I. Team Name: Data Dawgs Plus

Stephanie Velez

Jesse Eldell

Cheryl Maafoh

Joo Young Kang

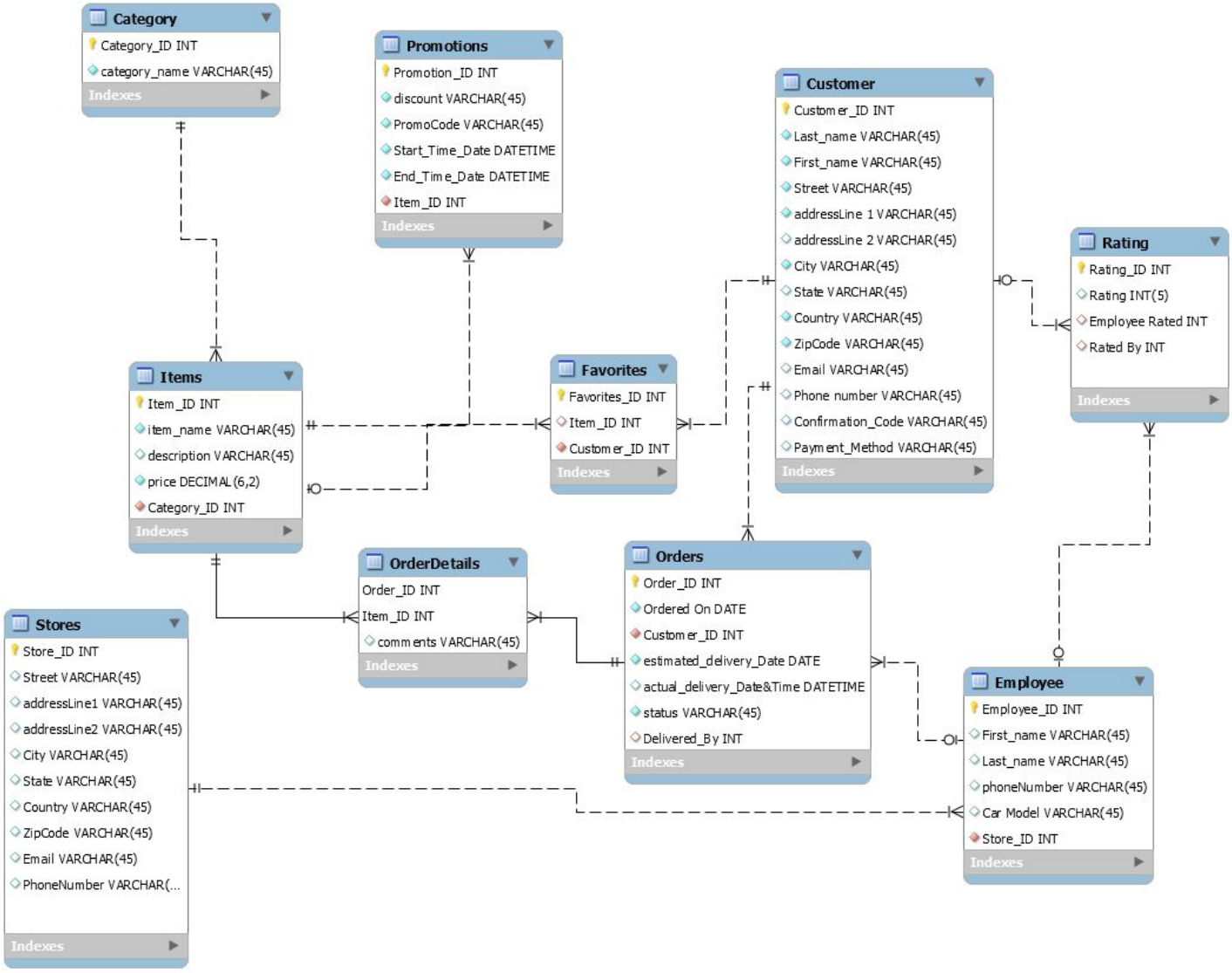
Andy Liu

II. Description of Problem and Data Model

Walmart would like the Data Dawgs Plus team to build them a data model that tracks information about their delivery service. They would like to track the customers and orders they place. This includes the customer's name, address, email, and phone number. Customers can place many orders, but orders can be placed by only one customer. For orders, Walmart would like to track the the items these orders consist of. In terms of orders, they want to know when the order was placed, the estimated delivery time, the actual delivery time, and the status of the delivery. Orders may consist of multiple items, and multiple items can be part of multiple orders. Walmart would also like to show the relationship between its deliverers and customers. Basic information about employees, such as name, phone number, and car model, will be tracked. After the delivery, customers are given the opportunity to leave a rating for the deliverer and service. Employees belong to one Walmart, but each Walmart has several employees. Walmart would like to track information for each of these stores including the address, email, and phone number.

Additionally, Walmart would like to store information about the items within the orders. They want to know the item name, a description, and the price. They also want to know the most purchased items, or favorited items, by customers. Many items can be purchased by many customers, and vice versa. Walmart would also like to be made aware of what category (produce, bakery, dairy, home, etc.) the item falls under. Sometimes, Walmart has promotions going on, and they would like to keep track of that, as well. Specifically, they want to track the discount amount, the duration of the sale, and the promo code to claim the promotion. Many promotions can belong to a singular item, as well as be utilized by a singular customer. Finally, Walmart would like to track when a customer receives a giveaway, or "freebie".

III. Data Model



IV. Data Dictionary

Table: Category

Column name	Description	Data Type	Size	Format	Key?
Category_ID	Unique number assigned to a category	Integer			PK
Category_name	The category name	Varchar	45		

Table: Customer

Column name	Description	Data Type	Size	Format	Key?
Customer_ID	Unique number assigned to a customer	Integer			PK
Last_name	The last name of the customer	Varchar	45		
First_name	The first name of the customer	Varchar	45		
Street	The name of the street where the customer is located	Varchar	45		
addressLine1	The first line of the address of the Customer	Varchar	45		

addressLine2	The second line of the address of the Customer	Varchar	45		
City	The city where the customer is located	Varchar	45		
State	The state where the customer is located	Varchar	45		
Country	The country where the customer is located	Varchar	45		
ZipCode	The zip code of the location where the customer is located	Varchar	45		
Email	The email of the customer for contact information	Varchar	45		
Phone number	The phone number of the customer for contact information	Varchar	45	USA : 999-999-9999 UK: 99999-999999 JPY: 99 999-999-9999 CN: 99 99 9999 9999	
Confirmation_Code	Confirmation code of the customer's order	Varchar	45		
Payment method	The payment method the customer used	Varchar	45		

Table: Employee

Column name	Description	Data Type	Size	Format	Key?
Employee_ID	Unique number assigned to an employee	Integer			PK
First_name	The first name of the employee	Varchar	45		
Last_name	The last name of the employee	Varchar	45		
phoneNumber	The phone number of the employee	Varchar	45	USA : 999-999-9999 UK: 99999-999999 JPY: 99 999-999-9999 CN: 99 99 9999 9999	
Car model	The car model of the employee	Varchar	45		
Store_ID	Unique number assigned to a store	Int			FK

Table: Favorites

Column name	Description	Data Type	Size	Format	Key?
Favorites_ID	Unique number assigned to favorited items	Integer			PK
Item_ID	Unique number assigned to an item	Int			FK
Customer_ID	Unique number assigned to a customer	Int			FK

Table: Items

Column name	Description	Data Type	Size	Format	Key?
Items_ID	Unique number assigned to an item	Integer			PK
Item_name	The name of the item	Varchar	45		
description	The description of the item	Varchar	45		
price	The price of the item	Decimal	(6,2)	99.99 or 9.99	
Category_ID	Unique number assigned to a category	Integer			FK

Table: Promotions

Column name	Description	Data Type	Size	Format	Key?
Promotion_ID	Unique number assigned to a promotion	Integer			PK
discount	The discount amount on an item	Varchar	45		
PromoCode	The promo code needed to apply the discount	Varchar	45		
Start_Time_Date	The start time and start date of the promotion	Datetime	YYYY-MM-DD 99:99:99		
End_Time_Date	The end date and end time of an promotion	Datetime	YYYY-MM-DD 99:99:99		
Item_ID	Unique number assigned to an item	Int			FK

Table: OrderDetails

Column name	Description	Data Type	Size	Format	Key?
Order_ID	Unique number assigned to an order	Integer			FK
Item_ID	Unique number assigned to an item	Integer			FK
comments	Excess Description of the Item in a particular order	Varchar	45		

Table: Orders

Column name	Description	Data Type	Size	Format	Key?
Order_ID	Unique number assigned to an order	Integer			PK
Ordered on	The date the order was placed	Date		YYYY-MM-DD	
Customer_ID	Unique number assigned to a customer	Integer			FK
Estimated_delivery_Date	The date the order is estimated to be delivered by	Date		YYYY-MM-DD	
Actual_Delivery_Date&Time	The date and time the order is actually delivered	Datetime		YYYY-MM-DD	
status	The current status of an order	Varchar	45		
Delivered_By	The ID of the employee who	Int			FK

	delivered the order				

Table: Rating

Column name	Description	Data Type	Size	Format	Key?
Rating_ID	Unique number assigned to a rating	Integer			PK
Rating	The actual rating of an employee, done by a customer	Varchar	5		
Employee Rated	The ID of the employee who received the rating	Integer			FK
Rated By	The ID of the customer who made the rating	Integer			FK

Table: Stores

Column name	Description	Data Type	Size	Format	Key?
Store_ID	Unique number assigned to a store	Integer			PK
Street	The name of the street where the store is located	Varchar	45		
addressLine1	The first line of the address of the Store	Varchar	45		
addressLine2	Contains the customer's apartment number, if any	Varchar	45		

City	The city where the store is located	Varchar	45		
State	The state where the store is located	Varchar	45		
Country	The country where the state is located	Varchar	45		
ZipCode	The zip code of the location of the store	Varchar	45		
Email	The email of customer support at the store	Varchar	45		
PhoneNumber	The phone number of the store	Varchar	45		

V. Queries

1.
```
SELECT Orders.Order_ID, status, Customer.First_name, Customer.Last_name
FROM OrderDetails
JOIN Items ON Items.Item_ID = OrderDetails.Item_ID
JOIN Orders ON Orders.Order_ID = OrderDetails.Order_ID
JOIN Customer ON Orders.Customer_ID = Customer.Customer_ID
WHERE status IN('In Process')
GROUP BY Orders.Order_ID;
```

   a. Select the orders, status, and names of customers that orders are 'In Process'

      i. Employees can track which orders still need to be delivered

      ii.

Order_ID	status	First_name	Last_name
10015	In Process	Joseph	Yin
10024	In Process	Paula	George

2.
```
SELECT Customer.Last_name,Customer.First_name,
    (SELECT COUNT(Orders.Order_ID) FROM Orders
     WHERE Orders.Customer_ID = Customer.Customer_ID) AS 'Number of Orders'
FROM Customer, Orders
GROUP BY Customer.Customer_ID
ORDER BY Customer.Last_name;
```

   a. Show the names of customers and count the number of orders from each customer, ordered by last Name

      i. Customers can know how many orders they placed

      ii.

Last_name	First_name	Number of Orders
Alford	Douglas	3
George	Paula	3
Lynn	Andrew	2
Murray	Clayton	3
Osbourne	Rachel	2
Powell	Samantha	2
Sanchez	Rico	1
Thomas	Paris	2
Velazquez	Joanna	1
Woo	Luke	3
Yin	Joseph	2

3.
```
SELECT item_name,price,description
FROM Promotions
JOIN Items on Promotions.Item_ID = Items.Item_ID
WHERE EXISTS (SELECT Items.Item_ID
              FROM Items
              WHERE Items.Item_ID = Promotions.Item_ID)
ORDER BY price DESC;
```

   a. Show the item name, price, and description of items that have a promotion

      i. Customers can see which promotions are available to them pertaining to particular items

ii.

item_name	price	description
Hand Wash Soap	10.48	3 Pack, 12OZ Madarin oragne and GrapeFruit
Adult Toy Cleaner	10.04	Honeydew
Grab & Go Stack Potato Crisps	8.98	Pringles
Salmon	8.30	1/2 pound
Cream Cheese	7.59	NULL
Flounder	6.45	1/4 lb
Tuna	5.73	1/2 lb
Glass Cleaner	5.39	Windex
Chex Mix	4.98	General Mills
Paper Towels	3.48	Bounty
Turkey	2.84	SmithField
Pure Vanilla Extract	2.10	Watkins

4.
```
SELECT item_name
FROM OrderDetails
JOIN Items ON OrderDetails.Item_ID = Items.Item_ID
WHERE item_name REGEXP ('^b|i$');
```

a. Display the item_name for items that start with a 'b' or End with an 'i'

i. Employees can discern which item names start with a ‘b’ or end with an ‘i’ to organize their delivery strategy. This is useful when an employee needs to quickly look up an item for delivery,

ii.

item_name
Banana
Broccoli
Biscuit
Beef Ravioli
Biscuit
Pepsi

5.
```
SELECT First_name,Last_name
FROM Customer
JOIN Favorites ON Favorites.Customer_ID = Customer.Customer_ID
GROUP BY Customer.Customer_ID
HAVING COUNT(Favorites.Favorites_ID) >= 3 ;
```

   a. List the name of customer with 3 or more favorite items

      i. Employees can utilize this information to reach out to these customers and target them with promo codes or other incentives to make rapid purchases.

      ii.

First_name	Last_name
Joanna	Velazquez
Douglas	Alford
Clayton	Murray
Rachel	Osbourne
Paula	George
Luke	Woo
Samantha	Powell

6.
```
SELECT item_name, price, Category.category_name
FROM Items
JOIN Category ON Items.Category_ID = Category.Category_ID
WHERE price <= (SELECT AVG(price) FROM Items);
```

   a. List the name, price, and category of items that are less than the average price of all items

      i. Allows for the easy identification of items below the average. Allows the viewing and understanding of comparable prices.

item_name	price	category_name
Green Apple	4.23	Fruits
Red Apple	2.85	Fruits
Pineapple	6.31	Fruits
Banana	5.96	Fruits
Tomato	1.29	Fruits
Pomegranite	4.82	Fruits
Spinach	3.28	Vegetables
Papaya	4.36	Vegetables
Cauliflower	4.05	Vegetables
Celery	6.28	Vegetables
Broccoli	5.63	Vegetables
Asparagus	5.19	Vegetables
Garlic	3.57	Vegetables
Okra	2.85	Vegetables
Cucumber	4.28	Vegetables
Ground Beef	6.09	Meat
Duck	4.92	Meat
Eggs	2.94	Meat
Lamb	5.58	Meat
Turkey	2.84	Meat
Pork	5.72	Meat
Goose	3.26	Meat
Ice Cream	3.72	Dairy
Sour Cream	2.95	Dairy
Margarine	1.24	Dairy
Yogurt	1.58	Dairy
Milk	1.36	Dairy
Custard	3.27	Dairy
Shredded Cheddar Jack Cheese	6.48	Dairy
Carp	3.28	Seafood
Catfish	2.83	Seafood
Tilapia	3.82	Seafood
Flounder	6.45	Seafood
Trout	2.14	Seafood
Tuna	5.73	Seafood
Alaskan pollock	4.33	Seafood
Giant Freezer Bars	4.98	Frozen Foods
Hershey's Sundae Dream Caramel Syrup	2.48	Frozen Foods
Pizza Toppings Real Crumbled Bacon	5.78	Frozen Foods
Oreo Pie Crust	3.88	Frozen Foods
Coco Puffs	4.28	Cereals
Captain Crunch	3.77	Cereals
Fruity Pebbles	2.14	Cereals
Frosted Flakes	2.34	Cereals
Whole Wheat	1.83	Bread
English muffin	2.83	Bread
Pita	1.66	Bread
Parsley	1.85	Dried Herbs
Oregano	2.75	Dried Herbs
Basil	4.56	Dried Herbs
Rosemary	1.83	Dried Herbs
Powerade	4.07	Beverages
Pepsi	2.03	Beverages
Coke	3.62	Beverages
Medium Dark Coffee	5.97	Beverages
Moutain Dew	2.04	Beverages
Fiji Water	2.01	Beverages
Disinfecting Wipes	5.39	Cleaners
Glass Cleaner	5.39	Cleaners
Hardwood Floor Cleaner	5.67	Cleaners
Biscuit	3.67	Cleaners
Clean Day Multi-Surface Cleaner	3.88	Cleaners
Paper Towels	3.48	Paper Goods
Paper Plates	6.42	Paper Goods
Toilet Paper	5.22	Paper Goods
Toilet Paper	6.23	Paper Goods
Hand Cleaner	5.57	Personal Care
Mega Moist Conditioner	4.94	Personal Care
All Purpose Cleaner	4.92	Snacks
CrÃ¨me Filled Wafers Chocolate	4.98	Snacks
Scooby-Doo Graham Cracker Sticks	2.48	Snacks
Handi Snacks Cheese Bread Stick W/ Dip	5.78	Snacks

```
SELECT item_name, price, Category.category_name
FROM Items
JOIN Category ON Items.Category_ID = Category.Category_ID
WHERE price <= (SELECT AVG(price) FROM Items WHERE Items.Category_ID = Category.Category_ID)
GROUP BY item_name, price, Category.category_name
HAVING category_name REGEXP('s$');
```

7.

a. List the name, price, and category of items that are less than the average price of all items in that category, which the restriction of the category_name ending with an 's'

i. Allows employee to extract items in non singular categories

ii.

item_name	price	category_name
Green Apple	4.23	Fruits
Red Apple	2.85	Fruits
Tomato	1.29	Fruits
Pomegranite	4.82	Fruits
Spinach	3.28	Vegetables
Papaya	4.36	Vegetables
Cauliflower	4.05	Vegetables
Garlic	3.57	Vegetables
Okra	2.85	Vegetables
Cucumber	4.28	Vegetables
Giant Freezer Bars	4.98	Frozen Foods
Paw Patrol Shapes Macaroni and Cheese	7.72	Frozen Foods
Hershey's Sundae Dream Caramel Syrup	2.48	Frozen Foods
Pizza Toppings Real Crumbled Bacon	5.78	Frozen Foods
Oreo Pie Crust	3.88	Frozen Foods
Fruity Pebbles	2.14	Cereals
Frosted Flakes	2.34	Cereals
Parsley	1.85	Dried Herbs
Rosemary	1.83	Dried Herbs
Powerade	4.07	Beverages
Pepsi	2.03	Beverages
Coke	3.62	Beverages
Moutain Dew	2.04	Beverages
Fiji Water	2.01	Beverages
Disinfecting Wipes	5.39	Cleaners
Disinfecting Spray	6.93	Cleaners
Glass Cleaner	5.39	Cleaners
Hardwood Floor Cleaner	5.67	Cleaners
Liquid Multi-Purpose Cleaner	6.97	Cleaners
Adult Toy Cleaner	10.04	Cleaners
Biscuit	3.67	Cleaners
Clean Day Multi-Surface Cleaner	3.88	Cleaners
Paper Towels	3.48	Paper Goods
Paper Plates	6.42	Paper Goods
Toilet Paper	5.22	Paper Goods
Toilet Paper	6.23	Paper Goods
All Purpose Cleaner	4.92	Snacks
CrÃ¨me Filled Wafers Chocolate	4.98	Snacks
Scooby-Doo Graham Cracker Sticks	2.48	Snacks
Handi Snacks Cheese Bread Stick W/ Dip	5.78	Snacks
Town House Pita Mediterranean Herb Crackers	5.46	Snacks
Mini Chips Ahoy!, Oreo & Nutter Butter Mix	6.98	Snacks
Chex Mix	4.98	Snacks
Milano Dark Chocolate Cookies	4.48	Snacks
Pure Vanilla Extract	2.1	Spices
Seasoned Salt	1.57	Spices
Kosher Salt	2.37	Spices
Garlic Powder	1.93	Spices

8.

```
SELECT First_name, Last_name, Car_model, Country, State, City, status
FROM Employee
JOIN Stores ON Employee.Store_ID = Stores.Store_ID
JOIN Orders ON Orders.Delivered_By = Employee.Employee_ID
WHERE estimated_delivery_Date REGEXP ('2018')
GROUP BY First_name, Last_name, Car_model, Country, State, City, status
ORDER BY Last_name ASC;
```

a. Display the first name, last name, car model, country, state, city, and status of employees whose estimated delivery date was in the year of 2018

i. Allows Walmart to view employees with the company during 2018

ii.

First_name	Last_name	Car_model	Country	State	City	status
Julian	Elming	2009 Nissan Kicks	USA	GA	Athens	Delivered
Cheryl	Hathaway	2012 Ram 1300	USA	NJ	Ewing	Delivered
Roulan	Jin	1992 Genesis G30	UK		London	Delivered
Tagnina	Jones	2014 Audi Q5	UK		London	Delivered
Prova	Patama	2019 Porsche Cayenne	JPY		Sindou, Matsubara, Osaka	Delivered
Kim	Possible	2002 Honda Passport	USA	NY	Massapequa	Delivered
Pavani	Reigns	2007 Volvo S30	USA	NY	Massapequa	Delivered
April	Velez	2016 Jaguar I-Pace	UK		Cambridge	Delivered
Stephanie	York	1995 Lincoln Nautilus	USA	NJ	Ewing	Delivered

9.

```
SELECT First_name, Last_name
FROM Employee
JOIN Rating ON Employee.Employee_ID = Rating.Employee_Rated
WHERE NOT EXISTS (SELECT Rating FROM Rating WHERE Employee.Employee_ID = Rating.Employee_Rated AND Rating > 3 )
GROUP BY  First_name, Last_name ;
```

a. Show the name of the employee(s) that does not have a rating greater than 3 [an employee can be rated multiple times by different customers, so even though a person might be rated under 3, another customer can rate them over 3, thus they meet the criteria]

i. Customers can see low rated employees

First_name	Last_name
Joo	Johnson
Danielle	Suarez
John	Ellison
Khloe	Kartesan
Tagnina	Jones
Pavani	Reigns
Julian	Elming

ii.

10.
```
SELECT SUM(price) 'Sum of Promoted items'
FROM Items
JOIN Promotions ON Promotions.Item_ID = Items.Item_ID
WHERE EXISTS (SELECT Promotion_ID FROM Promotions WHERE Promotions.Item_ID = Items.Item_ID);
```

a. Find the Sum of all the prices of items that have a discount [discount is a varchar because it isn't so much a numerical value all the time, but more of a description of a bargain]

i. Customer can add up the total dollar value of the promotions.

Sum of Promoted items
76.36

ii.

VI. Query Matrix

Matrix										
	Query 1	Query 2	Query 3	Query 4	Query 5	Query 6	Query 7	Query 8	Query 9	Query 10
multiple table join	x	x	x	x	x	x	x	x	x	x
subquery	x					x				
correlated subquery		x	x				x			
GROUP BY	x	x						x	x	
GROUP BY with HAVING					x		x			
ORDER BY		x	x					x		
IN or NOT IN	x									
A built-in function (e.g., AVG) or a calculated field		x								x
REGEXP				x				x		
EXISTS			x							x
NOT EXISTS									x	

VII. Name of database on MySQL server: DataDawgsPlus