Table
CREATE TABLE DropOffService(
--Columns for the DropOffService Table
	ServiceID int identity,
	FirstName varchar(30) not null,
	LastName varchar(30) not null,
	PhoneNumber varchar(15) not null,
	Address varchar(40),
	LaundromatCardID int,
	ClothesWeight varchar(30) not null,
	ClothesPrice int not null,
	EmployeeID int not null,
--Constraints on the DropOffService Table
CONSTRAINT PK_DropOffService PRIMARY KEY (ServiceID),
CONSTRAINT FK1_DropOffService FOREIGN KEY (LaundromatCardID) REFERENCES
LaundromatCard(LaundromatCardID),
CONSTRAINT FK2_DropOffService FOREIGN KEY (EmployeeID) REFERENCES Employee(EmployeeID)
)
```

Data Manipulation Language: Inserting Data

```
--Data Manipulation Language - Inserting Data

--Insert Data for Employee Table
insert into Employee (EmployeeFirstName, EmployeeLastName, EmployeePhoneNumber,
EmployeeEmailAddress, EmployeeAddress, JobTitle, ManagerID ) values ('Vivyanne',
'Hanhart', '400-563-4256', 'vhanhart0@sfgate.com', '37 Del Mar Plaza', 'Manager', 1);
insert into Employee (EmployeeFirstName, EmployeeLastName, EmployeePhoneNumber,
EmployeeEmailAddress, EmployeeAddress, JobTitle) values ('Adair', 'Websdale', '814-174-
0394', 'awebsdale1@forbes.com', '8692 Mendota Road', 'Assistant Manager');
insert into Employee (EmployeeFirstName, EmployeeLastName, EmployeePhoneNumber,
EmployeeEmailAddress, EmployeeAddress, JobTitle) values ('Celestine', 'D''Aulby', '412-
854-6755', 'cdaulby2@cmu.edu', '4 Melvin Lane', 'Assistant Manager');
insert into Employee (EmployeeFirstName, EmployeeLastName, EmployeePhoneNumber,
EmployeeEmailAddress, EmployeeAddress, JobTitle) values ('Nerty', 'Killeen', '225-876-
7827', 'nkilleen3@google.ru', '68 Comanche Way', 'Sales Associate');
insert into Employee (EmployeeFirstName, EmployeeLastName, EmployeePhoneNumber,
EmployeeEmailAddress, EmployeeAddress, JobTitle) values ('Cary', 'MacGilfoyle', '652-880-
0465', 'cmacgilfoyle4@cnbc.com', '056 Darwin Plaza', 'Sales Associate');

SELECT * FROM Employee

--Insert Data for SupplyOrder Table
insert into SupplyOrder (CompanyName, DeliveryDate, OrderDescription, SupplyPrice,
EmployeeID) values ('Colgate-Palmolive', '8/4/2022', 'Medium sized order', 490.55, 1);
insert into SupplyOrder (CompanyName, DeliveryDate, OrderDescription, SupplyPrice,
EmployeeID) values ('Protector & Gamble', '8/10/2022', 'Smaller than medium sized order',
341.43, 1);
insert into SupplyOrder (CompanyName, DeliveryDate, OrderDescription, SupplyPrice,
EmployeeID) values ('Aura Detergent', '8/10/2022', 'Barrel of soap', 238.80, 1);
```

```
insert into SupplyOrder (CompanyName, DeliveryDate, OrderDescription, SupplyPrice, 
EmployeeID) values ('The Clorox Company', '8/16/2022', 'Please do not get this on colored 
clothes', 192.71, 2);
insert into SupplyOrder (CompanyName, DeliveryDate, OrderDescription, SupplyPrice, 
EmployeeID) values ('Protector & Gamble', '8/25/2022', 'Hey, us again!', 300.14, 2);

SELECT * FROM SupplyOrder

--Insert Data for Item Table
insert into Item (Brand, SalesPrice, Quantity) values ('Medium Red Tide', 11.00, 80);
insert into Item (Brand, SalesPrice, Quantity) values ('Medium Gain', 10.00 , 95);
insert into Item (Brand, SalesPrice, Quantity) values ('Small Suavitel Blue', 2.25, 9);
insert into Item (Brand, SalesPrice, Quantity) values ('Small Suavitel White', 2.25, 41);
insert into Item (Brand, SalesPrice, Quantity) values ('Small Clorox', 2.25, 81);
insert into Item (Brand, SalesPrice, Quantity) values ('Medium Clorox', 3.50, 58);
insert into Item (Brand, SalesPrice, Quantity) values ('Small Roma', 1.50, 11);
insert into Item (Brand, SalesPrice, Quantity) values ('Medium Roma', 3.00, 15);
insert into Item (Brand, SalesPrice, Quantity) values ('Large Aura', 10.00, 6);
insert into Item (Brand, SalesPrice, Quantity) values ('Shout Spray', 10.00, 1);

SELECT * FROM Item

--Insert Data for LaundromatCard Table
insert into LaundromatCard (LaundromatCardID, CardName, CardPin) values (916679463, 
'cmagill0', 1204);
insert into LaundromatCard (LaundromatCardID, CardName, CardPin) values (568424468, 
'wmcginnell1', 4290);
insert into LaundromatCard (LaundromatCardID, CardName, CardPin) values (356331589, 
'jrudman2', 8524);
insert into LaundromatCard (LaundromatCardID, CardName, CardPin) values (881872442, 
'lwaddams3', 8031);
insert into LaundromatCard (LaundromatCardID, CardName, CardPin) values (160890131, 
'jbonefant4', 1446);
insert into LaundromatCard (LaundromatCardID, CardName, CardPin) values (285754330, 
'myakunchikov5', 8820);
insert into LaundromatCard (LaundromatCardID, CardName, CardPin) values (736784726, 
'lcaress6', 9058);
insert into LaundromatCard (LaundromatCardID, CardName, CardPin) values (450588115, 
'rgodain7', 9094);
insert into LaundromatCard (LaundromatCardID, CardName, CardPin) values (174372923, 
'ekirkwood8', 3335);
insert into LaundromatCard (LaundromatCardID, CardName, CardPin) values (141613498, 
'kpoll9', 4571);

SELECT * FROM LaundromatCard



--Insert Data for Customer Table
insert into Customer (CustomerID, CustomerFirstName, CustomerLastName, CustomerAddress, 
CustomerEmailAddress, LaundromatCardID) values (1, 'Debra', 'Place', '37 Erie Plaza', 
'dplace0@usatoday.com', 916679463);
insert into Customer (CustomerID, CustomerFirstName, CustomerLastName, CustomerAddress, 
CustomerEmailAddress, LaundromatCardID) values (2, 'Lorianne', 'Frazer', '4485 Westridge 
Place', 'lfrazer1@flickr.com', 568424468);
insert into Customer (CustomerID, CustomerFirstName, CustomerLastName, CustomerAddress, 
CustomerEmailAddress, LaundromatCardID) values (3, 'Estel', 'Harrow', '5 Schiller Road', 
'eharrow2@eepurl.com', 356331589);
```

```
insert into Customer (CustomerID, CustomerFirstName, CustomerLastName, CustomerAddress,
CustomerEmailAddress, LaundromatCardID) values (4, 'Markus', 'Reddan', '6924 Marcy
Street', 'mreddan3@baidu.com', 881872442);
insert into Customer (CustomerID, CustomerFirstName, CustomerLastName, CustomerAddress,
CustomerEmailAddress, LaundromatCardID) values (5, 'Ronny', 'Cleal', '3 Schurz Center',
'rcleal4@latimes.com', 160890131);
insert into Customer (CustomerID, CustomerFirstName, CustomerLastName, CustomerAddress,
CustomerEmailAddress) values (6, 'Ole', 'Byrde', '5 Loomis Crossing',
'obyrde5@imageshack.us');
insert into Customer (CustomerID, CustomerFirstName, CustomerLastName, CustomerAddress,
CustomerEmailAddress) values (7, 'Jamil', 'Milton-White', '3012 Declaration Plaza',
'jmiltonwhite6@about.com');
insert into Customer (CustomerID, CustomerFirstName, CustomerLastName, CustomerAddress,
CustomerEmailAddress) values (8, 'Bernelle', 'Priestner', '9 Thackeray Alley',
'bpriestner7@cam.ac.uk');
insert into Customer (CustomerID, CustomerFirstName, CustomerLastName, CustomerAddress,
CustomerEmailAddress) values (9, 'Dierdre', 'Older', '55251 Hoffman Drive',
'dolder8@twitpic.com');
insert into Customer (CustomerID, CustomerFirstName, CustomerLastName, CustomerAddress,
CustomerEmailAddress) values (10, 'Henderson', 'Chiswell', '87 Lighthouse Bay Drive',
'hchiswell9@salon.com');

SELECT * FROM Customer

--Insert Data for SalesOrder Table
insert into SalesOrder (ItemID, EmployeeID, CustomerID) values (1, 4, 1);
insert into SalesOrder (ItemID, EmployeeID, CustomerID) values (1, 4, 3);
insert into SalesOrder (ItemID, EmployeeID, CustomerID) values (3, 4, 4);
insert into SalesOrder (ItemID, EmployeeID, CustomerID) values (3, 4, 5);
insert into SalesOrder (ItemID, EmployeeID) values (5, 5);
insert into SalesOrder (ItemID, EmployeeID) values (9, 5);
insert into SalesOrder (ItemID, EmployeeID) values (8, 5);
insert into SalesOrder (ItemID, EmployeeID, CustomerID) values (10, 5, 7);
insert into SalesOrder (ItemID, EmployeeID) values (2, 1);
insert into SalesOrder (ItemID, EmployeeID, CustomerID) values (12, 2, 9);

SELECT * FROM SalesOrder

--Insert Data for Washer Table
insert into Washer (WasherSize, WasherPrice, Duration, LaundromatCardID) values ('Small',
3.00, 25, 141613498);
insert into Washer (WasherSize, WasherPrice, Duration, LaundromatCardID) values ('Small',
3.00, 25, 160890131);
insert into Washer (WasherSize, WasherPrice, Duration, LaundromatCardID) values ('Small',
3.00, 25, 160890131);
insert into Washer (WasherSize, WasherPrice, Duration, LaundromatCardID) values
('Medium', 5.50, 28, 141613498);
insert into Washer (WasherSize, WasherPrice, Duration, LaundromatCardID) values
('Medium', 5.50, 28, 285754330);
insert into Washer (WasherSize, WasherPrice, Duration, LaundromatCardID) values
('Medium', 5.50, 28, 285754330);
insert into Washer (WasherSize, WasherPrice, Duration, LaundromatCardID) values ('Large',
6.50, 30, 450588115);
insert into Washer (WasherSize, WasherPrice, Duration, LaundromatCardID) values ('Large',
6.50, 30, 736784726);
insert into Washer (WasherSize, WasherPrice, Duration, LaundromatCardID) values ('Extra
Large', 10.00, 35, 881872442);
```

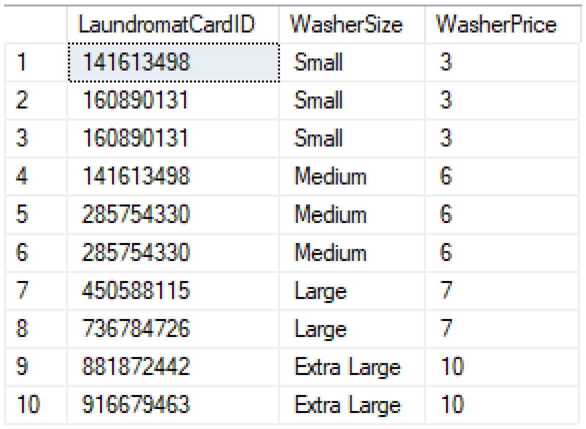
```sql
insert into Washer (WasherSize, WasherPrice, Duration, LaundromatCardID) values ('Extra
Large', 10.00, 35, 916679463);

SELECT * FROM Washer

--Insert Data for Dryer Table
insert into Dryer (Size, PricePer10Minutes, LaundromatCardID) values ('Large', 0.25,
916679463);
insert into Dryer (Size, PricePer10Minutes, LaundromatCardID) values ('Large', 0.25,
916679463);
insert into Dryer (Size, PricePer10Minutes, LaundromatCardID) values ('Large', 0.25,
450588115);
insert into Dryer (Size, PricePer10Minutes, LaundromatCardID) values ('Large', 0.25,
450588115);
insert into Dryer (Size, PricePer10Minutes, LaundromatCardID) values ('Large', 0.25,
736784726);
insert into Dryer (Size, PricePer10Minutes, LaundromatCardID) values ('Large', 0.25,
141613498);
insert into Dryer (Size, PricePer10Minutes, LaundromatCardID) values ('Extra Large',
0.50, 141613498 );
insert into Dryer (Size, PricePer10Minutes, LaundromatCardID) values ('Extra Large',
0.50, 141613498);
insert into Dryer (Size, PricePer10Minutes, LaundromatCardID) values ('Extra Large',
0.50, 285754330);
insert into Dryer (Size, PricePer10Minutes, LaundromatCardID) values ('Extra Large',
0.50, 285754330);

SELECT * FROM Dryer

--Insert Data for DropOffService Table
insert into DropOffService (FirstName, LastName, PhoneNumber, Address, ClothesWeight,
ClothesPrice, EmployeeID) values ('Marlee', 'Trenbey', '127-747-1690', '3323 Fieldstone
Pass', 50, 50, 4);
insert into DropOffService (FirstName, LastName, PhoneNumber, Address, ClothesWeight,
ClothesPrice, EmployeeID) values ('Forrest', 'Shardlow', '218-618-5833', '02824 Northport
Court', 80, 80, 2);
insert into DropOffService (FirstName, LastName, PhoneNumber, Address, ClothesWeight,
ClothesPrice, EmployeeID) values ('Blondelle', 'Mugg', '602-382-7755', '1 Northview Way',
93, 93, 3);
insert into DropOffService (FirstName, LastName, PhoneNumber, Address, ClothesWeight,
ClothesPrice, EmployeeID) values ('Stanly', 'Crofthwaite', '860-502-7896', '8006
Heffernan Center', 62, 62, 1);
insert into DropOffService (FirstName, LastName, PhoneNumber, Address, ClothesWeight,
ClothesPrice, EmployeeID) values ('Celka', 'Nassie', '803-959-7626', '443 Tennyson Lane',
57, 57, 1);
insert into DropOffService (FirstName, LastName, PhoneNumber, Address, ClothesWeight,
ClothesPrice, EmployeeID) values ('Ossie', 'Cordoba', '309-935-9536', '70 Hudson Court',
100, 100, 3);
insert into DropOffService (FirstName, LastName, PhoneNumber, Address, LaundromatCardID,
ClothesWeight, ClothesPrice, EmployeeID) values ('Evelyn', 'Nuttey', '445-341-5334', '9
Express Park',141613498, 28, 28, 2);

SELECT * FROM DropOffService
```

Answering Data Questions

How revenue did we generate from washers and dryers today?

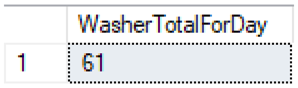
We can answer this by tracking a card's payment on given day by its ID

```
--Convert Washer and Dryer to number instead of string to do math
ALTER TABLE Washer
ALTER COLUMN WasherPrice decimal;

ALTER TABLE Dryer
ALTER COLUMN PricePer10Minutes decimal;

--Displaying washers used in given day, and which card made these purchases
SELECT
       Washer.LaundromatCardID,
       Washer.WasherSize,
       Washer.WasherPrice
FROM Washer
```



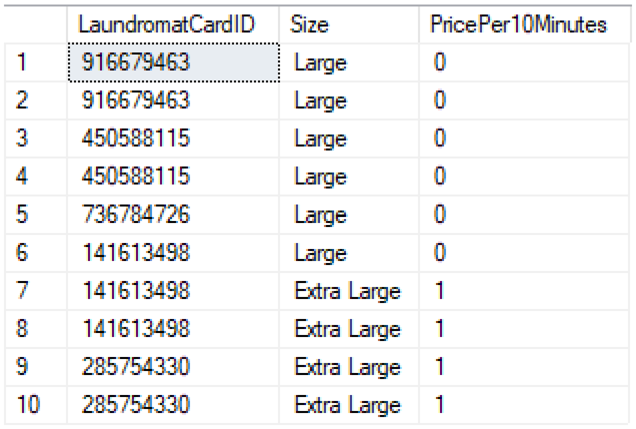
	LaundromatCardID	WasherSize	WasherPrice
1	141613498	Small	3
2	160890131	Small	3
3	160890131	Small	3
4	141613498	Medium	6
5	285754330	Medium	6
6	285754330	Medium	6
7	450588115	Large	7
8	736784726	Large	7
9	881872442	Extra Large	10
10	916679463	Extra Large	10

```
SELECT SUM(WasherPrice) AS WasherTotalForDay
FROM Washer
```



	WasherTotalForDay
1	61

```
--Displaying Dryers used in given day, and which card made these purchases
SELECT
       Dryer.LaundromatCardID,
       Dryer.Size,
       Dryer.PricePer10Minutes
FROM Dryer
```



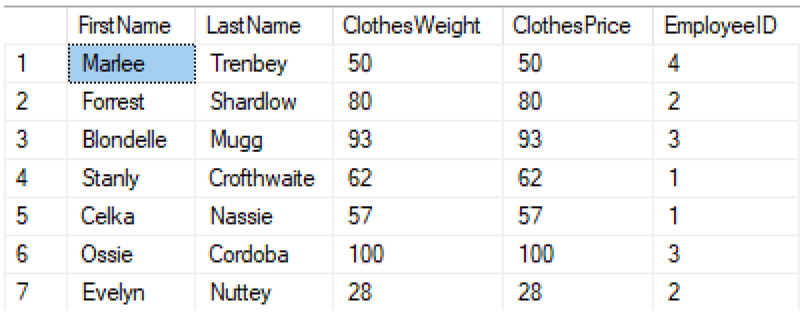
	LaundromatCardID	Size	PricePer10Minutes
1	916679463	Large	0
2	916679463	Large	0
3	450588115	Large	0
4	450588115	Large	0
5	736784726	Large	0
6	141613498	Large	0
7	141613498	Extra Large	1
8	141613498	Extra Large	1
9	285754330	Extra Large	1
10	285754330	Extra Large	1

Explanation for this field: PricePer10Minutes counts a transaction as adding 10 minutes to the dryer. So LaundromatCardID “141613498” likely used 20 minutes worth of time on an Extra-Large Dryer. The original values were 0.25 for Large, and 0.50 for Extra Large, but the conversion made the decimals round the numbers off. I am not as concerned with the outcome as much as I am with the query working properly. Next time, I will have to ensure my logical model is constructed better to prevent issues like this.

A conclusion we can draw from this data question (despite numbers being messed up for Dryer) is that we make more money from washers than dryers. We’d have to test multiple days to confirm whether this is true. With that, we can develop an average for days, and further subset that into specific days of the week.

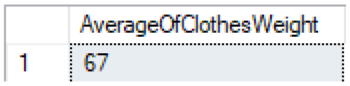
<u>What is the average weight of drop-off clothes (In Pounds/Lbs)?</u>

```
--Displaying all the Drop-Offs we have on record and which employee did the service
SELECT
	DropOffService.FirstName,
	DropOffService.LastName,
	DropOffService.ClothesWeight,
	DropOffService.ClothesPrice,
	Employee.EmployeeID
FROM DropOffService
JOIN Employee ON DropOffService.EmployeeID = Employee.EmployeeID
```



	FirstName	LastName	ClothesWeight	ClothesPrice	EmployeeID
1	Marlee	Trenbey	50	50	4
2	Forrest	Shardlow	80	80	2
3	Blondelle	Mugg	93	93	3
4	Stanly	Crofthwaite	62	62	1
5	Celka	Nassie	57	57	1
6	Ossie	Cordoba	100	100	3
7	Evelyn	Nuttey	28	28	2

```
--Convert Clothes Weight to number instead of string to do math
ALTER TABLE DropOffService
ALTER COLUMN ClothesWeight INT;


SELECT AVG(ClothesWeight) AS AverageOfClothesWeight
FROM DropOffService
```

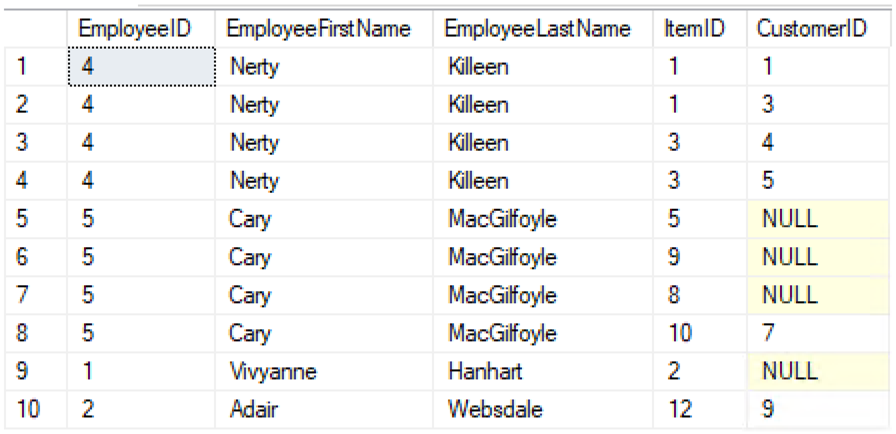


	AverageOfClothesWeight
1	67

The average amount of weight for clothes in a drop off service is 67 pounds. This reveals some good information to us, as we know that drop offs are $1 per pound. So essentially according to our sample size, after about 7 drop offs completed, we can expect an average of $67.

Which employee completes the most transactions?

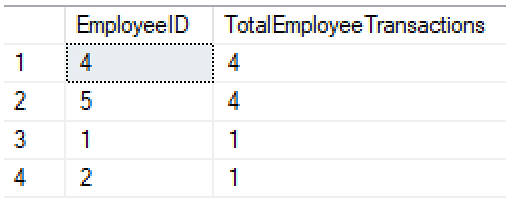
```
--Displaying all transactions on record with Employee Information
SELECT
       SalesOrder.EmployeeID,
       Employee.EmployeeFirstName,
       Employee.EmployeeLastName,
       SalesOrder.ItemID,
       SalesOrder.CustomerID
FROM SalesOrder
JOIN Employee ON SalesOrder.EmployeeID = Employee.EmployeeID
```



	EmployeeID	EmployeeFirstName	EmployeeLastName	ItemID	CustomerID
1	4	Nerty	Killeen	1	1
2	4	Nerty	Killeen	1	3
3	4	Nerty	Killeen	3	4
4	4	Nerty	Killeen	3	5
5	5	Cary	MacGilfoyle	5	NULL
6	5	Cary	MacGilfoyle	9	NULL
7	5	Cary	MacGilfoyle	8	NULL
8	5	Cary	MacGilfoyle	10	7
9	1	Vivyanne	Hanhart	2	NULL
10	2	Adair	Websdale	12	9

Just from visually looking at the output, we can count that EmployeeID 4 (Nerty Killeen), and EmployeeID 5 (Cary MacGiloyle) are tied for the most transactions completed on record. But if we had a lot more records, manually counting would not be practical. In that case, I'd solve it like this:

```
--Who sells the most?
SELECT EmployeeID, COUNT(*) AS TotalEmployeeTransactions
FROM SalesOrder
GROUP BY EmployeeID
ORDER BY TotalEmployeeTransactions DESC
```

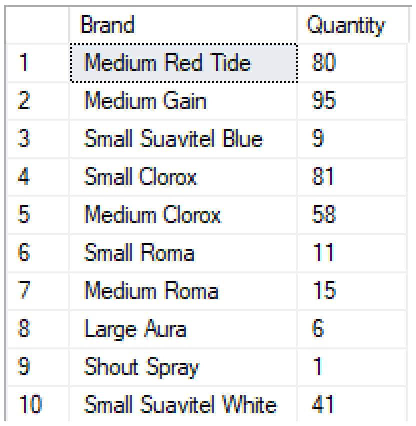


	EmployeeID	TotalEmployeeTransactions
1	4	4
2	5	4
3	1	1
4	2	1

If prices were included via a join from the item table, that would add another layer in which we could use to not only tell which employee had the most transactions, but who sold the most in terms of revenue generated. In hindsight, the price should've been included in the SalesOrder table in some fashion.

<u>What does our inventory of items look like?</u>

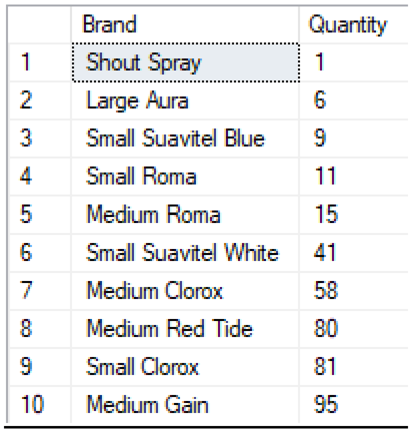
```
--Inventory of Items
SELECT
       Item.Brand,
       Item.Quantity
FROM Item
```



	Brand	Quantity
1	Medium Red Tide	80
2	Medium Gain	95
3	Small Suavitel Blue	9
4	Small Clorox	81
5	Medium Clorox	58
6	Small Roma	11
7	Medium Roma	15
8	Large Aura	6
9	Shout Spray	1
10	Small Suavitel White	41

<u>If we had more records, it would be more difficult to get a grasp of what needs a restock. How do we determine what we should prioritize in terms of replenishing stock?</u>

```
SELECT
       Item.Brand,
       Item.Quantity
FROM Item
ORDER BY Quantity
```



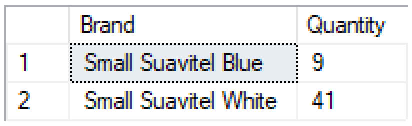
	Brand	Quantity
1	Shout Spray	1
2	Large Aura	6
3	Small Suavitel Blue	9
4	Small Roma	11
5	Medium Roma	15
6	Small Suavitel White	41
7	Medium Clorox	58
8	Medium Red Tide	80
9	Small Clorox	81
10	Medium Gain	95

Now that things are ordered, we can prioritize our needs better.

What happens if we want to check a specific brand or item's quantity? In a large table this can be difficult to manually see.

Let's say I wanted to see the quantity of my Suavitel products only:

```
--Find specific brands
SELECT
       Item.Brand,
       Item.Quantity
FROM
       Item
WHERE
       Item.Brand LIKE '%Suavitel%'
```



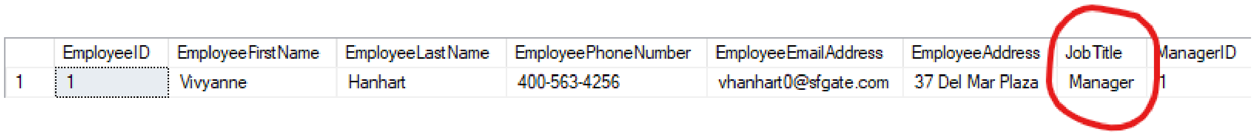
	Brand	Quantity
1	Small Suavitel Blue	9
2	Small Suavitel White	41

These are useful methods in filtering our inventory and helping determine what needs to be restoked with priority in mind.

Programming Objects

Utilizing a stored procedure to update employee's Job Title

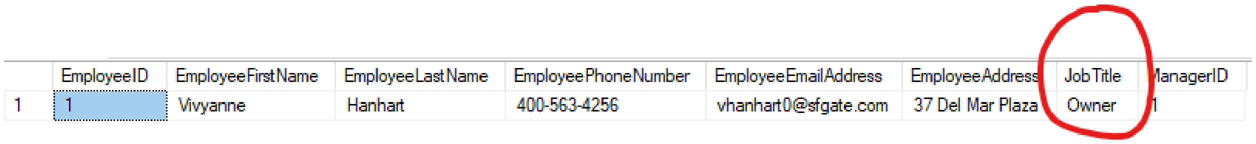
Before:



	EmployeeID	EmployeeFirstName	EmployeeLastName	EmployeePhoneNumber	EmployeeEmailAddress	EmployeeAddress	JobTitle	ManagerID
1	1	Vivyanne	Hanhart	400-563-4256	vhanhart0@sfgate.com	37 Del Mar Plaza	Manager	1

After:

```
--Update an employees Job Title
CREATE PROCEDURE UpdateTitle(@EmployeeFirstName varchar(30), @NewJobTitle varchar(20))
AS
BEGIN
	UPDATE Employee SET JobTitle = @NewJobTitle
	WHERE EmployeeFirstName = @EmployeeFirstName
END
GO

EXEC UpdateTitle 'Vivyanne', 'Owner'

SELECT * FROM Employee WHERE EmployeeFirstName = 'Vivyanne'
```

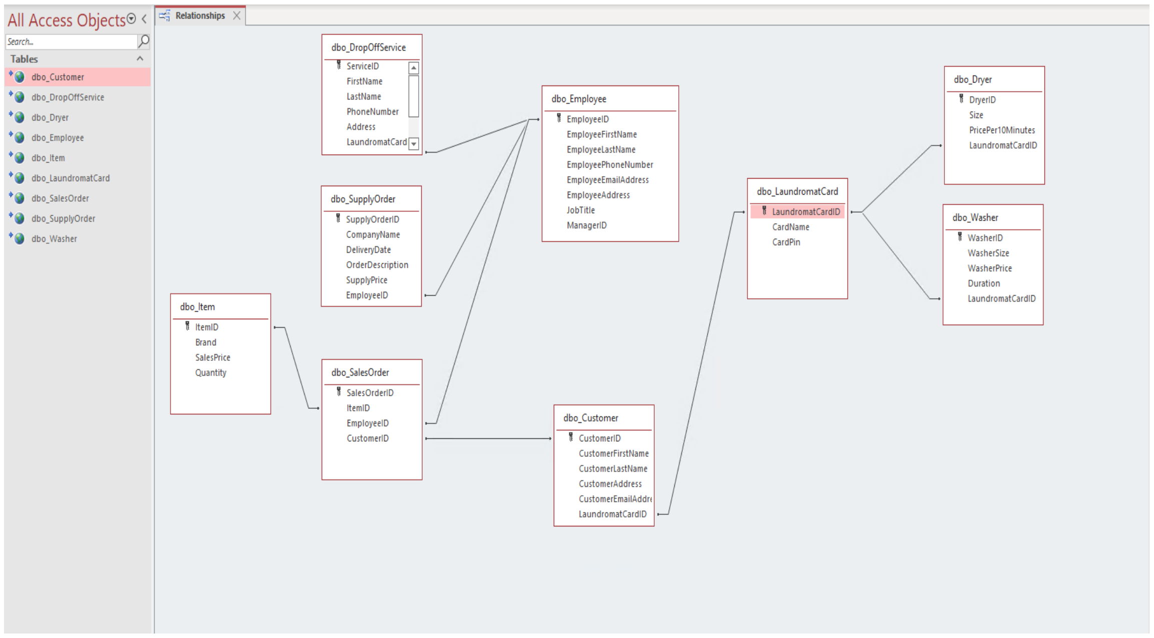


	EmployeeID	EmployeeFirstName	EmployeeLastName	EmployeePhoneNumber	EmployeeEmailAddress	EmployeeAddress	JobTitle	ManagerID
1	1	Vivyanne	Hanhart	400-563-4256	vhanhart0@sfgate.com	37 Del Mar Plaza	Owner	1

This is a good example of how a programming object can be utilized in my database. Functions can be used to find specific values, and queries can be used like above in a more efficient manner than manually them. To create intricate ones however, I'd have to first reoptimize some elements of my database.

User Interface

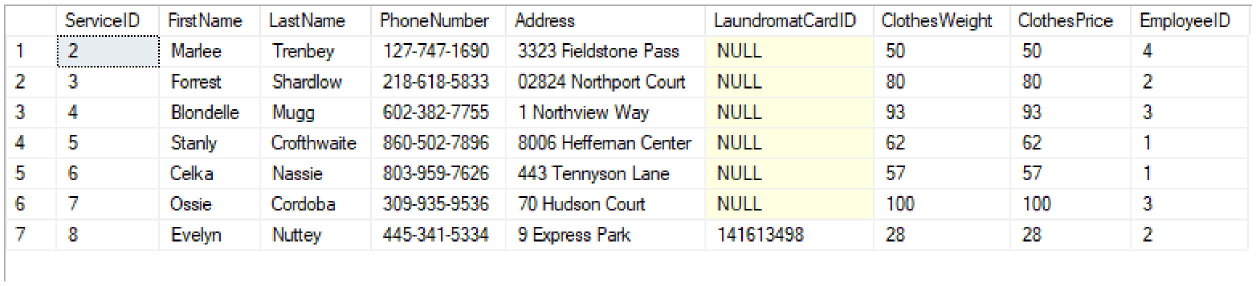
I chose to use Access for my User Interface, and reestablished the relationships between the Fields:



In Access, I'll allow the front-end user to document a new entry for a drop off service by creating a new form and letting them manually enter the data. Afterwards, it should update the database in real time.

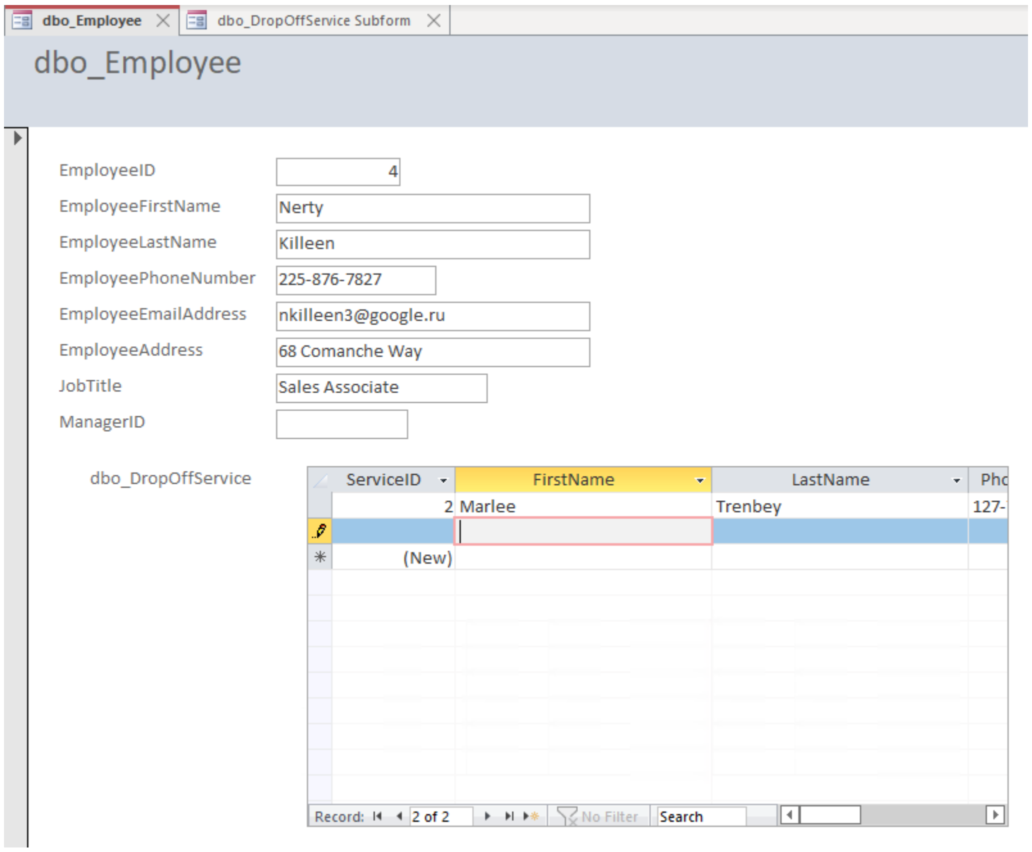
DropOffService Records before:

```
SELECT * FROM DropOffService
```



	ServiceID	FirstName	LastName	PhoneNumber	Address	LaundromatCardID	ClothesWeight	ClothesPrice	EmployeeID
1	2	Marlee	Trenbey	127-747-1690	3323 Fieldstone Pass	NULL	50	50	4
2	3	Forrest	Shardlow	218-618-5833	02824 Northport Court	NULL	80	80	2
3	4	Blondelle	Mugg	602-382-7755	1 Northview Way	NULL	93	93	3
4	5	Stanly	Crofthwaite	860-502-7896	8006 Heffeman Center	NULL	62	62	1
5	6	Celka	Nassie	803-959-7626	443 Tennyson Lane	NULL	57	57	1
6	7	Ossie	Cordoba	309-935-9536	70 Hudson Court	NULL	100	100	3
7	8	Evelyn	Nuttey	445-341-5334	9 Express Park	141613498	28	28	2

Our Front-End User is Nerty Killeen and she just received a new drop off to complete. Here is what it looks like on her side:



dbo_Employee | dbo_DropOffService Subform

dbo_Employee

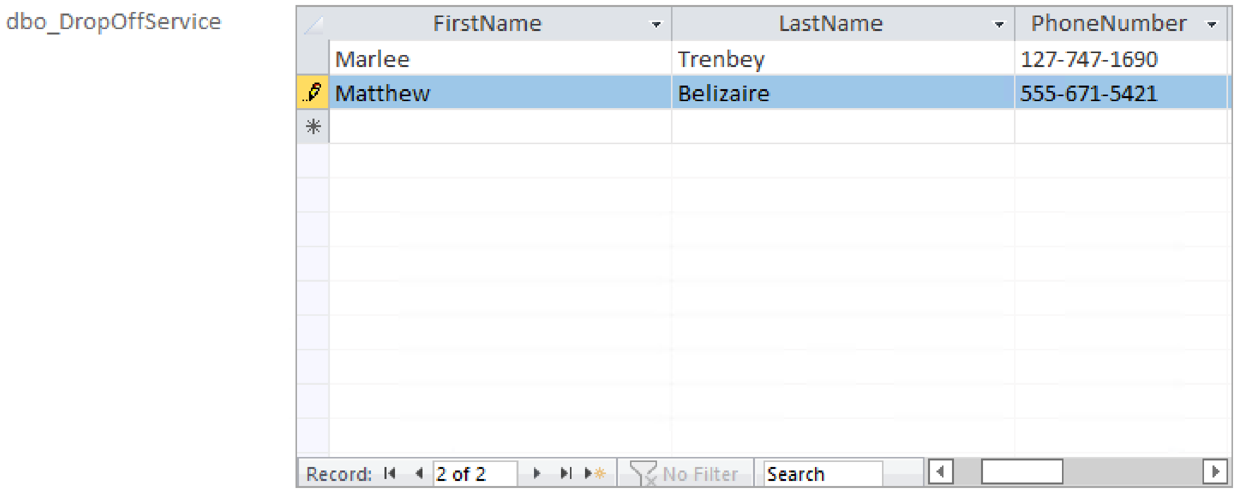
EmployeeID	4
EmployeeFirstName	Nerty
EmployeeLastName	Killeen
EmployeePhoneNumber	225-876-7827
EmployeeEmailAddress	nkilleen3@google.ru
EmployeeAddress	68 Comanche Way
JobTitle	Sales Associate
ManagerID	

dbo_DropOffService

ServiceID	FirstName	LastName	Phc
2	Marlee	Trenbey	127-
(New)			

Record: 2 of 2 No Filter Search

After she entered some new data:



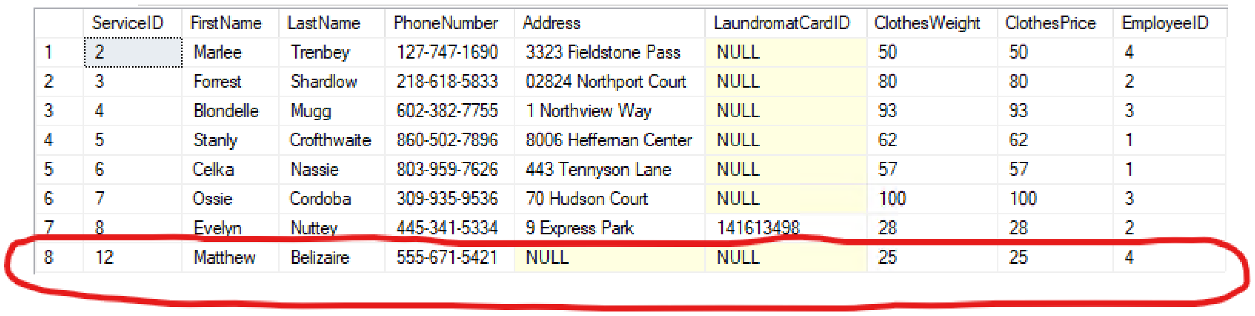
dbo_DropOffService

FirstName	LastName	PhoneNumber
Marlee	Trenbey	127-747-1690
Matthew	Belizaire	555-671-5421

Record: 2 of 2 No Filter Search

```
--Checking to see if Database updated from Access
```

```
SELECT * FROM DropOffService
```



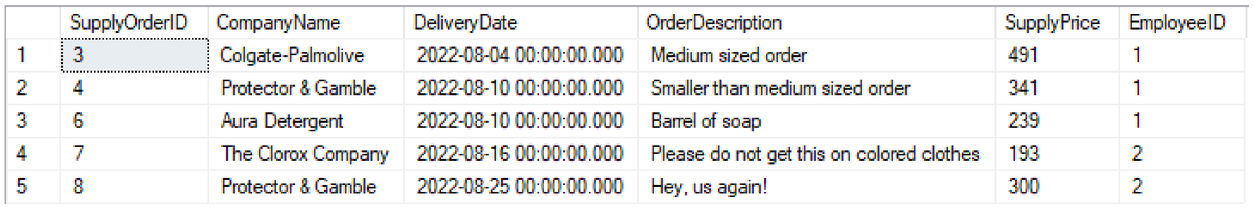
	ServiceID	FirstName	LastName	PhoneNumber	Address	LaundromatCardID	ClothesWeight	ClothesPrice	EmployeeID
1	2	Marlee	Trenbey	127-747-1690	3323 Fieldstone Pass	NULL	50	50	4
2	3	Forrest	Shardlow	218-618-5833	02824 Northport Court	NULL	80	80	2
3	4	Blondelle	Mugg	602-382-7755	1 Northview Way	NULL	93	93	3
4	5	Stanly	Crofthwaite	860-502-7896	8006 Heffeman Center	NULL	62	62	1
5	6	Celka	Nassie	803-959-7626	443 Tennyson Lane	NULL	57	57	1
6	7	Ossie	Cordoba	309-935-9536	70 Hudson Court	NULL	100	100	3
7	8	Evelyn	Nuttey	445-341-5334	9 Express Park	141613498	28	28	2
8	12	Matthew	Belizaire	555-671-5421	NULL	NULL	25	25	4

As we can see, a new record has been added and we know which employee completed the task based on their ID.

Next, we'd like to observe an employee complete a SupplyOrder and enter a new record.

SupplyOrder Before:

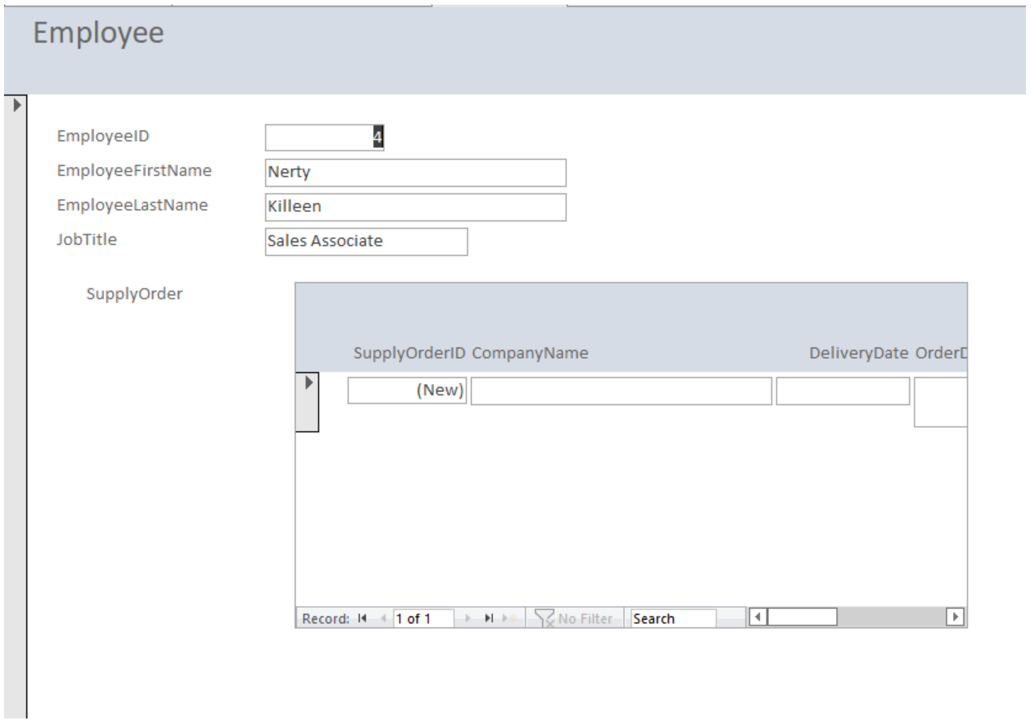
```
SELECT * FROM SupplyOrder
```



	SupplyOrderID	CompanyName	DeliveryDate	OrderDescription	SupplyPrice	EmployeeID
1	3	Colgate-Palmolive	2022-08-04 00:00:00.000	Medium sized order	491	1
2	4	Protector & Gamble	2022-08-10 00:00:00.000	Smaller than medium sized order	341	1
3	6	Aura Detergent	2022-08-10 00:00:00.000	Barrel of soap	239	1
4	7	The Clorox Company	2022-08-16 00:00:00.000	Please do not get this on colored clothes	193	2
5	8	Protector & Gamble	2022-08-25 00:00:00.000	Hey, us again!	300	2

Matthew Belizaire
IST659 Project

This is what our employee sees on their end:



Employee

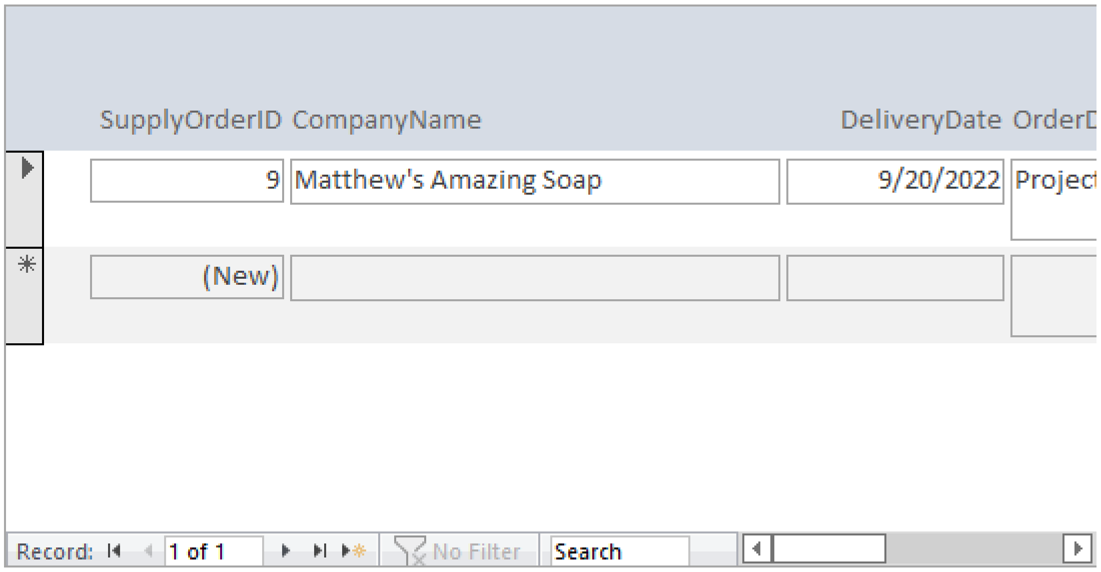
EmployeeID	4
EmployeeFirstName	Nerty
EmployeeLastName	Killeen
JobTitle	Sales Associate

SupplyOrder

SupplyOrderID	CompanyName	DeliveryDate	OrderD
(New)			

Record: 1 of 1 No Filter Search

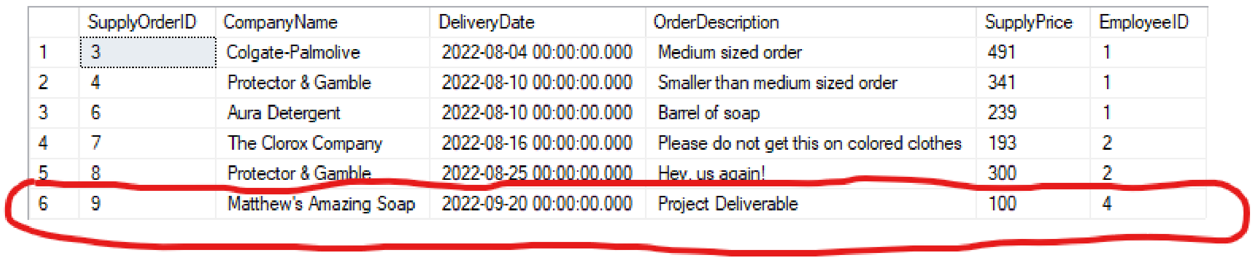
Nerty enters some more data:



SupplyOrderID	CompanyName	DeliveryDate	OrderD
9	Matthew's Amazing Soap	9/20/2022	Projec
(New)			

Record: 1 of 1 No Filter Search

```
--Checking to see if Database updated from Access
SELECT * FROM DropOffService
```

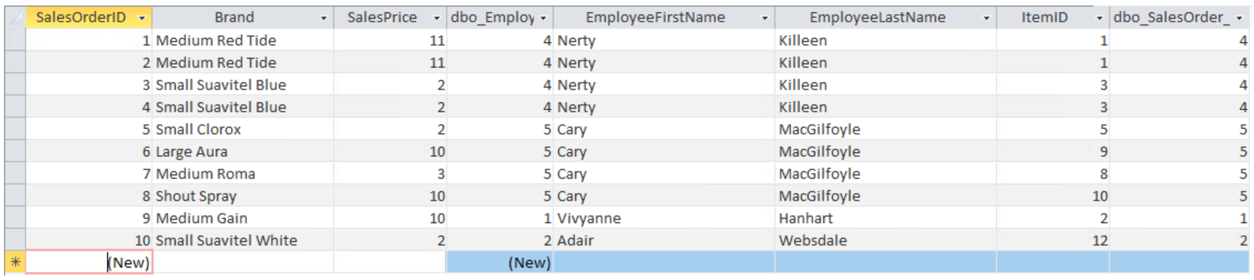


	SupplyOrderID	CompanyName	DeliveryDate	OrderDescription	SupplyPrice	EmployeeID
1	3	Colgate-Palmolive	2022-08-04 00:00:00.000	Medium sized order	491	1
2	4	Protector & Gamble	2022-08-10 00:00:00.000	Smaller than medium sized order	341	1
3	6	Aura Detergent	2022-08-10 00:00:00.000	Barrel of soap	239	1
4	7	The Clorox Company	2022-08-16 00:00:00.000	Please do not get this on colored clothes	193	2
5	8	Protector & Gamble	2022-08-25 00:00:00.000	Hey, us again!	300	2
6	9	Matthew's Amazing Soap	2022-09-20 00:00:00.000	Project Deliverable	100	4

The record has been added and we once again know who it based on their employee ID. If we wanted to see the name associated, we could enter a SELECT Query with a join.

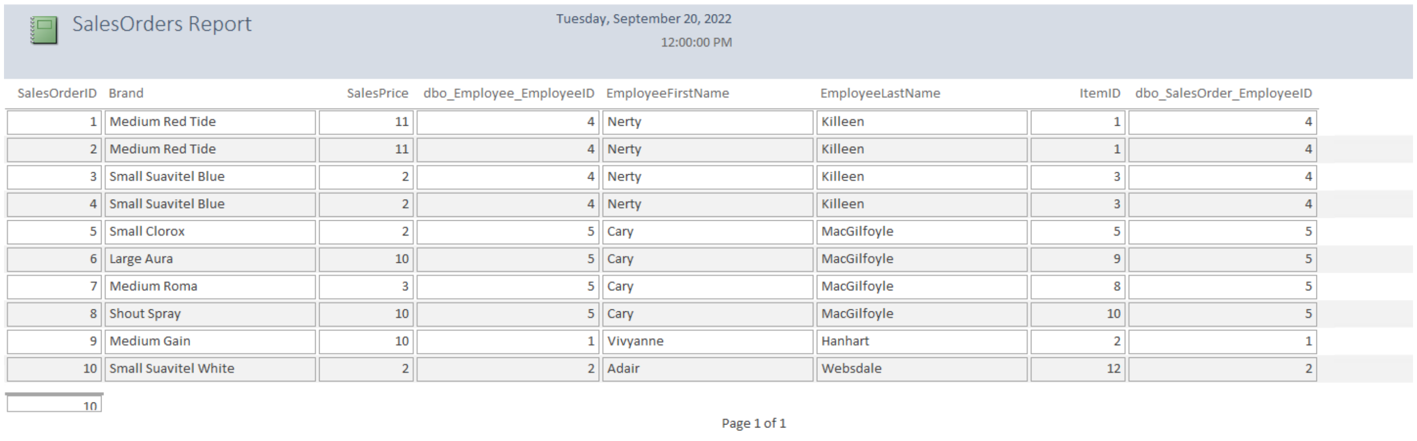
Finally, we will see Front-end users utilize the report feature to turn a form into a report.

This is the form we've decided to go with, and it represents SalesOrder combined with price, the employee who sold it, and other relevant information.



SalesOrderID	Brand	SalesPrice	dbo_Employ	EmployeeFirstName	EmployeeLastName	ItemID	dbo_SalesOrder_
1	Medium Red Tide	11	4	Nerty	Killeen	1	4
2	Medium Red Tide	11	4	Nerty	Killeen	1	4
3	Small Suavitel Blue	2	4	Nerty	Killeen	3	4
4	Small Suavitel Blue	2	4	Nerty	Killeen	3	4
5	Small Clorox	2	5	Cary	MacGilfoyle	5	5
6	Large Aura	10	5	Cary	MacGilfoyle	9	5
7	Medium Roma	3	5	Cary	MacGilfoyle	8	5
8	Shout Spray	10	5	Cary	MacGilfoyle	10	5
9	Medium Gain	10	1	Vivyanne	Hanhart	2	1
10	Small Suavitel White	2	2	Adair	Websdale	12	2
(New)			(New)				

When converted into a report, this is the report view:



SalesOrders Report

Tuesday, September 20, 2022
12:00:00 PM

SalesOrderID	Brand	SalesPrice	dbo_Employee_EmployeeID	EmployeeFirstName	EmployeeLastName	ItemID	dbo_SalesOrder_EmployeeID
1	Medium Red Tide	11	4	Nerty	Killeen	1	4
2	Medium Red Tide	11	4	Nerty	Killeen	1	4
3	Small Suavitel Blue	2	4	Nerty	Killeen	3	4
4	Small Suavitel Blue	2	4	Nerty	Killeen	3	4
5	Small Clorox	2	5	Cary	MacGilfoyle	5	5
6	Large Aura	10	5	Cary	MacGilfoyle	9	5
7	Medium Roma	3	5	Cary	MacGilfoyle	8	5
8	Shout Spray	10	5	Cary	MacGilfoyle	10	5
9	Medium Gain	10	1	Vivyanne	Hanhart	2	1
10	Small Suavitel White	2	2	Adair	Websdale	12	2

10

Page 1 of 1

This can make the results of a form more printer friendly, and more readable overall. There is also an ability to personally customize your own report style, but I went with the default option.

Reflection

What assumptions did you have at the start of your project that changed by the end? Think in terms of both your own problem domain as well as your knowledge of the process.

The assumptions I had at the start of the project was that it would be less time consuming that it ended up being. This likely has a direct correlation with how many tables I chose to incorporate, but I think the excess time I spent repeating the same processes helped me better understand elements of SQL more in depth. I also assumed it would be difficult, and while that is certainly subjective, I think it had just the right amount of challenge. By no means did I fly through it, but I also had to think about my decisions a lot. With that being said, there were still improvements to be had, but I know I will be better from the experience.

The next time you do this, what will be different?

Preparation will be different. Mainly in terms of creating better logical and conceptual models, I underestimated their importance and thought I'd just upgrade things along the way if need be. There were some major changes I've made to the final submission, but there were other things that could not be changed due to how much of what I'd completed relied on that foundation. It worked but could have been better in my opinion.

Regardless of whether you go through these steps again, how do you think it will inform your approach to data as an information professional?

It'll be important to my approach I'd think. These steps place an underappreciated aspect of the conceptual steps to understanding why things need to be the way they are. Data needs to be good and make sense. Moving forward I'll certainly be more cautious of how I work with data, especially if I am creating it from scratch.

Summary

With this being my first time creating a database from scratch by myself, I think I did a good job. Not because it was created perfectly, but because of the areas in which I saw I could've improved as I went along. While everything is serviceable and works, there were things I could've done that would've made things more efficient. Some of the potential improvements I learned at the "point of no return" include combining certain elements on the same table instead of having to later join them for the results to make sense, being more careful identifying my datatypes to prevent later ALTER statements, being more mindful of what I'm naming columns so that it not only makes sense to me but others, and overall, just taking more time in the planning phases instead of adapting when I run into problems. There were even some things I wanted to try but refrained because I not want to risk breaking something that already works.

If there wasn't a deadline for my project, what I've completed would not be the final draft. This is not just because of the obvious lack of records for the sake of the project, but because I've thought of so many improvements, and different ways of handling things if I were to start from the beginning. The project was enjoyable for me as I was trying to solve real problems relevant to my life while not knowing much about the process (from experience). It was an eye-opening experience, and I think even accurate, to what real database designers are doing in the work force. I hope to continue honing my skills/knowledge around SQL and the Database process so I too can solve real problems in the workplace.