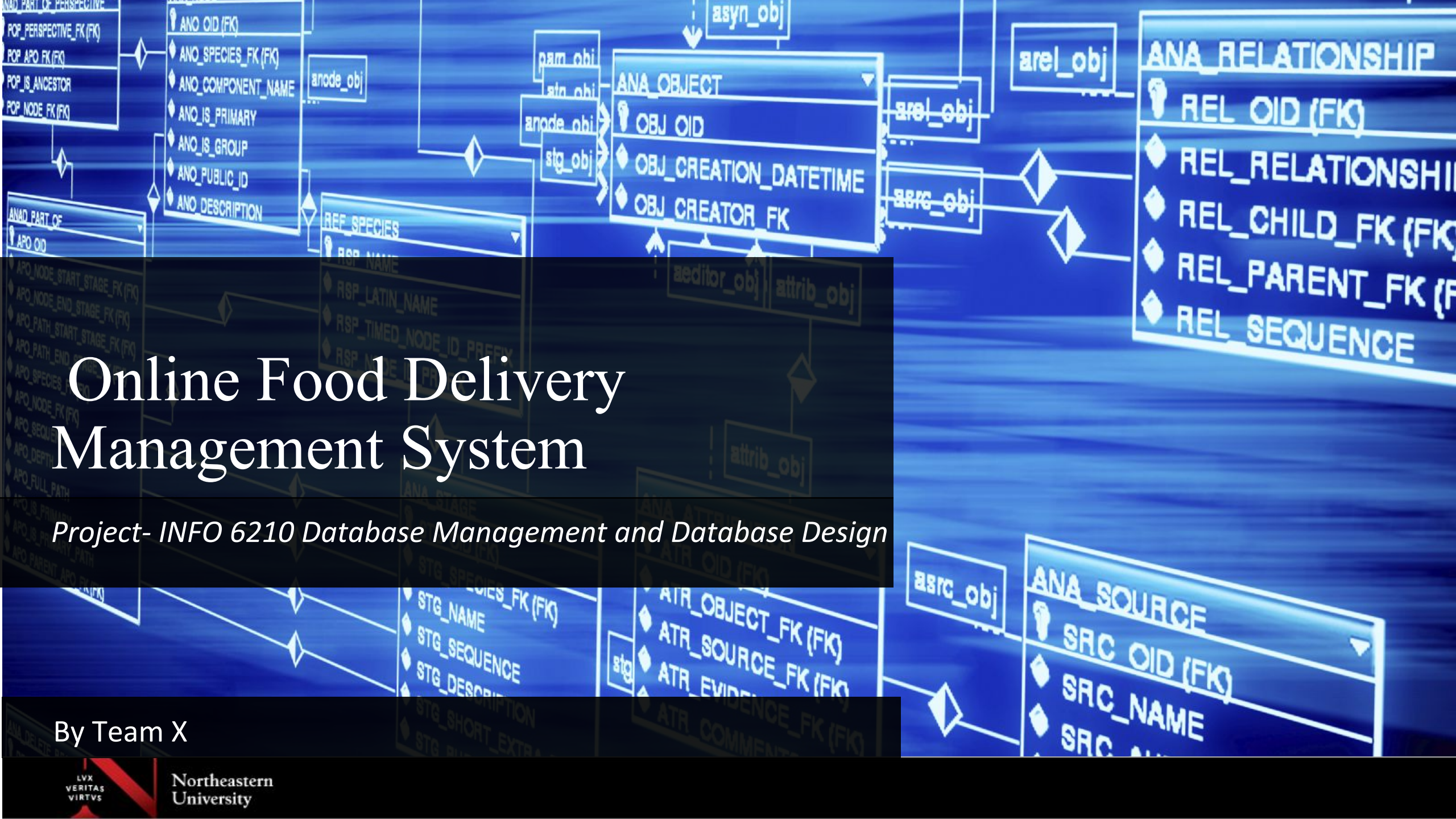

Online Food Delivery Management System

Project- INFO 6210 Database Management and Database Design

By Team X

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Background & Purpose

There's a high demand for data management for online food ordering systems

- Demand of online food is rising recently
- Process of Online food ordering is to book a metal through an app or a website
- Customer can choose the type of restaurant and food
- Payment can be done either a credit card or a debit card
- Our goal is to stand out in such many apps and websites
- The Feedback system helps people get more familiar with restaurants

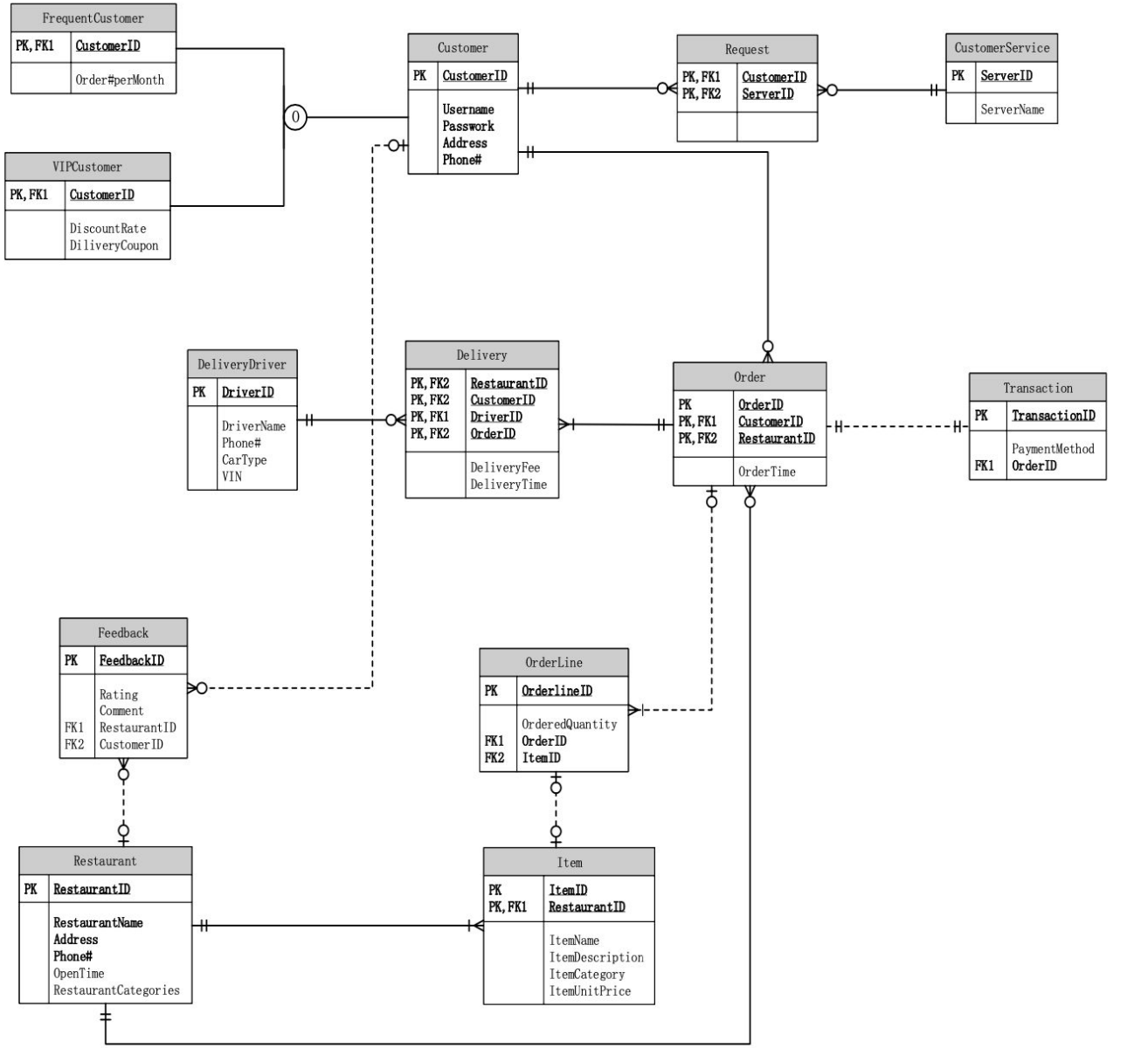
Some Business Rules

- Customer is an entity that contains all the person who use online food ordering system.
- CustomerID is the primary It also contains 1 foreign key ‘DriverID’..

- Restaurants is an entity which provides food so that customer can order & choose.
- RestaurantID is the primary key.

- Order is an entity that contains information of an order.
- OrderID is the primary key as well as the identification of this entity.
- OrderTime records the time which this order takes place.
- Two subtypes are in this entity, named ForDelivery and ForPickUp, which indicates whether this order is for delivery or pickup.

E R Diagram


FrequentCustomer
PK, FK1 CustomerID
Order#perMonth
VIPCustomer
PK, FK1 CustomerID
DiscountRate
DiliveryCoupon
0
Customer
PK CustomerID
Username
Passwork
Address
Phone#
Request
PK, FK1 CustomerID
PK, FK2 ServerID
CustomerService
PK ServerID
ServerName
DeliveryDriver
PK DriverID
DriverName
Phone#
CarType
VIN
Delivery
PK, FK2 RestaurantID
PK, FK2 CustomerID
PK, FK1 DriverID
PK, FK2 OrderID
DeliveryFee
DeliveryTime
Order
PK OrderID
PK, FK1 CustomerID
PK, FK2 RestaurantID
OrderTime
Transaction
PK TransactionID
PaymentMethod
FK1 OrderID
Feedback
PK FeedbackID
Rating
Comment
FK1 RestaurantID
FK2 CustomerID
OrderLine
PK OrderlineID
OrderedQuantity
FK1 OrderID
FK2 ItemID
Restaurant
PK RestaurantID
RestaurantName
Address
Phone#
OpenTime
RestaurantCategories
Item
PK ItemID
PK, FK1 RestaurantID
ItemName
ItemDescription
ItemCategory
ItemUnitPrice

Database Design

Online Food Ordering Database System keeps the ordering record every moment

Customer

Delivery

Restaurant

Order

Customer Service

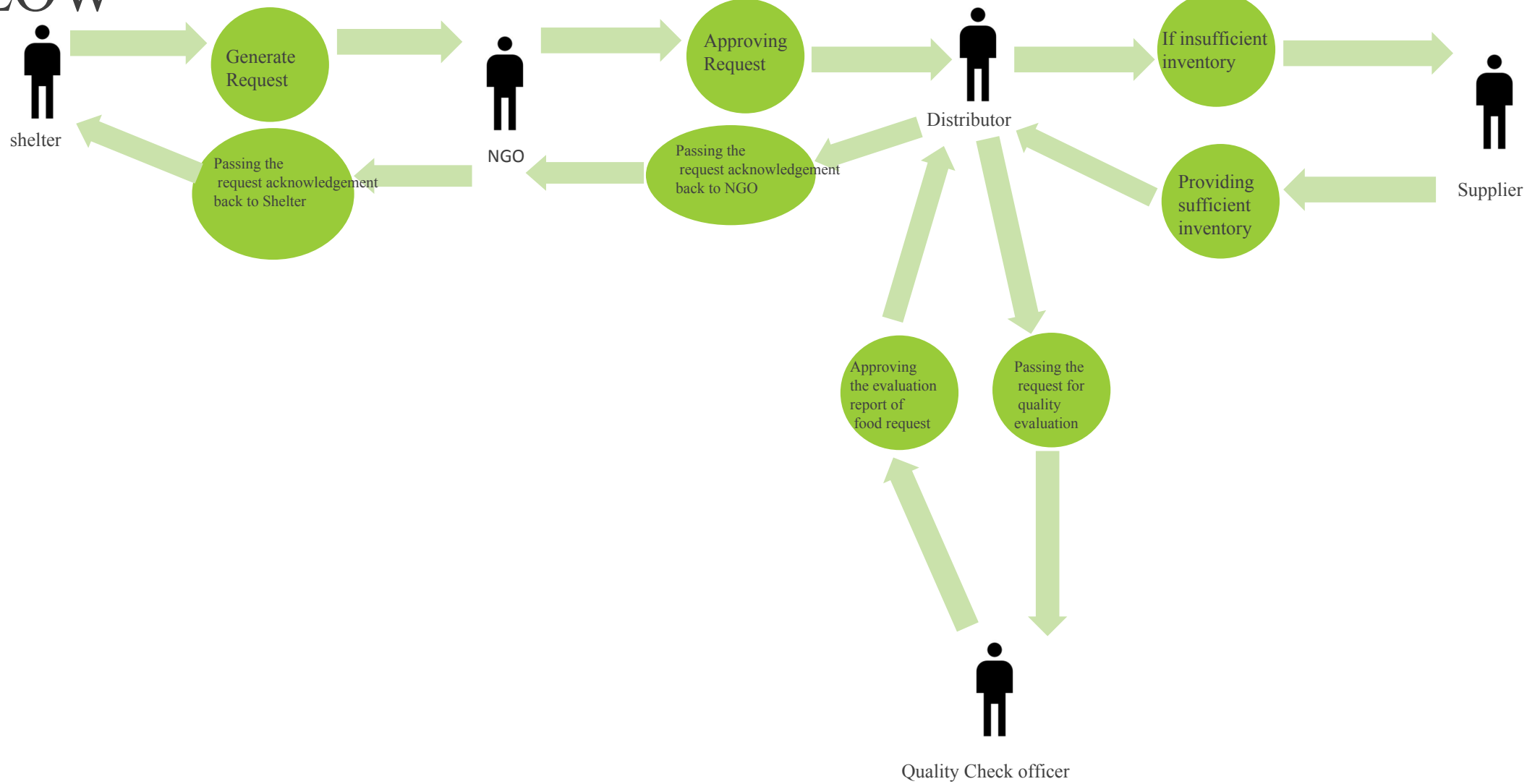
Menu

Transaction

Feedback

Food

DATABASE FLOW



DDL for Food Delivery Platform

✔ **CREATE TABLE** Customer

(CustomerID int **not** null, UserName **nvarchar**(40) **not** null, [**Password**] varchar(30) **NOT** NULL, [Address] varchar(50), Phone# varchar(15), **CONSTRAINT** Customer_PK **PRIMARY KEY** (CustomerID));

✔ **CREATE TABLE** [Transaction]

(TransactionID int not null,OrderID int ,PaymentMethod varchar(20), CONSTRAINT Transaction_PK PRIMARY KEY (TransactionID), CONSTRAINT Check_method CHECK (PaymentMethod in ('Credit Card','Debit Card','PayPal')));

Creating encryption column for Food Delivery Platform

CREATE MASTER KEY ENCRYPTION **BY PASSWORD** = 'INFO 6210';

CREATE CERTIFICATE Customer007 **WITH** SUBJECT = 'Customer Password';

GO CREATE SYMMETRIC **KEY** Password_key_01 **WITH** ALGORITHM = AES_256 ENCRYPTION **BY** CERTIFICATE Customer007;

ALTER TABLE Customer **ADD** EncryptedPassword varbinary(128);

OPEN SYMMETRIC KEY Password_key_01

DECRYPTION BY CERTIFICATE Customer007;

UPDATE Customer

SET EncryptedPassword = ENCRYPTBYKEY(key_GUID('Password_key_01'), Password);

ALTER TABLE Customer DROP COLUMN [Password]

DDLs for Food Delivery Platform

Results | Messages

	CustomerID	UserName	Address	Phone#	EncryptedPassword
1	1	Corena	138 Pleasant St Malden MA	617-463-18...	0x00E54C8125ABCA4B83DAD5188D83181402000000E1A7FAA...
2	2	Thea	14 Summer St Malden MA	617-911-37...	0x00E54C8125ABCA4B83DAD5188D8318140200000008D72FD...
3	3	Domenico	99 Florence St Malden MA	617-381-27...	0x00E54C8125ABCA4B83DAD5188D8318140200000001C38D5...
4	4	Tiebout	72 Staniford St Boston MA	617-899-35...	0x00E54C8125ABCA4B83DAD5188D831814020000000716581D...
5	5	Alverta	50 Malden St Boston MA	617-267-77...	0x00E54C8125ABCA4B83DAD5188D8318140200000007ACFC5...
6	6	Monica	77 Exeter St Boston MA	617-410-85...	0x00E54C8125ABCA4B83DAD5188D8318140200000000E87774...
7	7	Carolee	99 Kneeland St Boston MA	617-149-96...	0x00E54C8125ABCA4B83DAD5188D8318140200000A34C17...
8	8	Cacilia	126 Border St Boston MA	617-117-88...	0x00E54C8125ABCA4B83DAD5188D8318140200000005BDADA...
9	9	Lucho	125 Guest St Boston MA	617-468-54...	0x00E54C8125ABCA4B83DAD5188D8318140200000B36CC7...
10	10	Marvin	1 Nashua St Boston MA	617-584-67...	0x00E54C8125ABCA4B83DAD5188D8318140200000041A9B43...
11	11	Darnall	160 Pleasant St Malden MA	617-658-36...	0x00E54C8125ABCA4B83DAD5188D8318140200000039C3629...
12	12	Krissy	345 Harrison Ave Boston MA	617-446-68...	0x00E54C8125ABCA4B83DAD5188D8318140200000912C69B...
13	13	Jocelyne	401 Mt Vernon St Boston MA	617-788-00...	0x00E54C8125ABCA4B83DAD5188D8318140200000002CBF3A4...
14	14	Leoine	1 Canal St Boston MA	617-680-89...	0x00E54C8125ABCA4B83DAD5188D8318140200000004FF5210...
15	15	Preston	36 Dartmouth St Malden MA	617-402-28...	0x00E54C8125ABCA4B83DAD5188D8318140200000009B8C8C...
16	16	Morton	665 Washington St Boston MA	617-139-09...	0x00E54C8125ABCA4B83DAD5188D8318140200000008DB842...
17	17	Esdras	101 Canal St Boston MA	617-416-49...	0x00E54C8125ABCA4B83DAD5188D8318140200000CE61071...

DDLs for Food Delivery Platform

Results | Messages

	RestaurantID	RestaurantName	Address	Phone#	OpenTime	CloseTime	RestaurantCategories
1	1	Kims Kitchen	708 Columbus Ave, South End	617-421-95...	11:30:00...	22:00:00....	Asian Fusion, Chinese, Japane...
2	2	MIDA	782 Tremont St, South End	617-936-34...	12:00:00...	13:00:00....	Italian, Bars
3	3	Boston Burger	1100 Boylston St, Boston	857-233-45...	11:00:00...	23:00:00....	American,Bueger
4	4	Pho Basil	177 Massachusetts, Boston	617-262-53...	10:00:00...	22:30:00....	Vietnames, Thai, Seafood
5	5	Cornish Pasty	51 Massachusetts, Back Bay	857-250-44...	11:00:00...	23:00:00....	British, Vegan, Cocktail Bars
6	6	Blunch	59 E Springfield St, Boston	617-247-81...	09:00:00...	15:00:00....	Breakfast, Brunch
7	7	Island Creek Oyster ...	500 Commonwealth Ave, Boston	617-532-53...	11:30:00...	23:30:00....	Seafood, Bars
8	8	GreCo	225 Newbury St, Back Bay	617-572-33...	12:00:00...	22:00:00....	Greek, Salad, Sandwiches
9	9	Union Park Pizza	1405 Washington St, South End	617-855-11...	10:00:00...	23:00:00....	Pizza
10	10	Billys Sub Shop	57 Berkley St, South End	617-426-18...	07:00:00...	16:00:00....	Diners, Sandwiches, Salad

DDLs for Food Delivery Platform

✔ **CREATE TABLE [Order]**

(OrderID int **not** null, CustomerID int **not** null, RestaurantID int **not** null,

OrderTime datetime **default** (**getdate**()),

CONSTRAINT Order_PK PRIMARY **KEY** (OrderID),

CONSTRAINT Order_FK1 FOREIGN **KEY** (CustomerID) **REFERENCES**

Customer (CustomerID),

CONSTRAINT Order_FK2 FOREIGN **KEY** (RestaurantID) **REFERENCES**

Restaurant (RestaurantID));

DDLs for Food Delivery Platform

Results | Messages

	OrderID	CustomerID	RestaurantID	OrderTime
1	1	1	2	2019-11-27 13:10:09.2...
2	2	2	5	2019-11-27 13:11:41.3...
3	3	3	1	2019-11-27 13:11:41.3...
4	4	4	6	2019-11-27 13:11:41.3...
5	5	5	7	2019-11-27 13:11:41.3...
6	6	6	7	2019-11-27 13:11:41.3...
7	7	7	2	2019-11-27 13:11:41.3...
8	8	8	1	2019-11-27 13:11:41.3...
9	9	9	9	2019-11-27 13:11:41.3...
10	10	10	10	2019-11-27 13:11:41.3...
11	11	11	6	2019-11-27 13:11:41.3...
12	12	12	4	2019-11-27 13:11:41.3...
13	13	13	2	2019-11-27 13:11:41.3...
14	14	14	4	2019-11-27 13:11:41.3...
15	15	15	3	2019-11-27 13:11:41.3...
16	16	16	8	2019-11-27 13:11:41.3...
17	17	17	8	2019-11-27 13:11:41.3...

Creating Stored Procedures

✔ GO

```
CREATE PROCEDURE AssignDelivery (@OrderID int,@DriverID int,@DeliveryFee float)
AS  BEGIN
INSERT INTO Delivery values(@OrderID,@DriverID,@DeliveryFee,getdate());


SELECT C.CustomerID,C.UserName,C.[Address],C.Phone#,
R.RestaurantID,R.RestaurantName,R.[Address],R.Phone#
FROM [Order] O join Customer C on O.CustomerID = C.CustomerID
              join Restaurant R on O.RestaurantID=R.RestaurantID
WHERE OrderID = @OrderID
END;
```

Creating Stored Procedures

- Exec AssignDelivery 17,5,2.99;

Results | Messages

	CustomerID	UserName	Address	Phone#	RestaurantID	RestaurantName	Address	Phone#
1	17	Esdras	101 Canal St Boston ...	617-416-49...	8	GreCo	225 Newbury St, Back Bay	617-572-33...

- Delivery Table

Results | Messages

	OrderID	Driver...	DeliveryFee	DeliveryTime
19	17	5	2.99	2019-12-07 17:59:41.0...

Creating Stored Procedures

```
CREATE PROCEDURE SearchFood(@ItemDescription
varchar(100),@ItemCategory varchar(20))


AS BEGIN
SELECT ItemID,ItemName,ItemDescription,ItemCategory
FROM Item
WHERE ItemDescription like '%'+@ItemDescription+'%' or ItemCategory =
@ItemCategory
END;
```

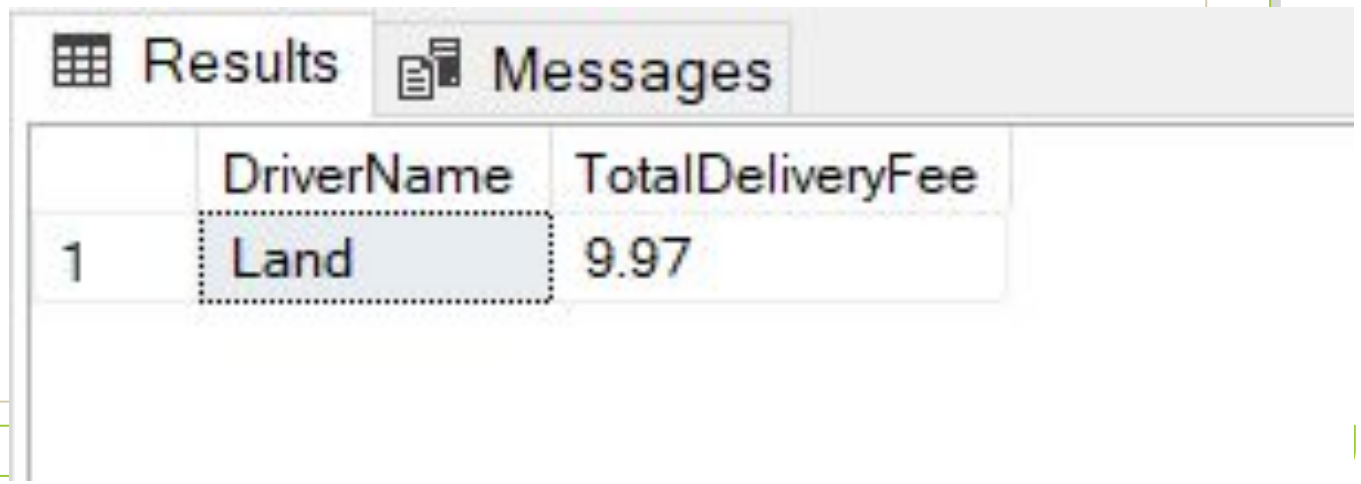
Creating Stored Procedures

- exec SearchFood 'Chicken' ,'Sandwich'

	ItemID	ItemName	ItemDescription	ItemCategory	RestaurantName
1	6	Tree Sandwich Turkey	Bread	Sandwich	Blunch
2	7	Oven Roasted Tomatoes Bread	Egg,Tomato	Sandwich	Blunch
3	16	Baffalo Chicken	Chicken,Sauce	Appetizer	Union Park Pizza
4	29	Mango Chicken Mango	Chicken,Red Pepper	Plate	MIDA
5	32	Chicken Tikka Masala	Chicken Breast,Green Pepp...	Plate	Boston Burger
6	40	Regal Regis Steak	Potato Salad	Sandwich	GreCo
7	41	Chichen Piccata	Chicken,Potato	Plate	MIDA

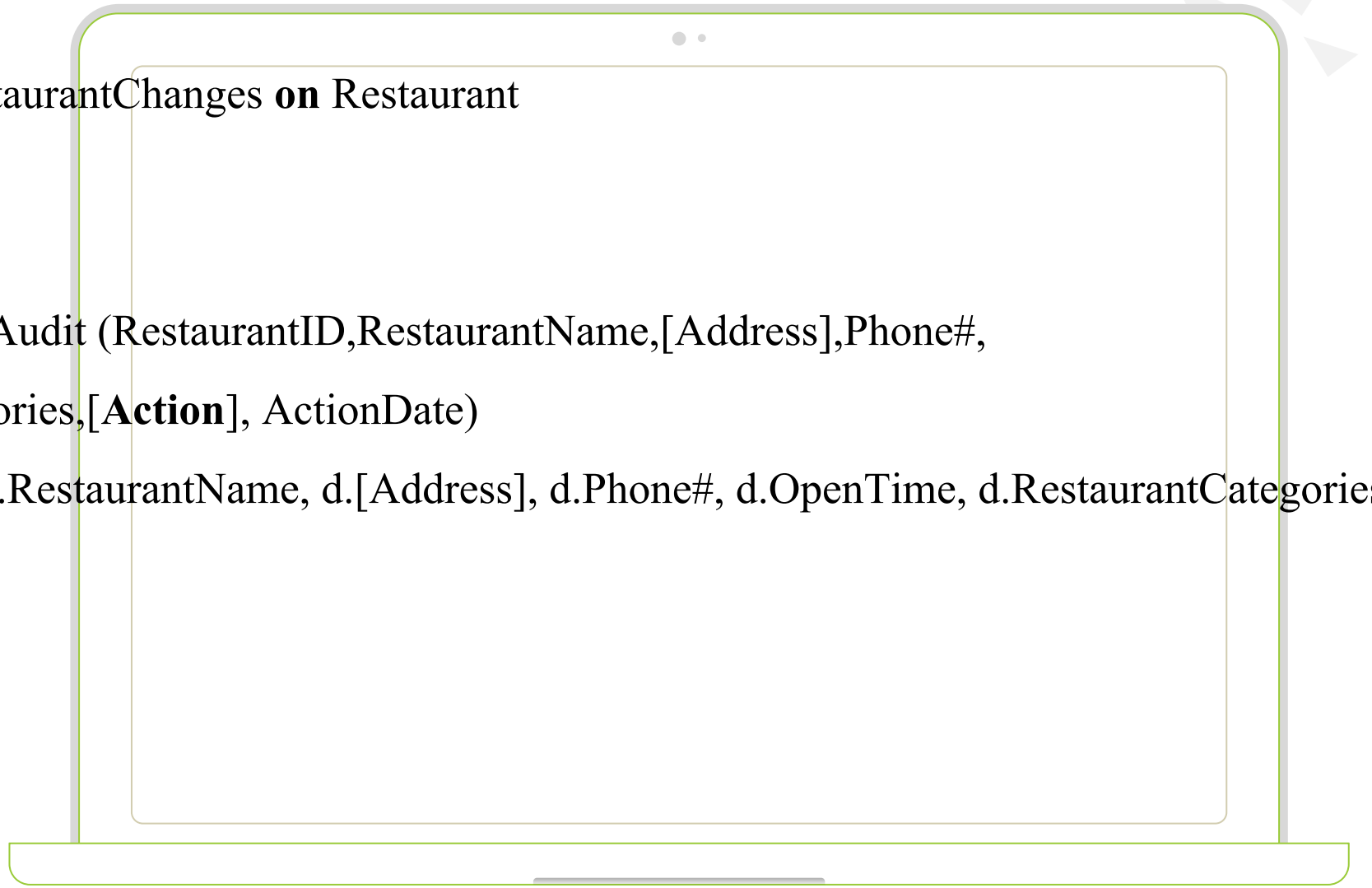
Creating Stored Procedures

```
CREATE PROCEDURE DriverFee (@DriverID INT,@DriverName nvarchar(40))
AS BEGIN
Select DriverName ,sum(d.DeliveryFee) as TotalDeliveryFee
FROM DeliveryDriver dd left join Delivery d on dd.DriverID=d.DriverID
Where dd.DriverID=@DriverID or dd.DriverName = @DriverName
Group by dd.DriverName
END;

exec DriverFee 2,'';
```



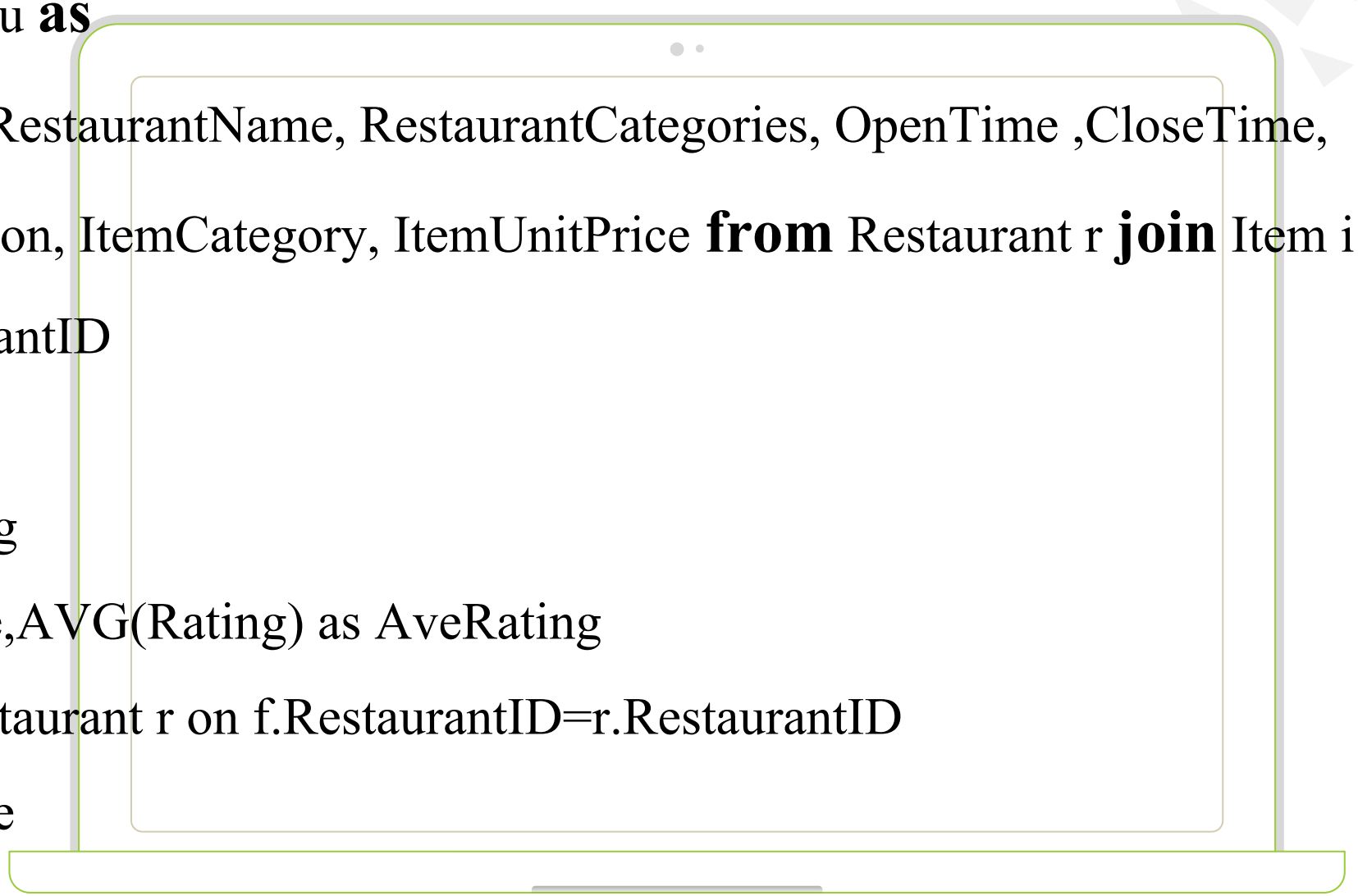
Creating TRIGGERS

```
CREATE TRIGGER RestaurantChanges on Restaurant
FOR UPDATE
AS BEGIN
INSERT INTO RestaurantAudit (RestaurantID,RestaurantName,[Address],Phone#,
OpenTime,RestaurantCategories,[Action], ActionDate)
SELECT d.RestaurantID, d.RestaurantName, d.[Address], d.Phone#, d.OpenTime, d.RestaurantCategories,
'U',GETDATE()
FROM deleted d
END
```



Creating Views

```
CREATE VIEW v_menu as

select r.RestaurantID ,r.RestaurantName, RestaurantCategories, OpenTime ,CloseTime,

ItemName, ItemDescription, ItemCategory, ItemUnitPrice from Restaurant r join Item i on

r.RestaurantID=i.RestaurantID


CREATE VIEW V_rating

as select RestaurantName,AVG(Rating) as AveRating

from Feedback f join Restaurant r on f.RestaurantID=r.RestaurantID

group by RestaurantName
```



Creating Triggers and Views

- **select *from v_menu**

Results | Messages

	RestaurantID	RestaurantName	RestaurantCategories	OpenTime	CloseTime	ItemName	ItemDescription	ItemCategory	ItemUnitPrice
1	2	MIDA	Italian, Bars	12:00:00.0000000	13:00:00.0000000	Spaghetti	Tomato	Kale Plate	16.99
2	2	MIDA	Italian, Bars	12:00:00.0000000	13:00:00.0000000	Tiramisu Milk	Cream	Coffe Powder Des...	5.67
3	2	MIDA	Italian, Bars	12:00:00.0000000	13:00:00.0000000	Stuffed Mushrooms Chesse	Mushroom	Appetizer	7.89
4	5	Cornish Pasty	British, Vegan, Cocktail Bars	11:00:00.0000000	23:00:00.0000000	Bangers and Mash Grilled Oni...	Homemade Pork	Plate	13.95
5	1	Kims Kitchen	Asian Fusion, Chinese, Japane...	11:30:00.0000000	22:00:00.0000000	Pork Belly Spicy Sauce	Pork	Appetizer	17.95
6	6	Blunch	Breakfast, Brunch	09:00:00.0000000	15:00:00.0000000	Tree Sandwich Turkey	Bread	Sandwich	6.99
7	6	Blunch	Breakfast, Brunch	09:00:00.0000000	15:00:00.0000000	Oven Roasted Tomatoes Bread	Egg,Tomato	Sandwich	8.99
8	7	Island Creek Oyster ...	Seafood, Bars	11:30:00.0000000	23:30:00.0000000	Lobster Roe Noodles	Rib,Lobster,Noodles	Plate	34
9	7	Island Creek Oyster ...	Seafood, Bars	11:30:00.0000000	23:30:00.0000000	Crispy Oyster Slider Oyster	Brioche Roll	Appetizer	4
10	7	Island Creek Oyster ...	Seafood, Bars	11:30:00.0000000	23:30:00.0000000	Clam Chowder Clam	Biscuits Bacon	Soup	11
11	7	Island Creek Oyster ...	Seafood, Bars	11:30:00.0000000	23:30:00.0000000	Crab Cake Radish	Fennel	Plate	16
12	7	Island Creek Oyster ...	Seafood, Bars	11:30:00.0000000	23:30:00.0000000	Salmon Tartare Salmon	Seasame	Plate	13
13	2	MIDA	Italian, Bars	12:00:00.0000000	13:00:00.0000000	Latte Milk	Coffee	Beverage	5.67
14	1	Kims Kitchen	Asian Fusion, Chinese, Japane...	11:30:00.0000000	22:00:00.0000000	Pad Thai Sprout	Scallion	Egg Plate	11.95
15	1	Kims Kitchen	Asian Fusion, Chinese, Japane...	11:30:00.0000000	22:00:00.0000000	Dan Dan Noodles	Minced Pork	Hoisin Sauce Bowl	10.95
16	9	Union Park Pizza	Pizza	10:00:00.0000000	23:00:00.0000000	Baffalo Chicken	Chicken,Sauce	Appetizer	7.8
17	9	Union Park Pizza	Pizza	10:00:00.0000000	23:00:00.0000000	Mags Supreme Onion	Green Pepper	Bacon Pizza	5.66

Creating Stored Procedures

- **select *from v_rating**

Results | Messages

	RestaurantName	AveRating
1	Billys Sub Shop	3.500000
2	Blunch	4.400000
3	Boston Burger	3.800000
4	Cornish Pasty	4.200000
5	GreCo	4.950000
6	Island Creek Oyster B...	4.550000
7	Kims Kitchen	3.600000
8	MIDA	4.150000
9	Pho Basil	4.550000
10	Union Park Pizza	3.000000

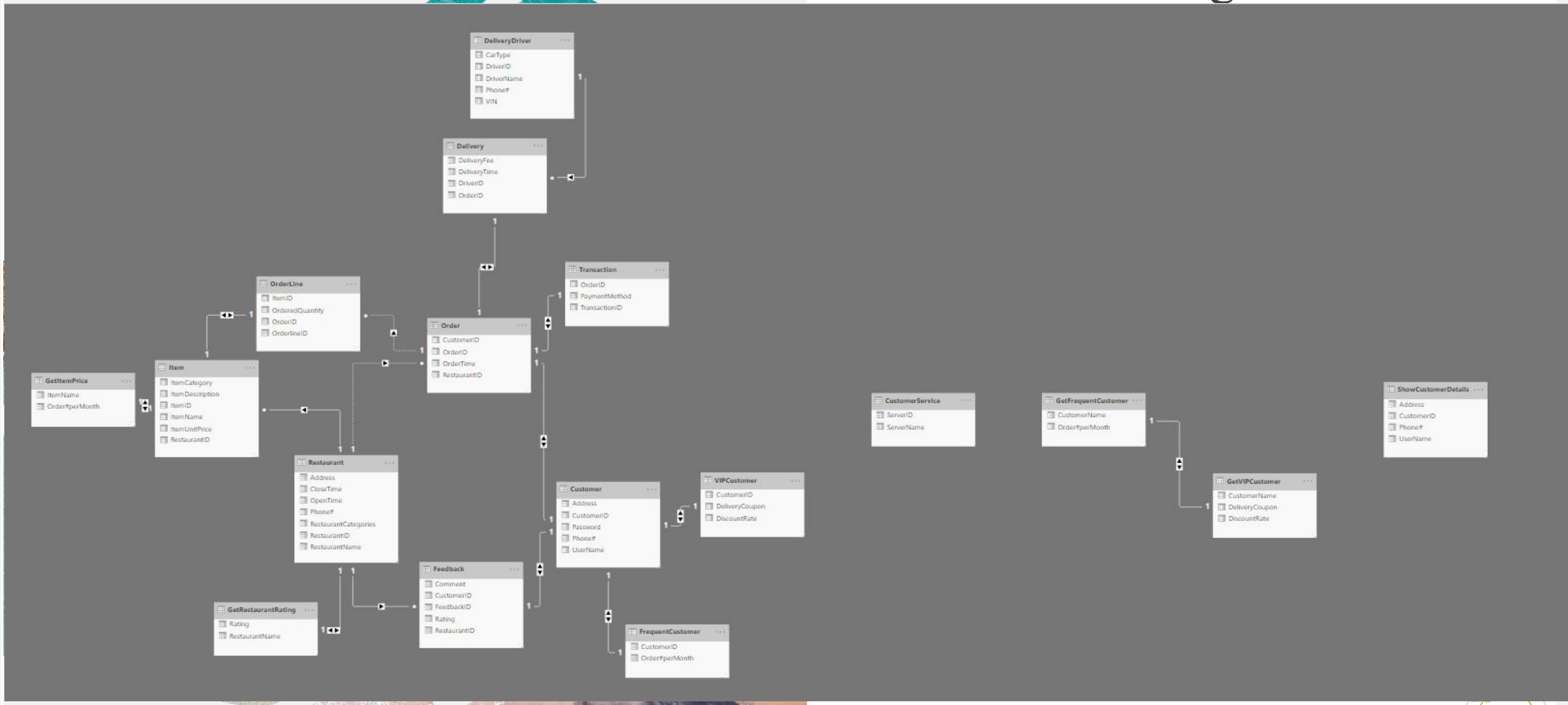
Creating Non clustered index

- **CREATE NONCLUSTERED INDEX U_Name ON Customer (UserName) with FILLFACTOR = 60;**
- **CREATE NONCLUSTERED INDEX D_Name ON DeliveryDriver (DriverName) with FILLFACTOR = 60;**
- **CREATE NONCLUSTERED INDEX I_Name ON Item (ItemName) with FILLFACTOR = 60;**
- **CREATE NONCLUSTERED INDEX R_Name ON Restaurant (RestaurantName) with FILLFACTOR = 60;**

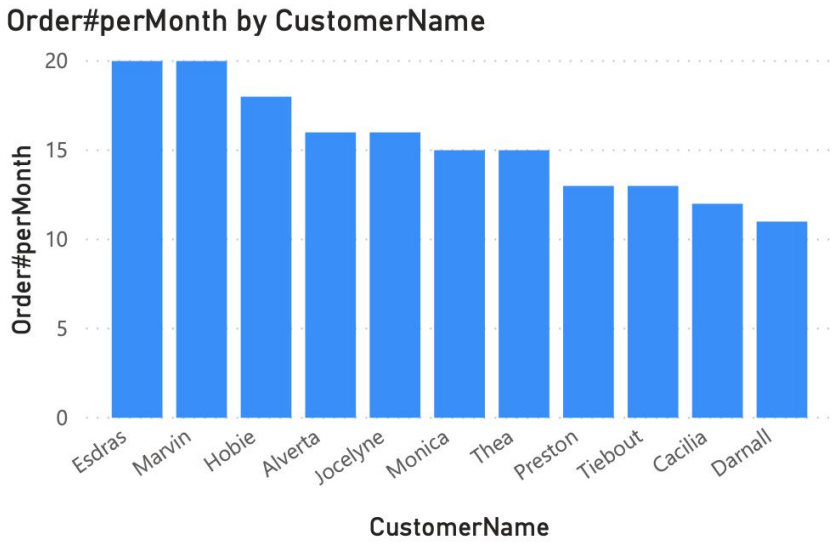
Creating Functions

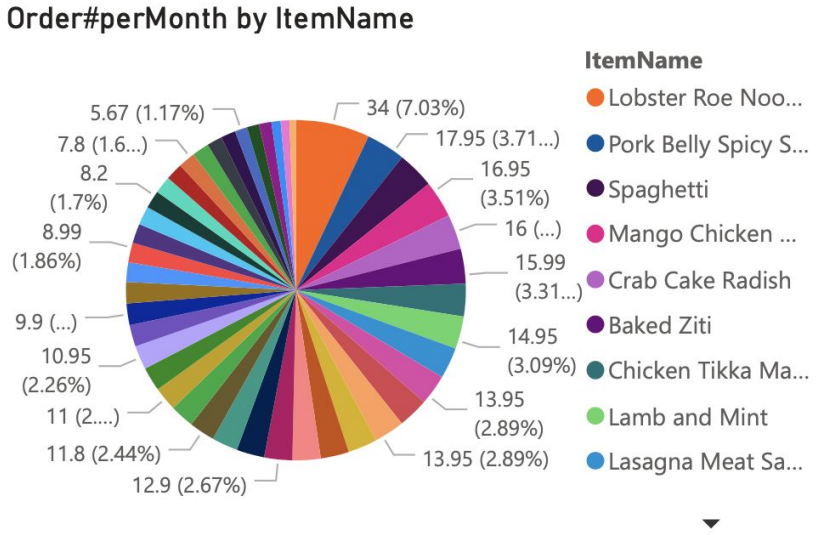
- **GO CREATE FUNCTION** GetFrequentCustomer(@orderpermonth INT) **RETURNS** @FrequentCustomer **TABLE** (CustomerName VARCHAR(10), **Order** #perMonth INT) **AS BEGIN INSERT INTO** @FrequentCustomer **select** UserName, **Order** #perMonth **from** Customer c **join** FrequentCustomer f **ON** c.customerid=f.customerid **where** f.Order#perMonth>@orderpermonth **RETURN END**

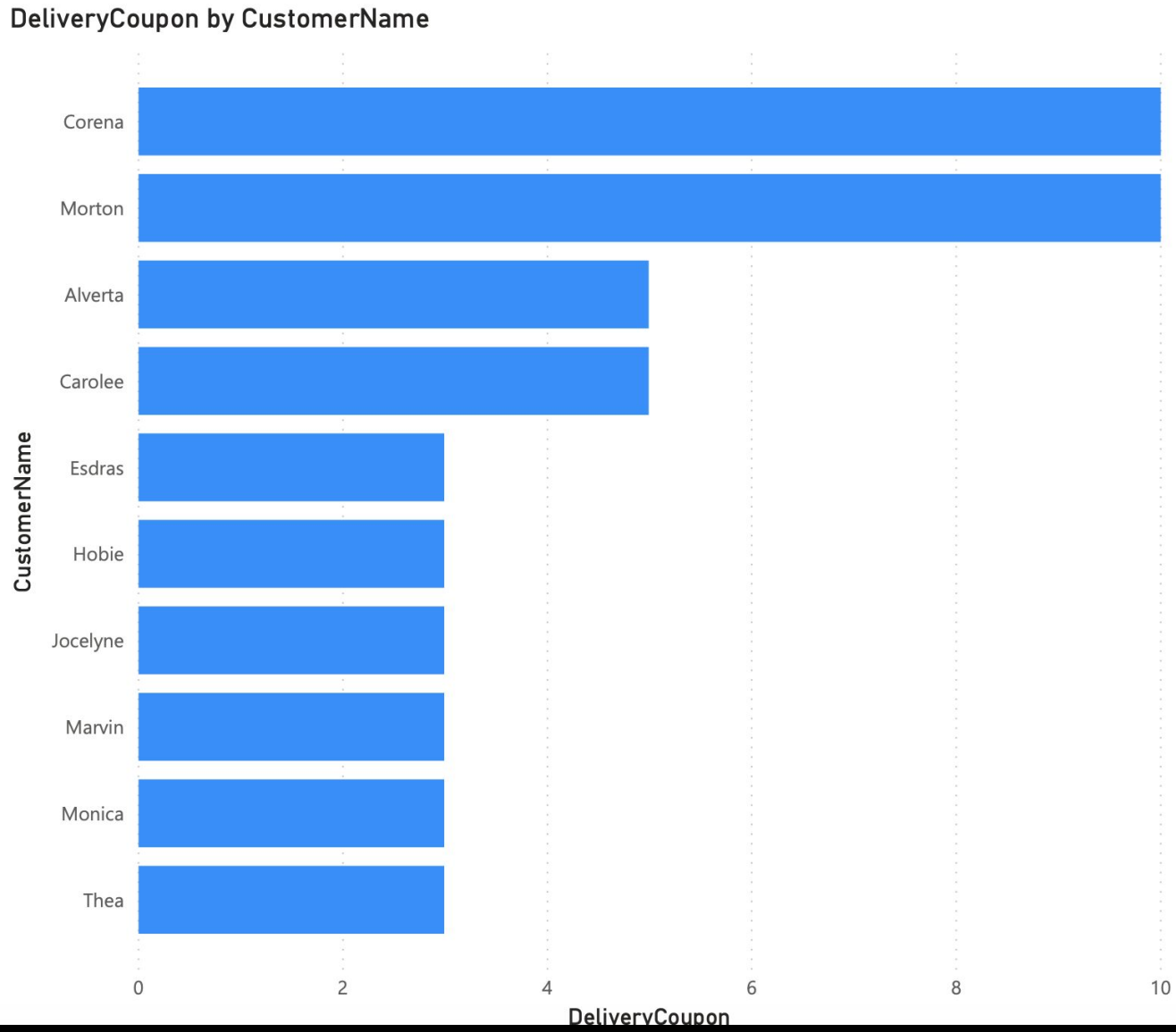
Data Modelling



The Presentation Layer







Thank You

Team X