Group 13: Sarah Hellmann, Matthew Greene, Isabel de Obaldia, Xuqi Liu, Eleanor Pulsipher
Professor Pan
Advanced Data Management
30 April 2021

<u>Adv. Data Management Course Project</u>

Group Name: 13th Floor Consulting Group

Client: D'Livery Nola

Client Description:

- D'Livery Nola is a restaurant delivery app that brings local New Orleans restaurants straight to Nola residents' doors. They are focused on supporting local restaurants, while offering superior customer service, low delivery prices, and service costs to restaurants. You can find their app in any app store or order online. D'Livery Nola is a new and fast-growing company in need of an improved database design, structure, and data analyst consulting.

Entity Relationship Diagram:

-
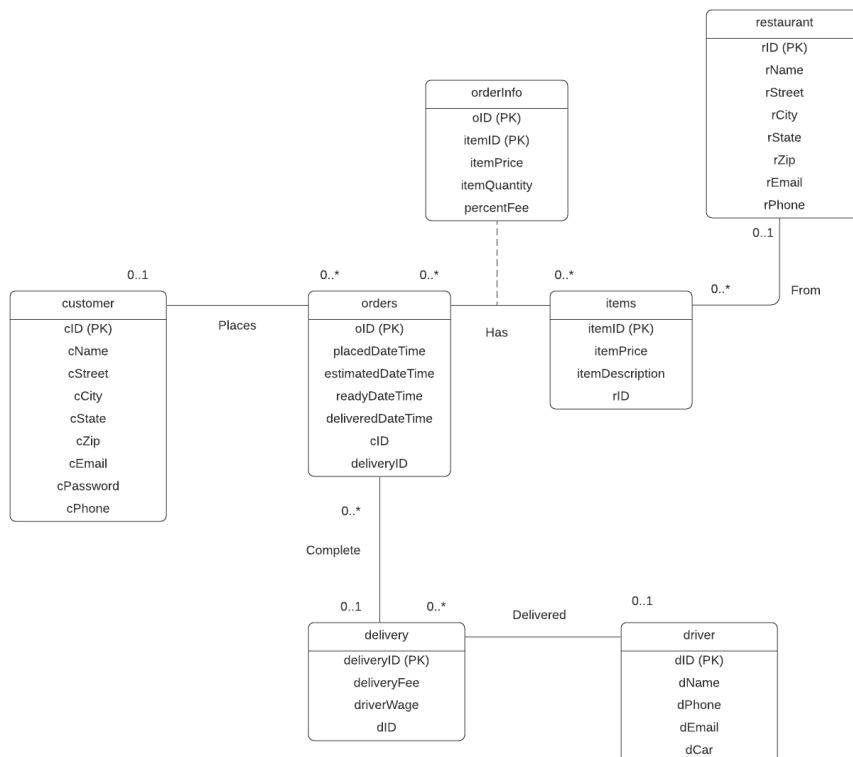
Logical Database Design:

- customer (**cID**, cName, cStreet, cCity, cState, cZip, cEmail, cPassword, cPhone)

- restaurant (**rID**, rName, rStreet, rCity, rState, rZip, rEmail, rPhone)

- items (**itemID**, itemPrice, itemDescription, *rID*)

- driver (**dID**, dName, dPhone, dEmail, dCar)

- delivery (**deliveryID**, deliveryFee, driverWage, *dID*)

- orders (**oID**, placedDateTime, estimatedDateTime, readyDateTime, deliveredDateTime, *cID*, *deliveryID*)

- orderInfo (***oID***, ***itemID***, itemQuantity, percentFee)

Data Dictionary:

- **customer**

  - **cId** - Primary key

    - Data Type: Int (cannot include null values)

    - Field Size: 10

    - Description: A unique identifier for each customer of the app

    - Example: 0734589091

  - **cName**

    - Data Type: varchar

    - Field Size: 50

    - Description: The name of the customer

    - Example: 'Paris Hilton'

  - **cStreet**

    - Data Type: varchar

- ■ Field Size: 50

- ■ Description: The customer's desired house number and street for delivery

- ■ Example: '1777 St Charles'

- ○ **cCity**

  - ■ Data Type: varchar

  - ■ Field Size: 20

  - ■ Description: The customer's city for delivery

  - ■ Example: 'New Orleans'

- ○ **cState**

  - ■ Data Type: varchar

  - ■ Field Size: 20

  - ■ Description: The customer's state for their delivery

  - ■ Example: 'Louisiana'

- ○ **cZip**

  - ■ Data Type: Int

  - ■ Field Size: 5

  - ■ Description: The customer's zip code for delivery

  - ■ Example: 70118

- ○ **cEmail**

  - ■ Data Type: varchar

  - ■ Field Size: 50

  - ■ Description: The customer's email address

  - ■ Example: 'BobSmith@yahoo.com'

- ○ **cPassword**

    - ■ Data Type: varchar

    - ■ Field Size: 20

    - ■ Description: The customer's password for the app

    - ■ Example: 'Tinkerbell700'

- ○ **cPhone**

    - ■ Data Type: varchar

    - ■ Field Size: 10

    - ■ Description: The customer's phone number

    - ■ Example: 5045557777

- ● **restaurant**

    - ○ **rID -** Primary Key

        - ■ Data Type: Int (cannot include null values)

        - ■ Field Size: 10

        - ■ Description: Unique identifier for each Restaurant

        - ■ Example: 7734560111

    - ○ **rName**

        - ■ Data Type: varchar

        - ■ Field Size: 50

        - ■ Description: The name of the Restaurant

        - ■ Example: 'Chais Delachaise'

    - ○ **rStreet**

        - ■ Data Type: varchar

- Field Size: 50

- Description: The restaurant's street number and name

- Example: '7708 Maple St'

- **rCity**

  - Data Type: varchar

  - Field Size: 20

  - Description: The city in which the restaurant is Located

  - Example: 'Metarie'

- **rState**

  - Data Type: varchar

  - Field Size: 20

  - Description: The state in which the restaurant is located

  - Example: 'Louisiana'

- **rZip**

  - Data Type: int

  - Field Size: 5

  - Description: The zip code in which the restaurant is located

  - Example: 70115

- **rEmail**

  - Data Type: varchar

  - Field Size: 50

  - Description: The contact email for the restaurant

  - Example: Sally@domenica.com

- ○ **rPhone**

    - ■ Data Type: varchar

    - ■ Field Size: 10

    - ■ Description: The phone number of the restaurant

    - ■ Example: 5045104509

- **items**

    - ○ **itemID** - Primary Key

        - ■ Data Type: Int (cannot include null values)

        - ■ Field Size: 10

        - ■ Description: A unique identifier for each item from a restaurant

        - ■ Example: 0134897688

    - ○ **itemPrice**

        - ■ Data Type: Decimal

        - ■ Field Size: 5,2

        - ■ Description: The selling price of the item

        - ■ Example: 15.99

    - ○ **itemDescription**

        - ■ Data Type: varchar

        - ■ Field Size: 50

        - ■ Description: A description of the item from the restaurant

        - ■ Example: 'Pasta Primavera'

    - ○ **rID -** Foreign Key from Restaurant table

        - ■ Data Type: Int (cannot include null values)

- ■ Field Size: 10

- ■ Description: Unique identifier for each Restaurant

- ■ Example: 7734560111

- **driver**

    - **dID -** Primary Key

        - ■ Data Type: Int (cannot include null values)

        - ■ Field Size: 10

        - ■ Description: A unique identifier for each delivery driver

        - ■ Example: 0001789221

    - **dName**

        - ■ Data Type: varchar

        - ■ Field Size: 50

        - ■ Description: The name of the driver in charge of the delivery

        - ■ Example: John Smith

    - **dPhone**

        - ■ Data Type: varchar

        - ■ Field Size: 10

        - ■ Description: The phone number of the driver

        - ■ Example: 2254567710

    - **dEmail**

        - ■ Data Type: varchar

        - ■ Field Size: 50

        - ■ Description: The email of the driver

- ■ Example: johnsmith5@gmail.com

  - ○ **dCar**

    - ■ Data Type: varchar

    - ■ Field Size: 20

    - ■ Description: The type/brand of car the driver will make the delivery with

    - ■ Example: Toyota

- ● **delivery**

  - ○ **deliveryID -** Primary Key

    - ■ Data Type: int (cannot include null values)

    - ■ Field Size: 5

    - ■ Description: Unique identifier for each delivery

    - ■ Example: 12345

  - ○ **deliveryFee**

    - ■ Data Type: decimal

    - ■ Field Size: 5,2

    - ■ Description: Fee charged for each delivery

    - ■ Example: 2.99

  - ○ **driverWage**

    - ■ Data Type: decimal

    - ■ Field Size: 5,2

    - ■ Description: The wage of each driver

    - ■ Example: 50.00

 - ○ **dID -** Foreign Key from Driver table

- ■ Data Type: Int (cannot include null values)

- ■ Field Size: 10

- ■ Description: A unique identifier for each delivery driver

- ■ Example: 0001789221

- **orders**

  - ○ **oId -** Primary Key

    - ■ Data Type: int (cannot include null values)

    - ■ Field Size: 10

    - ■ Description: A unique identifier for each order placed

    - ■ Example: 9087156473

  - ○ **placedDateTime**

    - ■ Data Type: DateTime

    - ■ Field Size: Max

    - ■ Description: The date and time at which an order was placed by the customer

    - ■ Example: 2021-08-17 11:34:17

  - ○ **estimatedDateTime**

    - ■ Data Type: DateTime

    - ■ Field Size: Max

    - ■ Description: The date and time at which an order is estimated to be delivered, as displayed to the customer

    - ■ Example: 2021-03-12 09:13:14

  - ○ **readyDateTime**

- Data Type: DateTime

- Field Size: Max

- Description: The date and time at which an order is ready for pickup by the driver

- Example: 2021-01-29 15:22:07

○ **deliveredDateTime**

- Data Type: DateTime

- Field Size: Max

- Description: The date and time at which an order is completed and delivered to the customer

- Example: 2021-05-14 16:14:55

○ **cID -** Foreign Key from customer Table

- Data Type: Int (cannot include null values)

- Field Size: 10

- Description: A unique identifier for each customer of the app

- Example: 0734589091

○ **deliveryID -** Foreign Key from delivery table

- Data Type: int (cannot include null values)

- Field Size: 5

- Description: Unique identifier for each delivery

- Example: 12345

- **orderInfo**

○ **oID -** Composite PK and foreign key from Orders table

- ■ Data Type: int (cannot include null values)

- ■ Field Size: 10

- ■ Description: A unique identifier for each order placed

- ■ Example: 9087156473

- ○ **itemID -** Composite PK and foreign key from Item table

  - ■ Data Type: Int (cannot include null values)

  - ■ Field Size: 10

  - ■ Description: A unique identifier for each item the customer ordered

  - ■ Example: 0134897688

- ○ **itemQuantity**

  - ■ Data Type: Int

  - ■ Field Size: 5

  - ■ Description: The number of items in the order

  - ■ Example: 7

- ○ **percentFee**

  - ■ Data Type: decimal

  - ■ Field Size: 5,2

  - ■ Description: the percentage fee D'Livery Nola charges per item ordered

    from the restaurant

  - ■ Example: 0.05

Analytics Report with R:

- **Question 1**: Which drivers have made the most deliveries?

  ○

  Number of Deliveries Completed by Each Driver
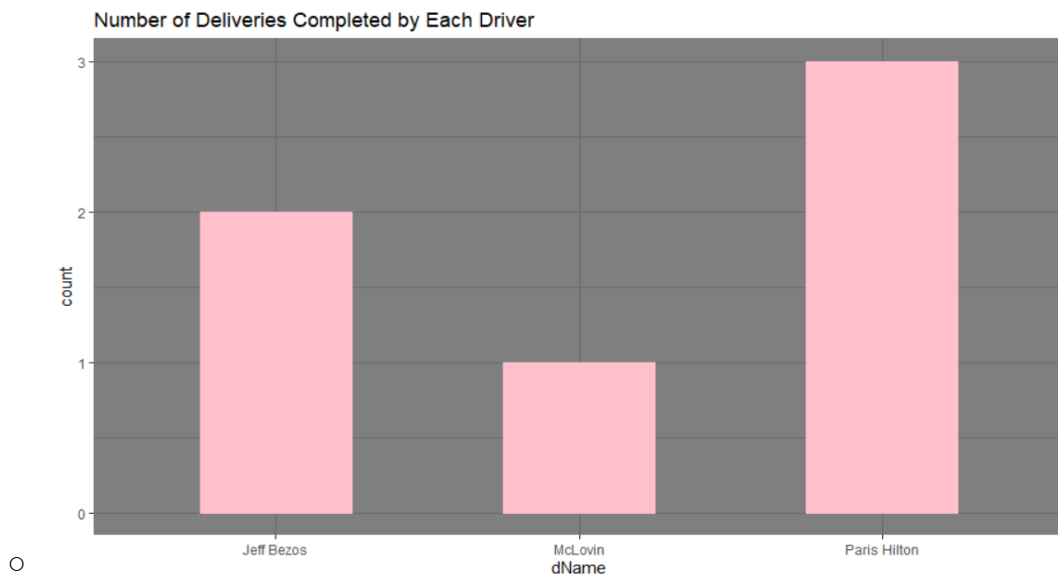
  ○ **Why this is an important business question to your client?**

    ■ The number of deliveries completed by each driver is an important piece of information for our client because it shows how many deliveries the average driver is completing and can be informative by highlighting more influential drivers as well as the possibility that there could be issues sourcing drivers consistently if there is a lack of drivers with a significant number of orders.

  ○ **What do you see from the data analysis? Describe your graph or chart.**

    ■ From our data analysis we see that we currently have three different drivers who are completing deliveries for D'Livery NOLA who are Jeff Bezos, McLovin, and Paris Hilton who have completed 2, 1, and 3 orders respectively.

  ○ **What conclusion can you draw from the data analysis?**

■ From the data analysis we can see that all three of these drivers are participating in a similarly small amount. This indicates that D'Livery NOLA has either just begun business or has switched to a new platform of data collection which means these could be three consistent drivers or a couple drivers with a driver who is simply testing out working for the service.

● **Question 2: What is the total revenue for each order?**

Total Revenue from Each Order

○
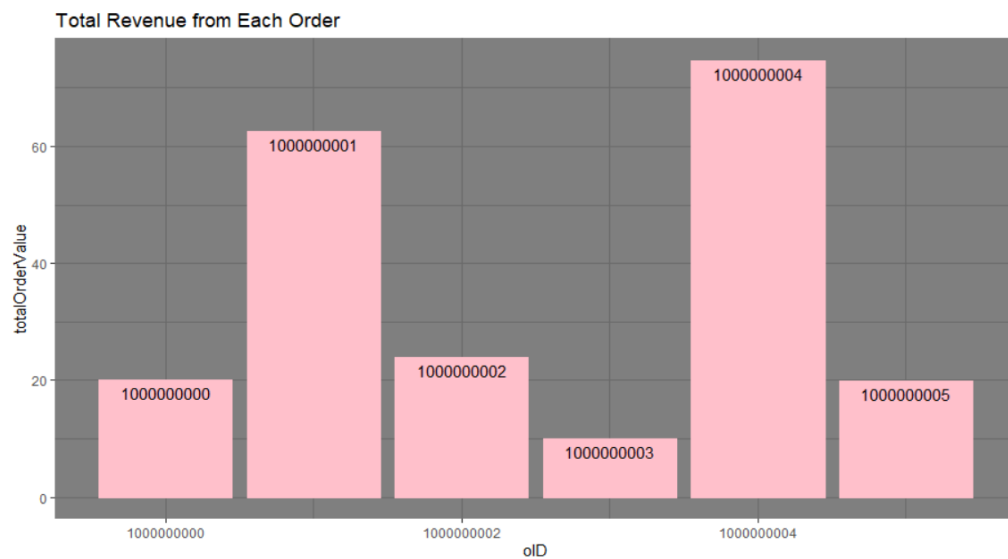
○ **Why this is an important business question to your client?**

■ The amount of revenue per order is an important business question because by identifying the values of different orders it is possible to identify a trend between the average value of orders and the restaurant which is being ordered from. This can be useful information for D'Livery NOLA to use to develop their own data-based pricing gauge for price sensitive customers in their application.

○ **What do you see from the data analysis? Describe your graph or chart.**

■ I see that while most of the orders are around $20, one order is only $10 while one order is just over $60, and another is just over $70.

○ **What conclusion can you draw from the data analysis?**

■ There are clearly three different price categories which stand out to me upon seeing the graph which can likely be applied to different restaurants which are serviced in the D'Livery NOLA app. This can be the start of identifying and gauging the average price of different options to assign a pricing gauge to different options.

● **Question 3: Which Restaurants have the most orders?**

Number of Orders per Restaurant

○
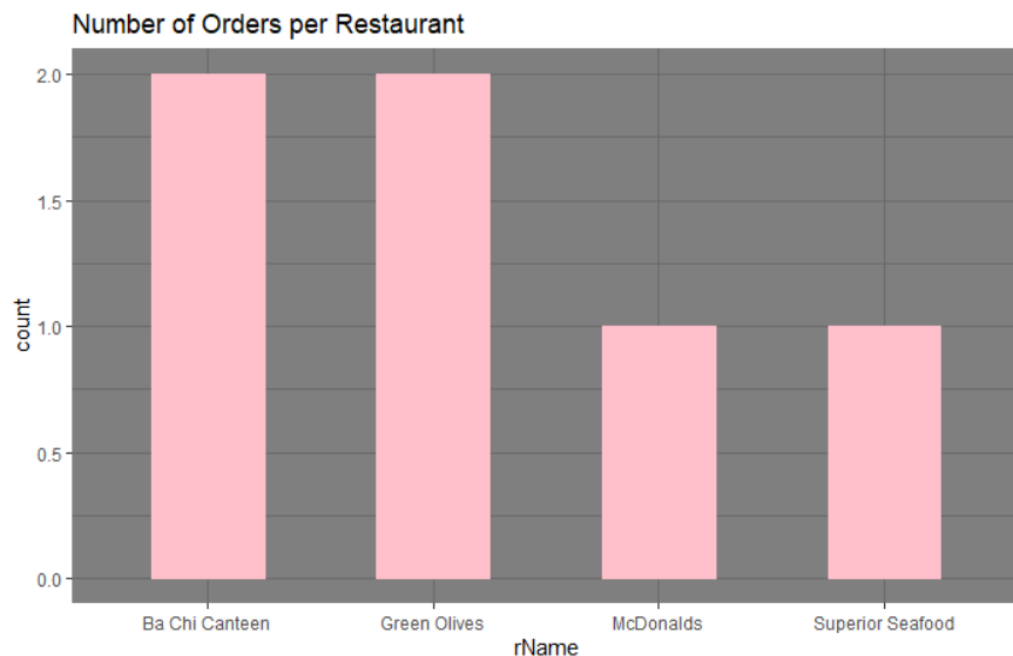
○ **Why this is an important business question to your client?**

■ It is important for D'Livery NOLA to understand which restaurants have frequent orders from them. This information can be used to better position potential drivers based on expected orders and can help D'Livery NOLA identify consistent and popular clients. Developing a relationship with

these clients would be pivotal to creating promotions and developing
healthy business relationships with better optimized fees.

○ **What do you see from the data analysis? Describe your graph or chart.**

■ From the data analysis we can see that so far D'Livery NOLA has four
different restaurants which have been ordered from in the application.
Both Ba Chi Canteen and Green Olives have two orders each while both
McDonalds and Superior Seafood each have one order.

○ **What conclusion can you draw from the data analysis?**

■ The conclusion that I can draw from the data analysis is that all four of
these restaurants are likely to be frequent clients of D'Livery NOLA
considering their early use. Ba Chi and Green Olives being used twice
should be contacted for potential promotions while the orders which have
gone to these restaurants can be each equally weighed while creating our
price gauge tool talked about in Question 2.

● **Question 4: Which are the most ordered items?**

○
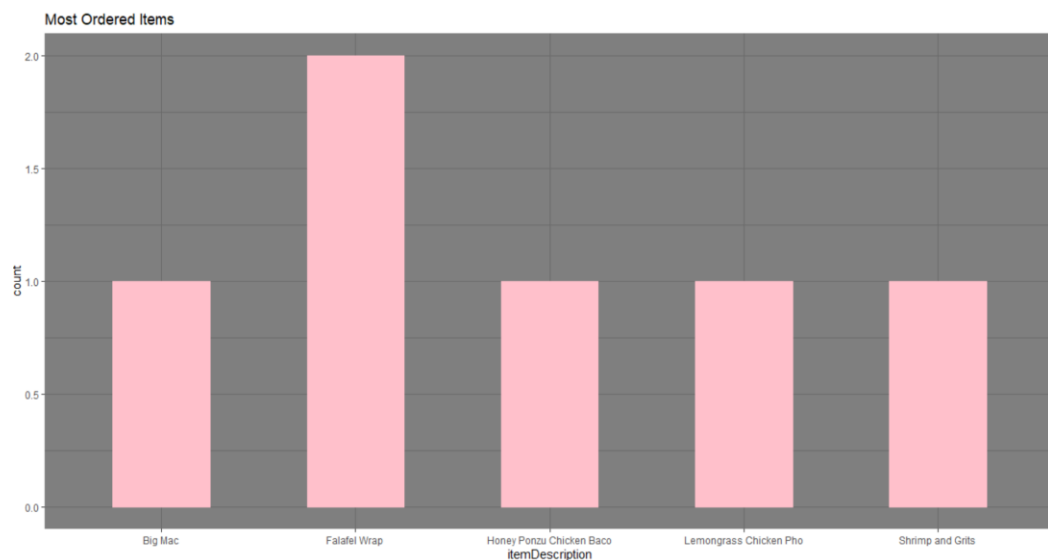
○ **Why this is an important business question to your client?**

  ■ This is an important business question for D'Livery NOLA because knowing popular items can help D'Livery NOLA set up categories for popular types of food and link restaurants on their platform with those types of offerings into each specific list. For example, an Italian restaurant may be in both the Italian food list and the pizza list due to its offerings.

○ **What do you see from the data analysis? Describe your graph or chart.**

  ■ From the data analysis I see that five separate items are ordered. There have been two falafel wraps ordered as well as one big mac, one honey ponzu chicken baco, lemongrass chicken pho, and shrimp and grits.

○ **What conclusion can you draw from the data analysis?**

  ■ The conclusion which I can draw from this data analysis is that many different items are being ordered. We can conclude that sandwiches and wraps are likely popular categories which can be created for future orders. Other categories which can be created in the app are Asian food and soul food to encompass the honey ponzu chicken baco, lemongrass chicken pho, and shrimp and grits which have also been ordered.

Distribution of Team Member Effort

● All team member contributed the same amount of effort