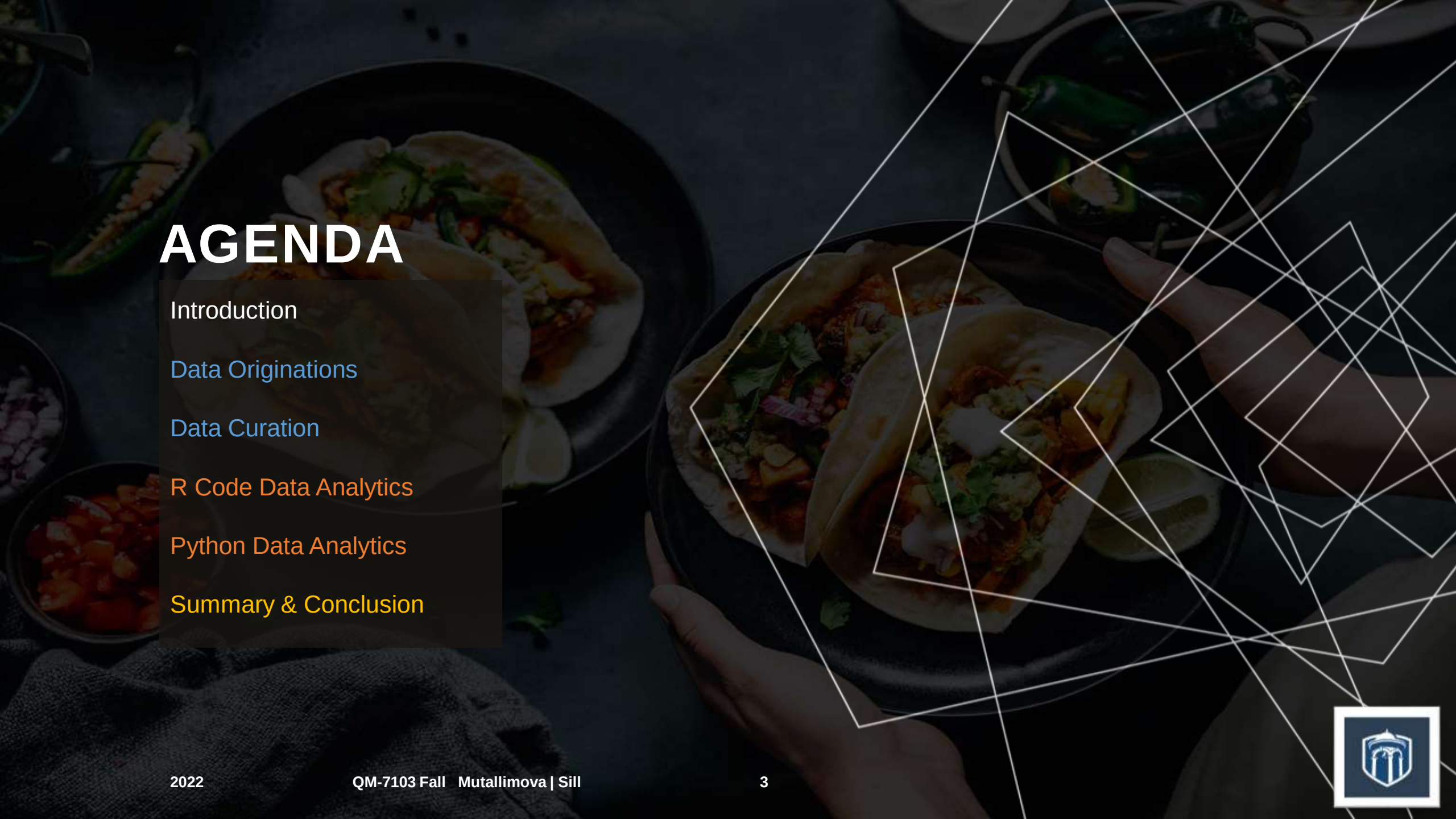
# QM-7103 FALL 2022
# DATA ANALYTICS

Nigar Mutallimova & Jim Sill

# INTRODUCTION

Because both of us enjoy food, we chose to take a ‘healthy’ look at one of the northeast’s favorite health food restaurants… ***“Dig Inn!”***

We hope that our presentation fills you up and satisfies your analytic hunger… ***“Let’s Dig In!”***



# AGENDA

Introduction

Data Originations

Data Curation

R Code Data Analytics

Python Data Analytics

Summary & Conclusion

# MEET YOUR PRESENTERS

**Nigar Mutallimova**

MSBA University of Tulsa

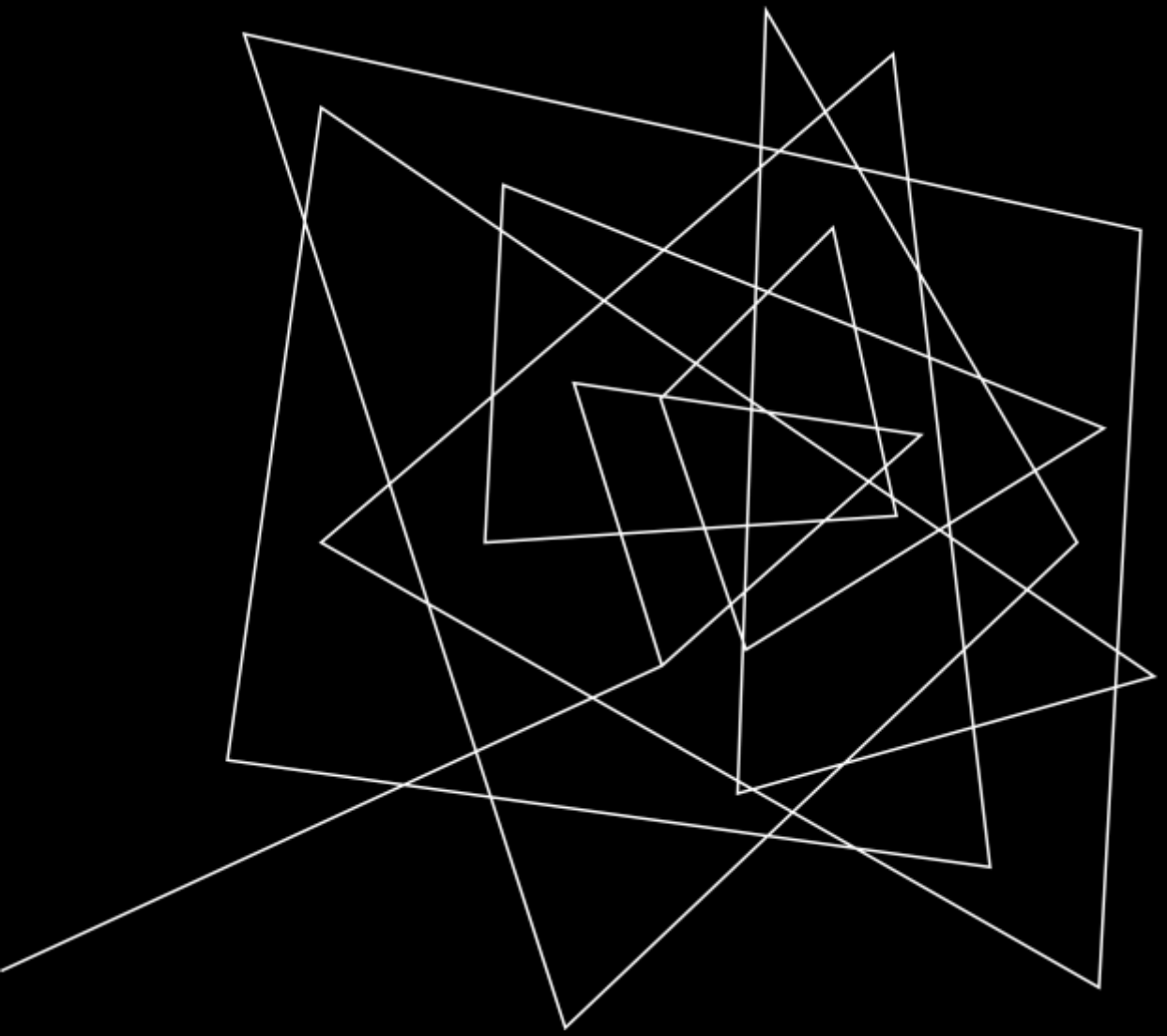
**R Code Analytics Presenter**

**Jim Sill**

PhD Cyber Fellow

University of Tulsa

**Python Code Presenter**



# DATA ORIGINS

**Popular New York Restaurant Data**

Orders

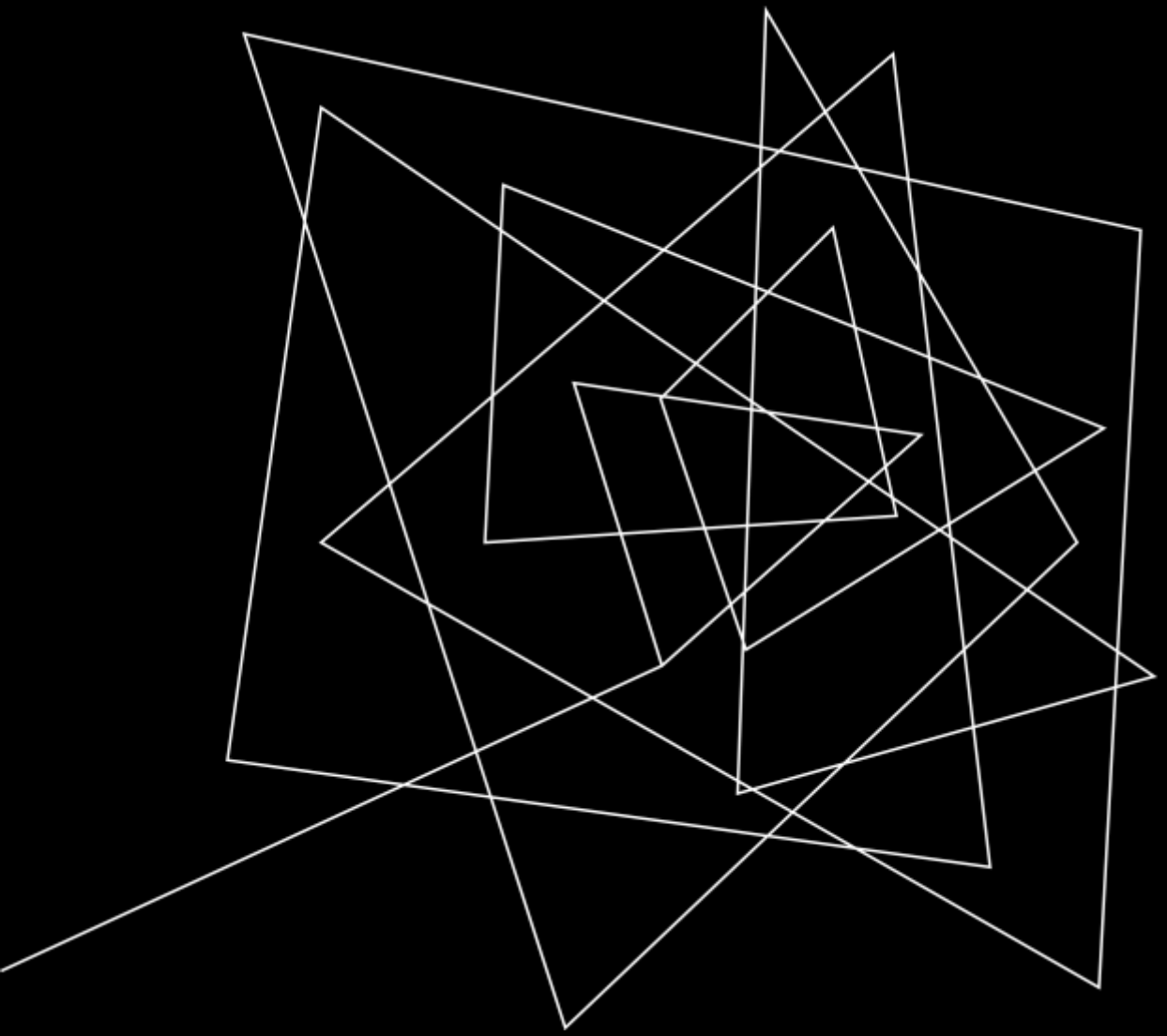
- Deliver
- To-Go
- Dine In

Menu Items

- Main Dishes
- Desserts
- Drinks

Sales

- By Location
- By Order
- By Menu Items



# DATA CURATION

**Popular New York Restaurant Data**

Methods of Curation

Methods of Manipulation

Code Utilized

- R Code
- Python

# DATA ANALYSIS

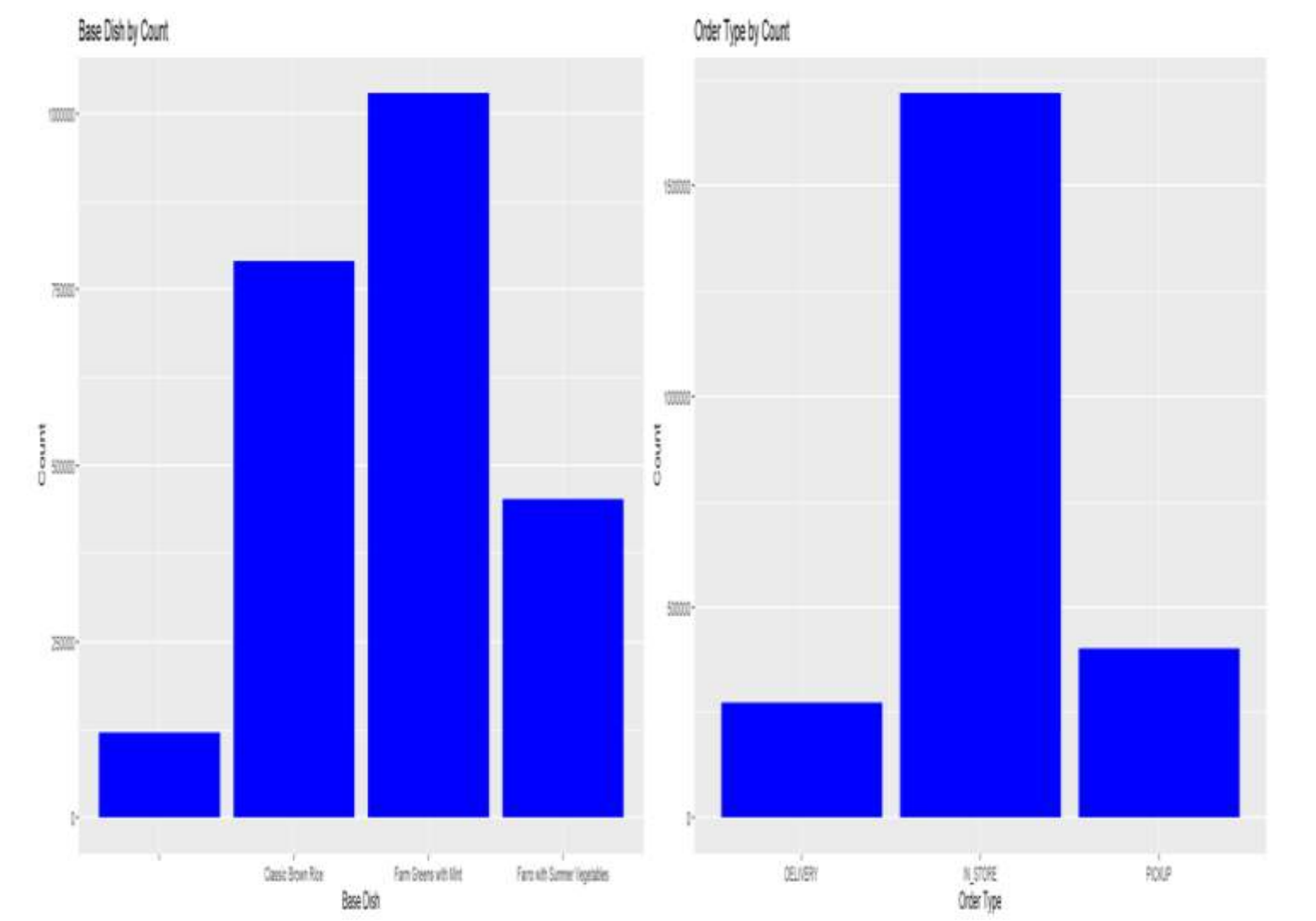
## DIG INN
NEW YORK, NEW YORK

***Bona Petite'***

# ANALYSIS USING R CODE

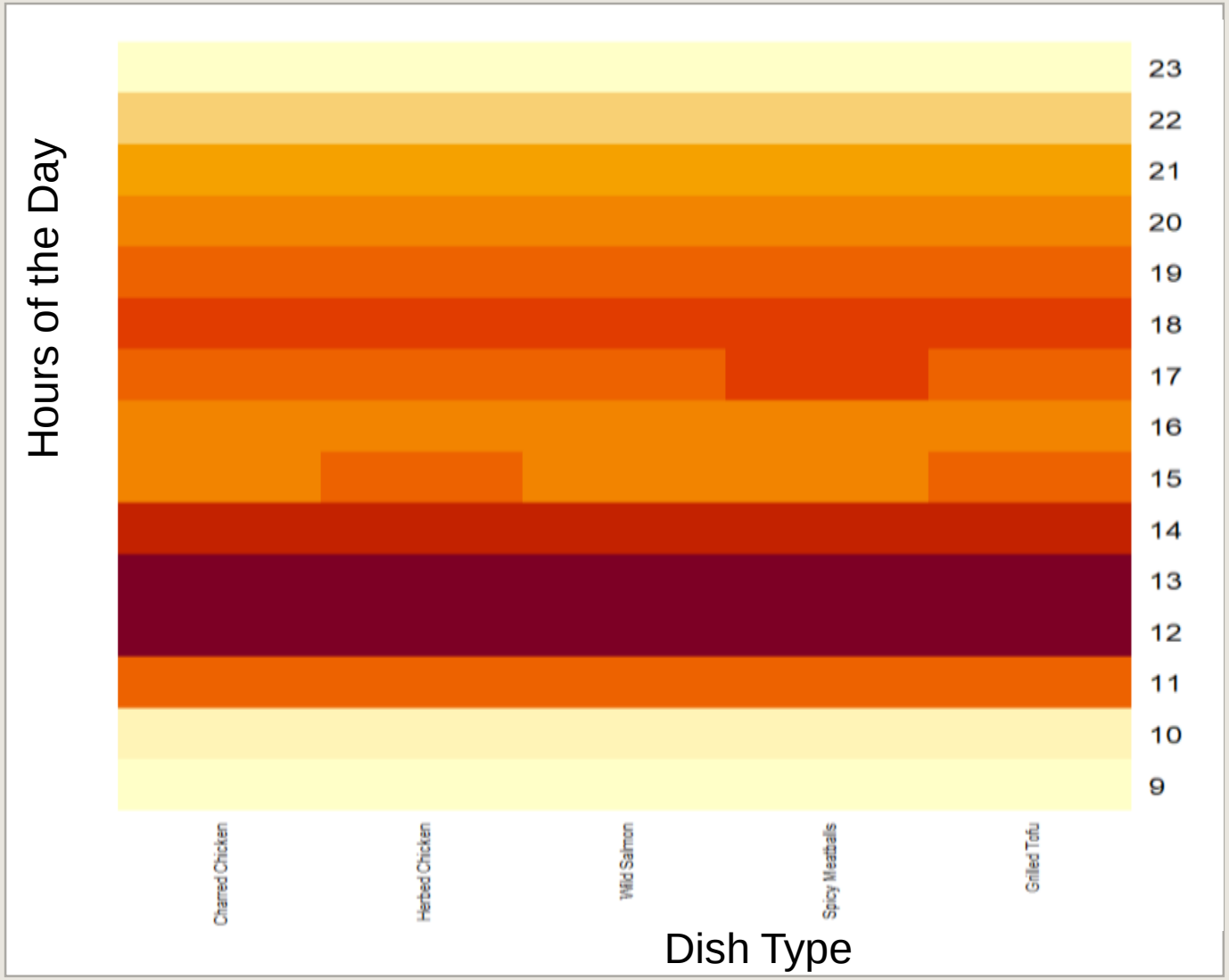
## Visualizing the Data: Utilizing GGPLOT Library

In the following slides, you will see the use of the ggplot library. These slides show a standard bar chart, displaying the sales by order type, and the sales by store location. Then you will see the type of visualization change from a bar graph to a heatmapping of both the sales by location, and the sales by order type, by the hours of operation. Finally, you see another heatmap, that combines all this data, the sales by location, the item type and the type of order.




Graphs show the distributions of the Base Dish and Order Types by Count.

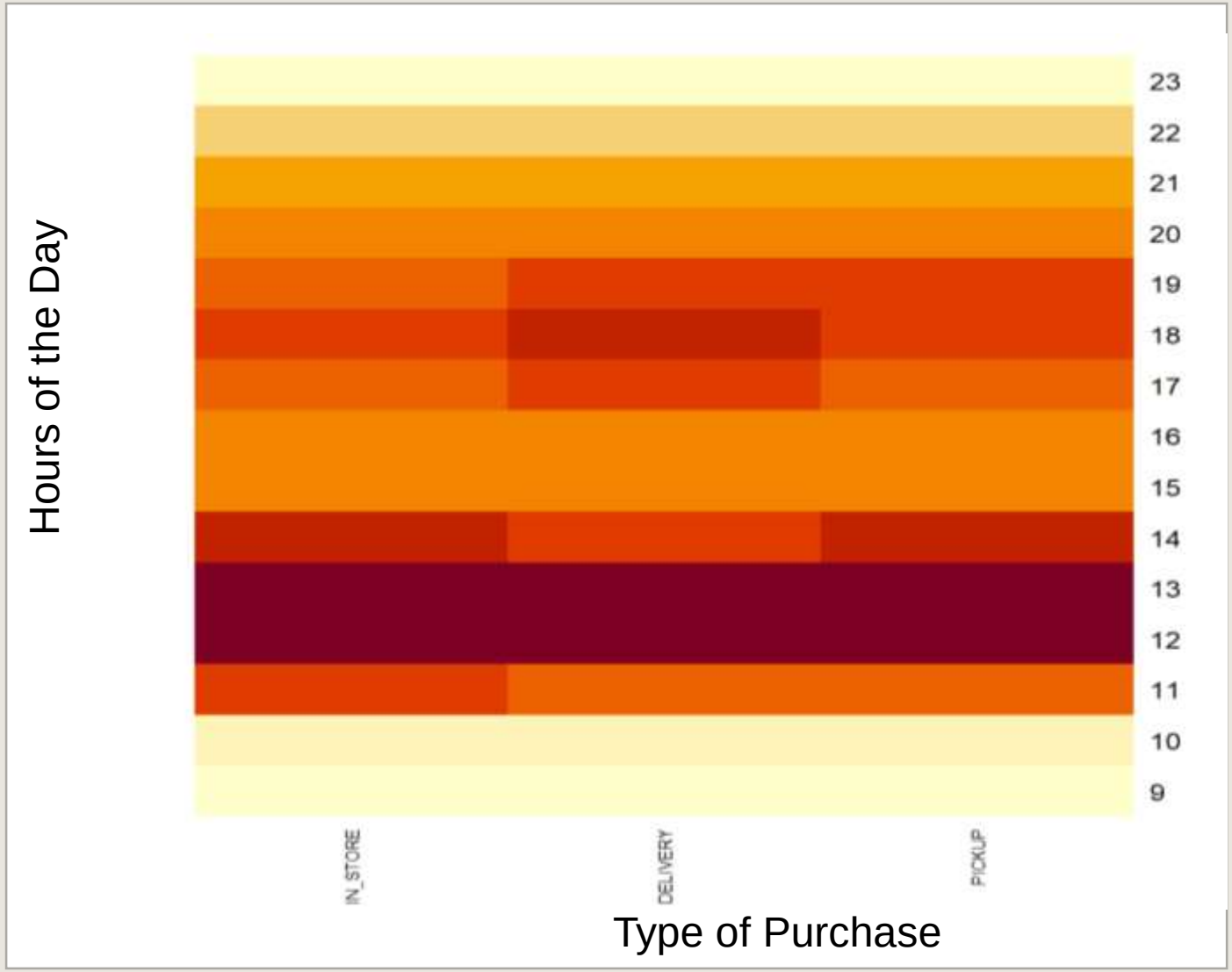
*Style: Bar Charts*




This heatmap was created after we transformed the data, utilizing the pivot and group by functions, into a more intuitive and easier to navigate data frame.

This graphic illustrates the relationships between the time of the day, and the menu items purchased.

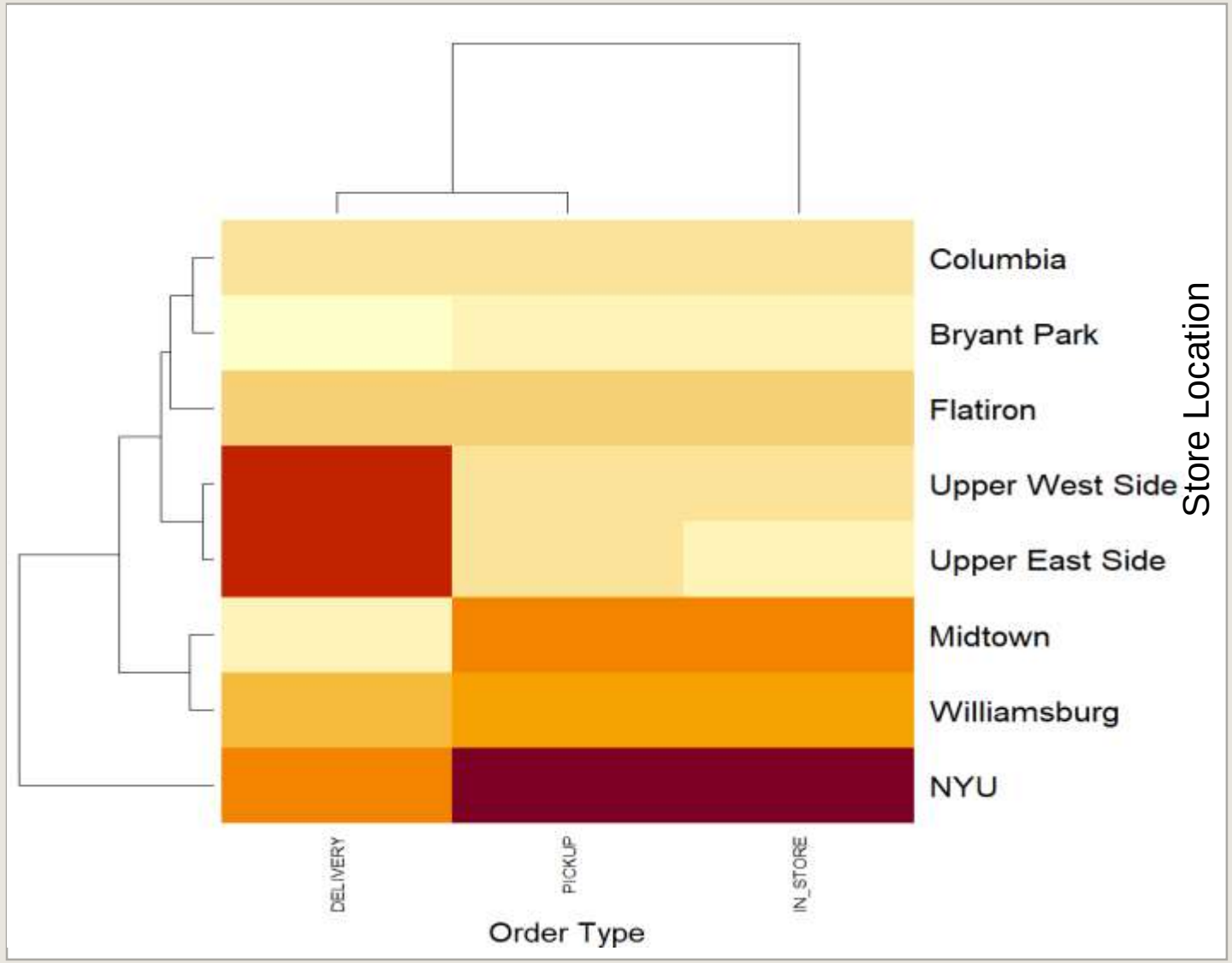
*Style: Heatmap Chart*




The data utilized was grouped by the type of dining experience for this graphic.

This heatmap illustrated the relationship between the time of the sale of a menu item and the type of dining experience the purchaser received. *"Dining In", "Delivery", or "Pick-Up".*

*Style: Heatmap Chart*




This final heatmap graphic combined the purchases, the purchase location, and the dining experience.

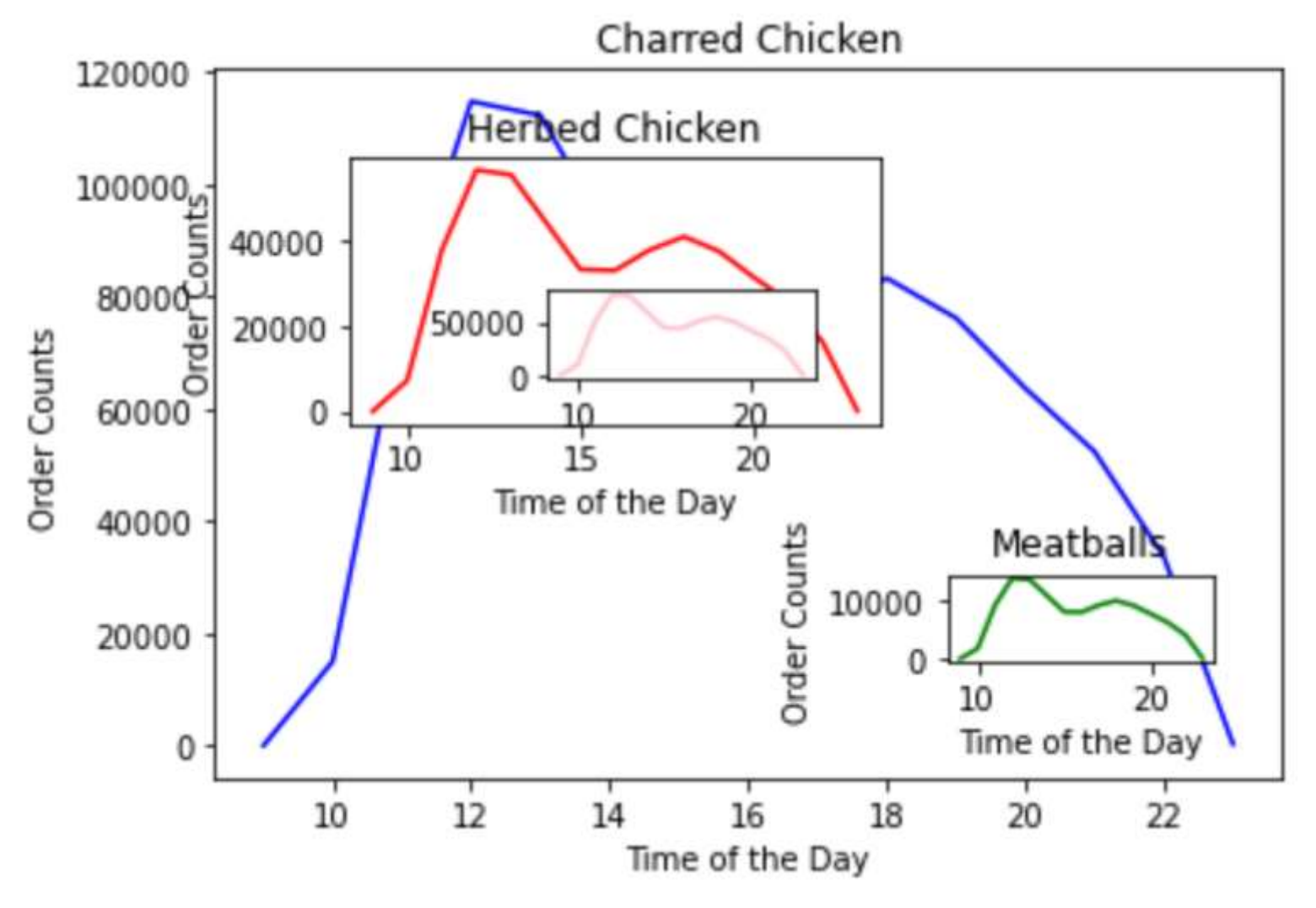
The story in this graph demonstrates the higher volume stores and the type of sales they experienced.

*Style: Heatmap Chart By Location & Type of Order*

# ANALYSIS USING PYTHON

## Visualizing the Data: Utilizing Matplotlib

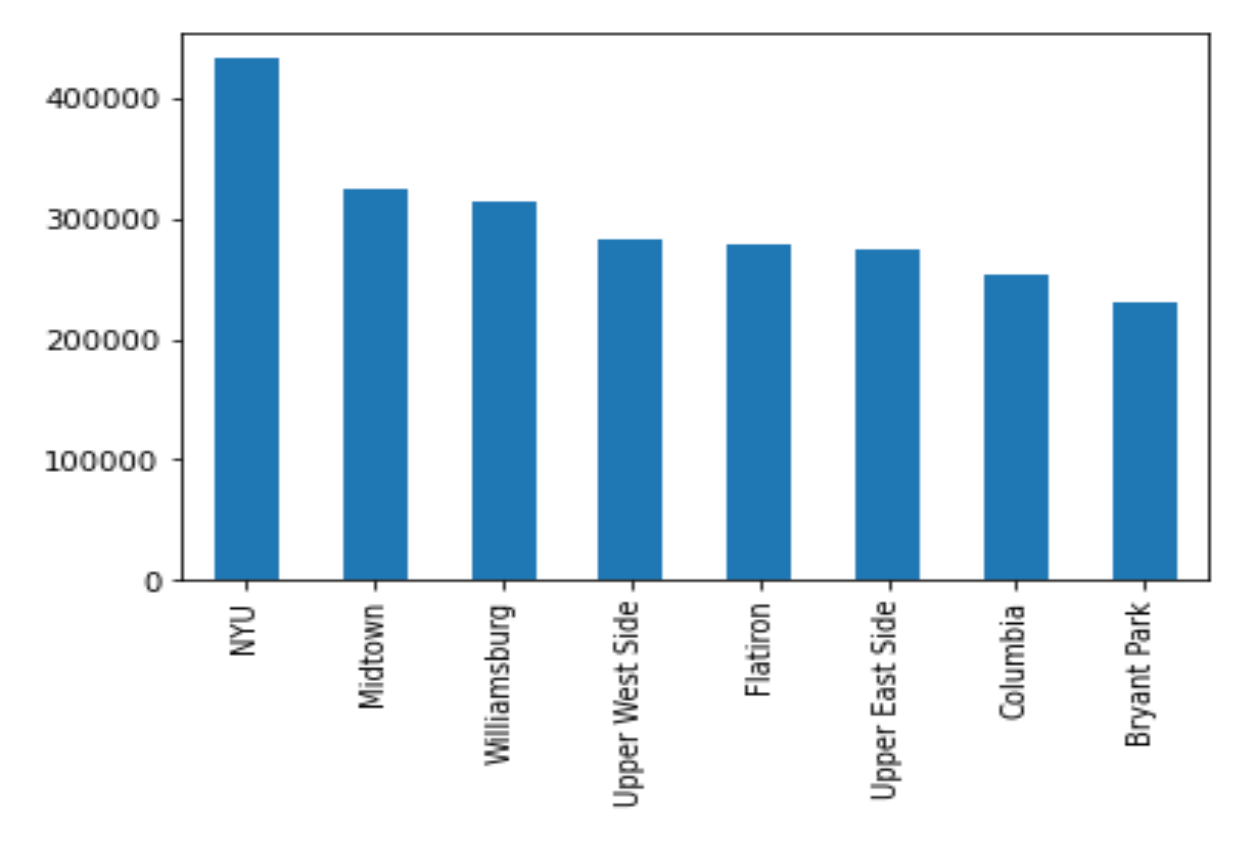
In the following slides, you will see the use of the Matplot Library. These slides show the histograms, in the style of a pareto bar chart, ranking them by highest to lowest, in the sales by type, sales by store location, and sales by items ordered. Then you will see the type of visualization change from a bar graph to a set of scatter plot style graphs, where the sales data by day, by location is displayed for each individual store location, and finally that same data in a scaling plot, scatter plot graph.



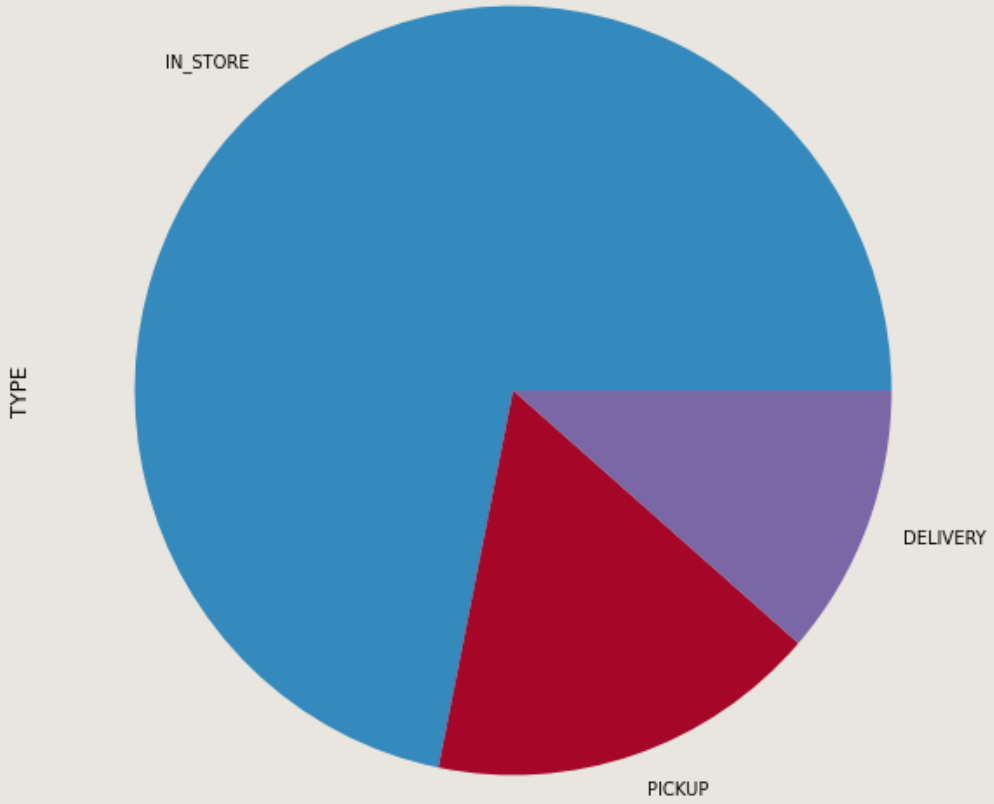

This line plot with sub-plots contained in one graphic shows the various dishes ordered and the time of the day when the orders were made.

*Style: Line Graph with subplots: Menu Items & Time of Order*

# GENERAL SALES DATA



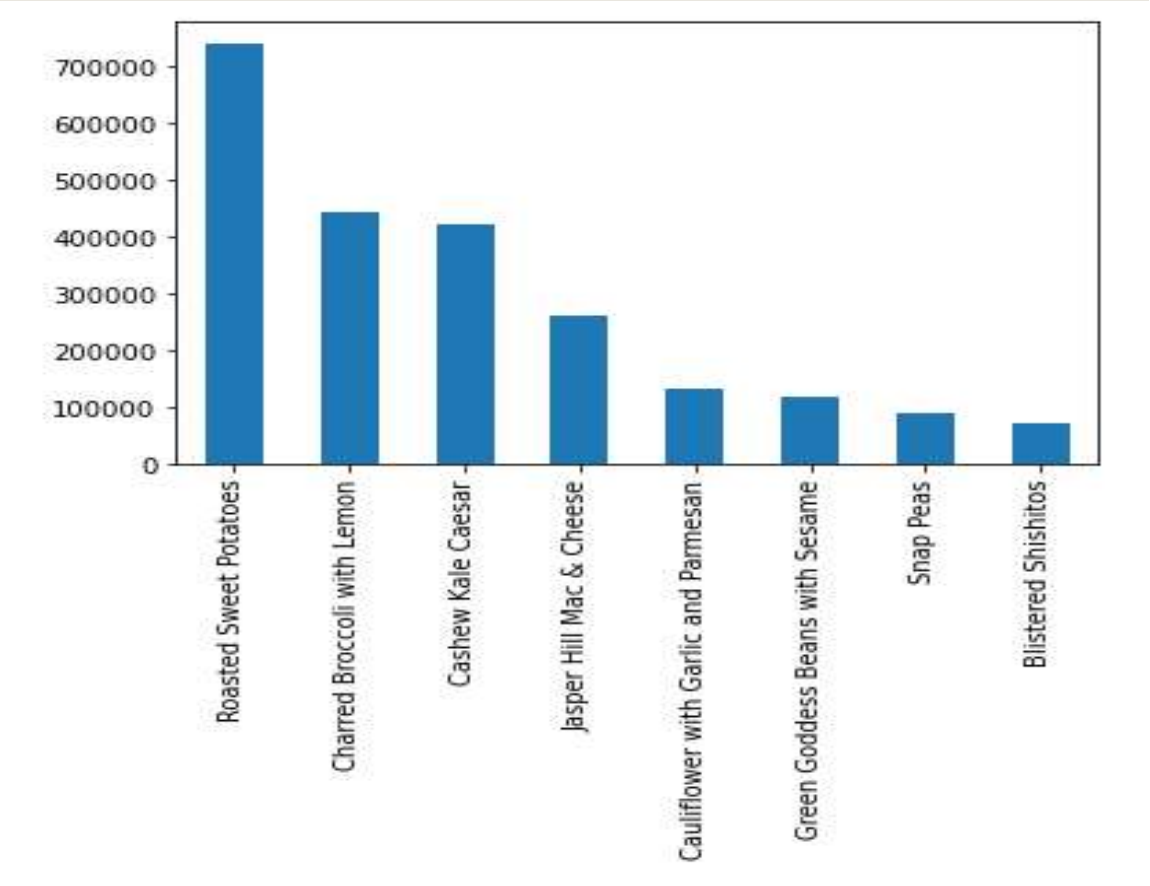

Location Ranking by volume



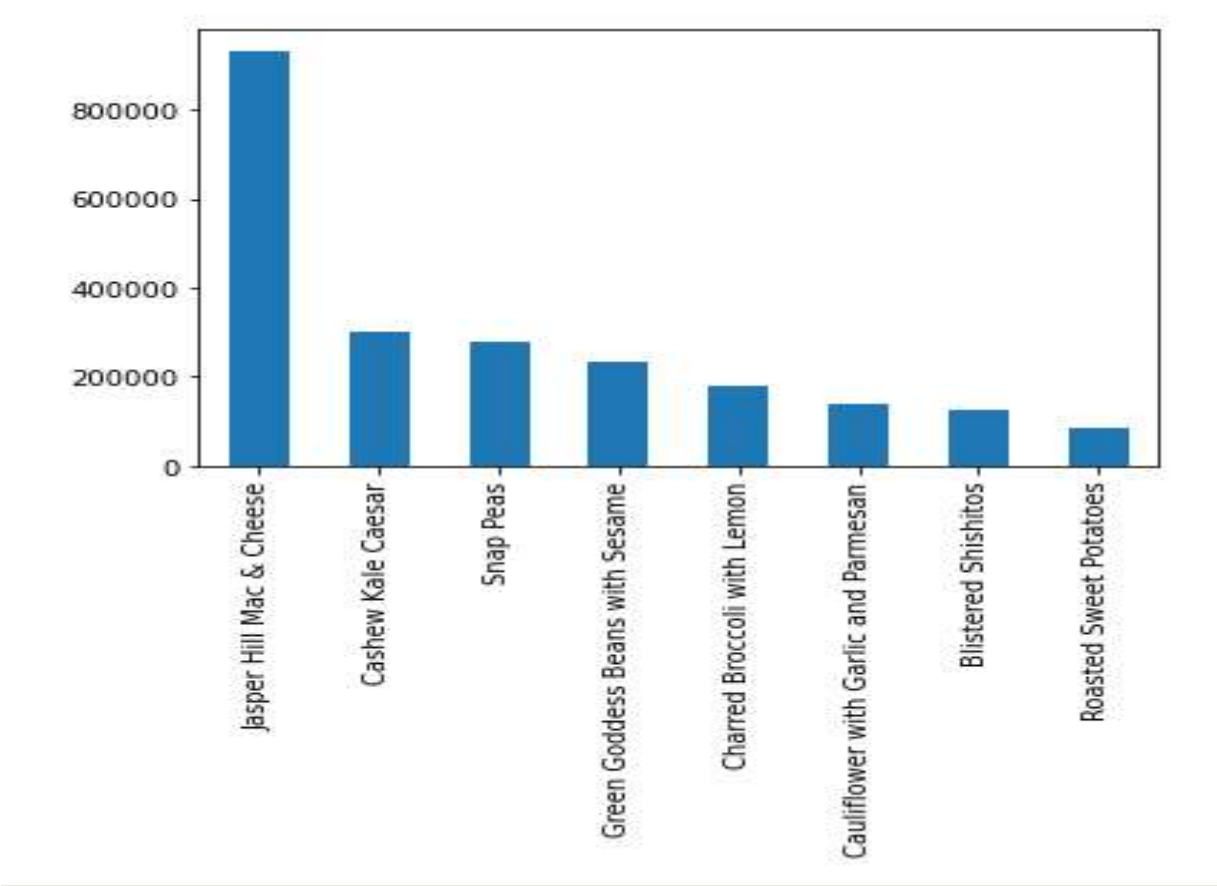

Average Percentage of Sales by Volume

*Style: Pareto Chart Bar & Pie Chart Graphs*

# EVERYONE LOVES SIDES

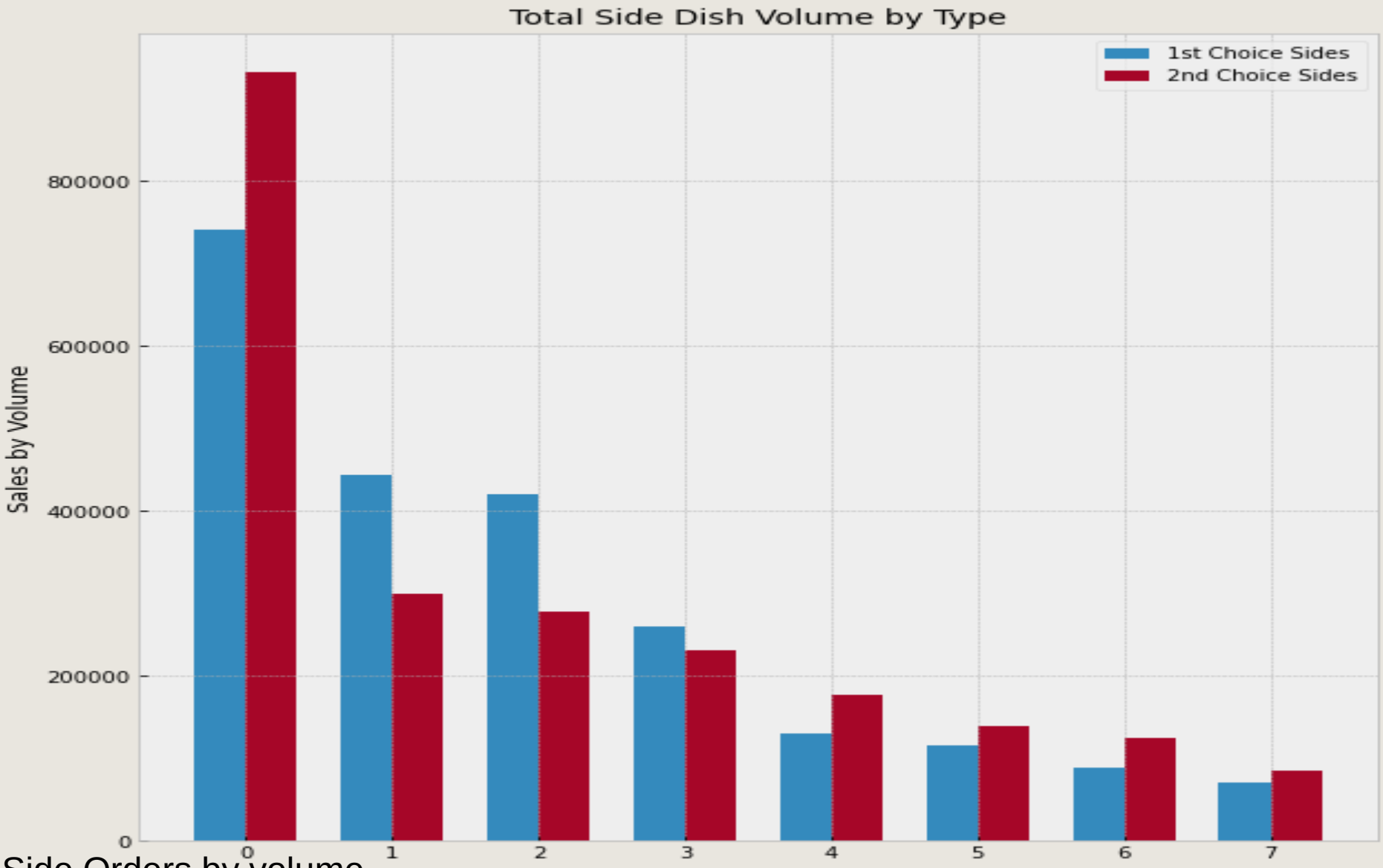



#1 Side Orders by volume




#2 Side Orders by volume

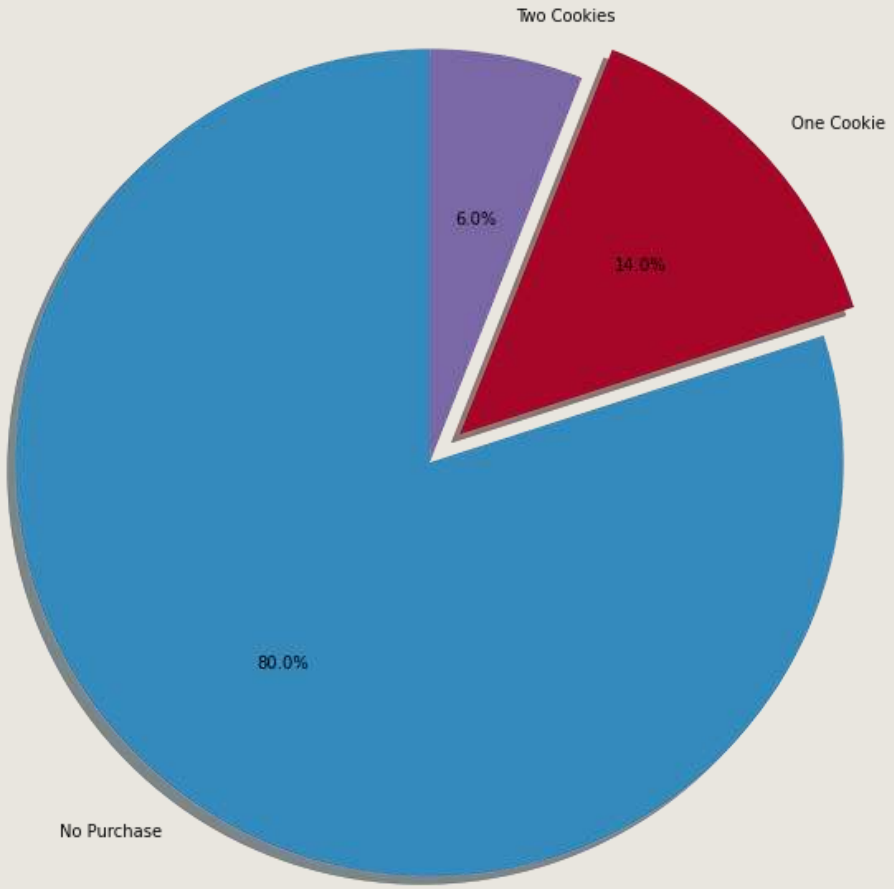
*Style: Pareto Chart Bar Graph*



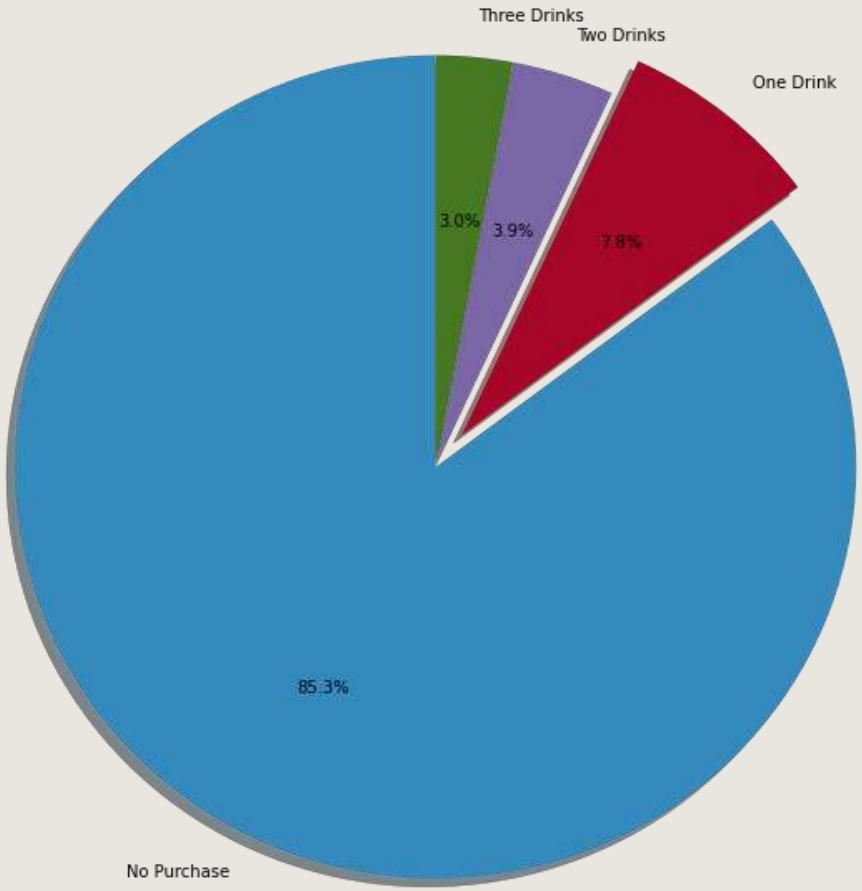

#1 & #2 Side Orders by volume

*Style: Grouped Bar Graph: Matlib.pyplot*

# HAVE A COOKIE & A COKE



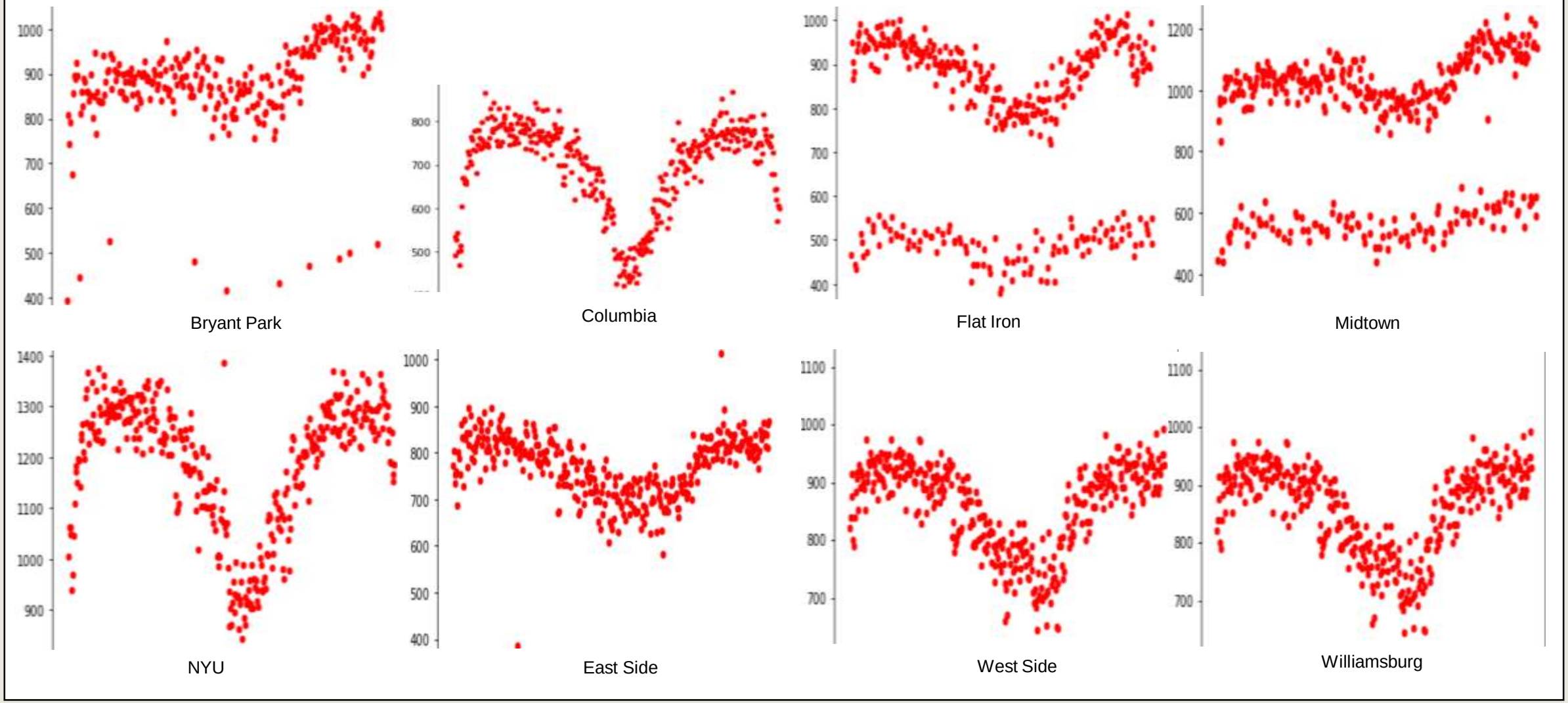

Cookie Sales with main dishes



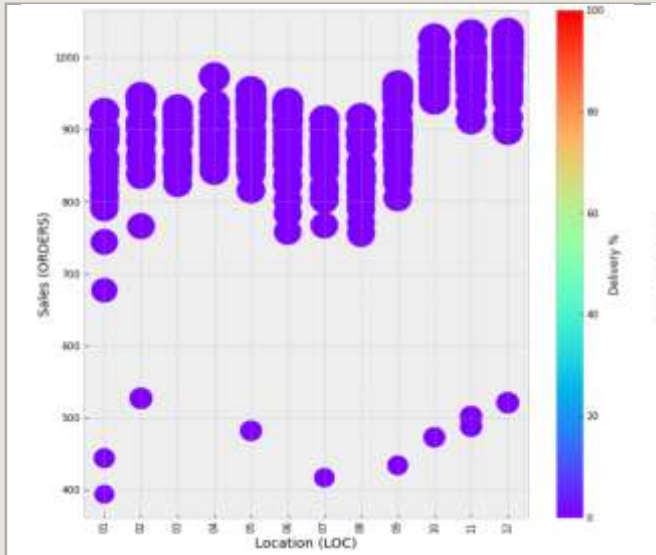

Drink Sales with main dishes

*Style: Pie Chart: Matlib.pyplot*

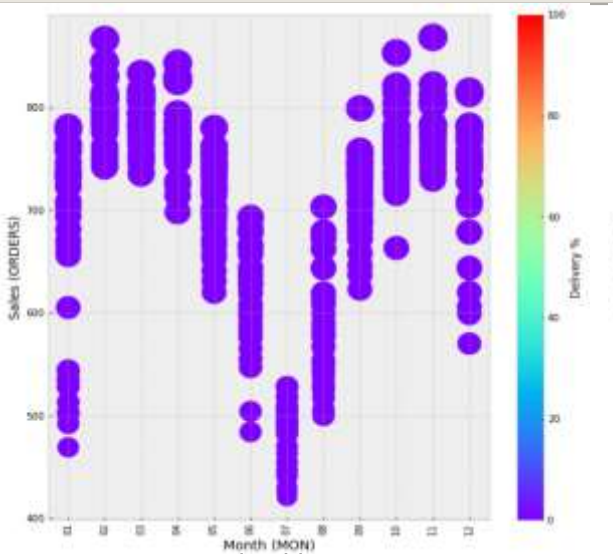
## Sales by Day by Location



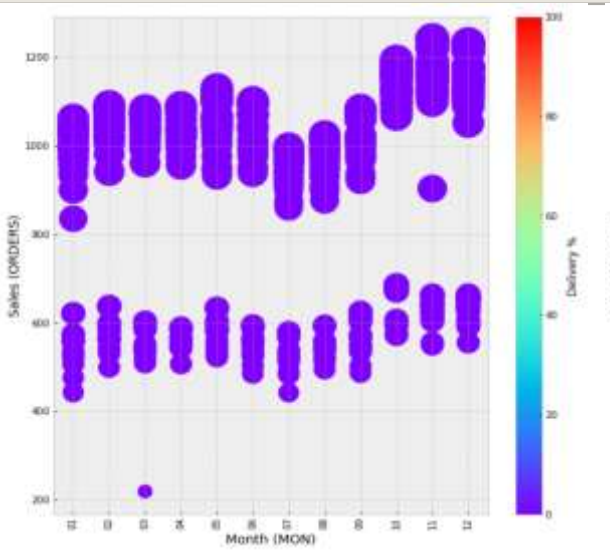

*Style: Scatter Plot Chart, Individual*



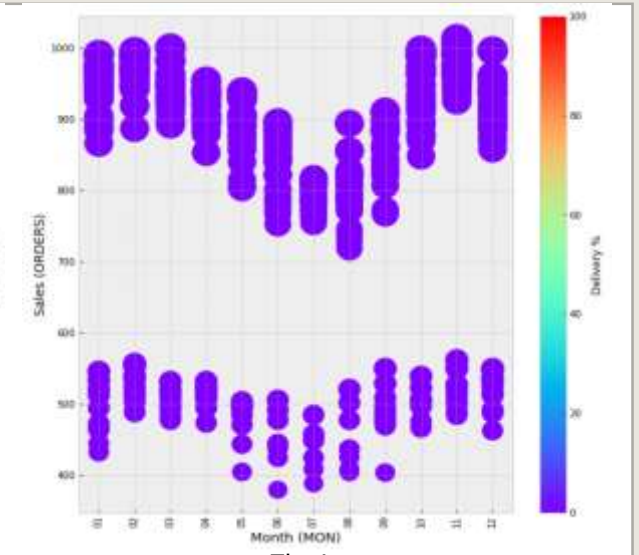
Bryant Park



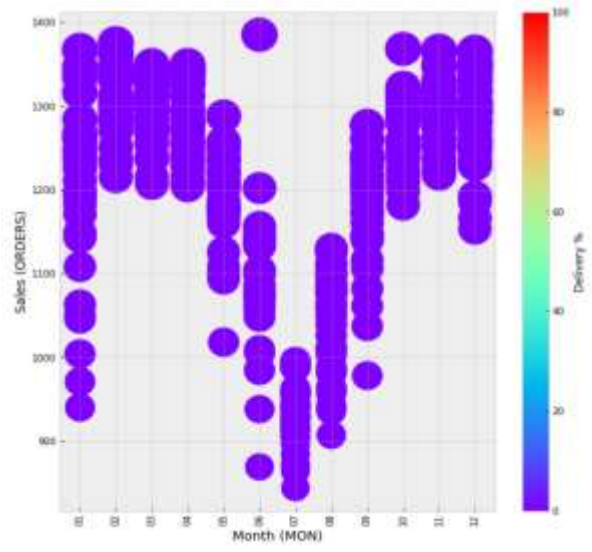
Columbia



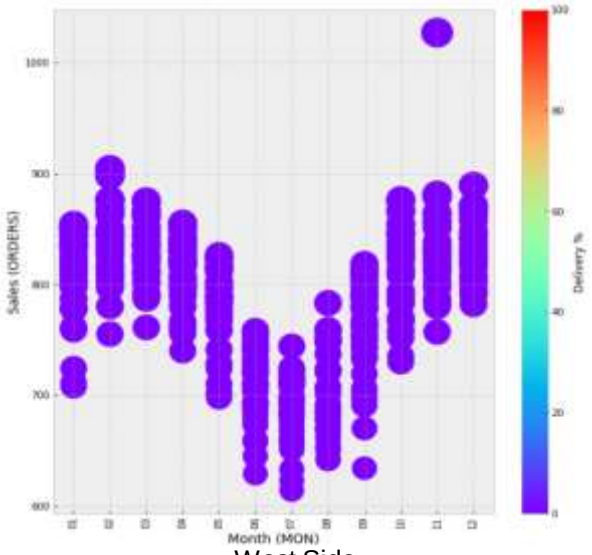
Midtown



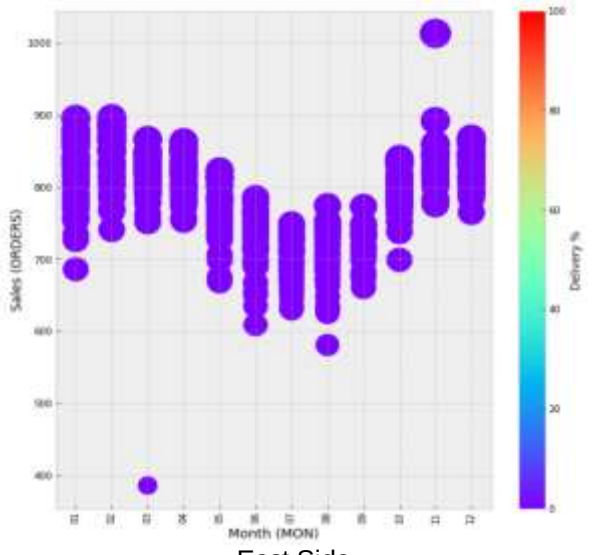
Flat Iron



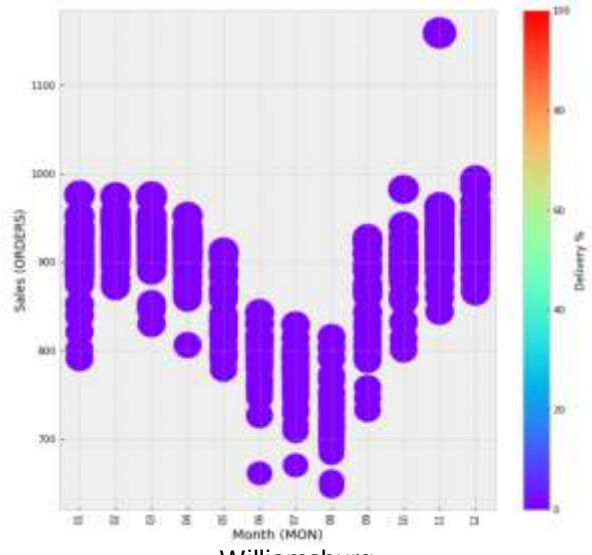
NYU



West Side

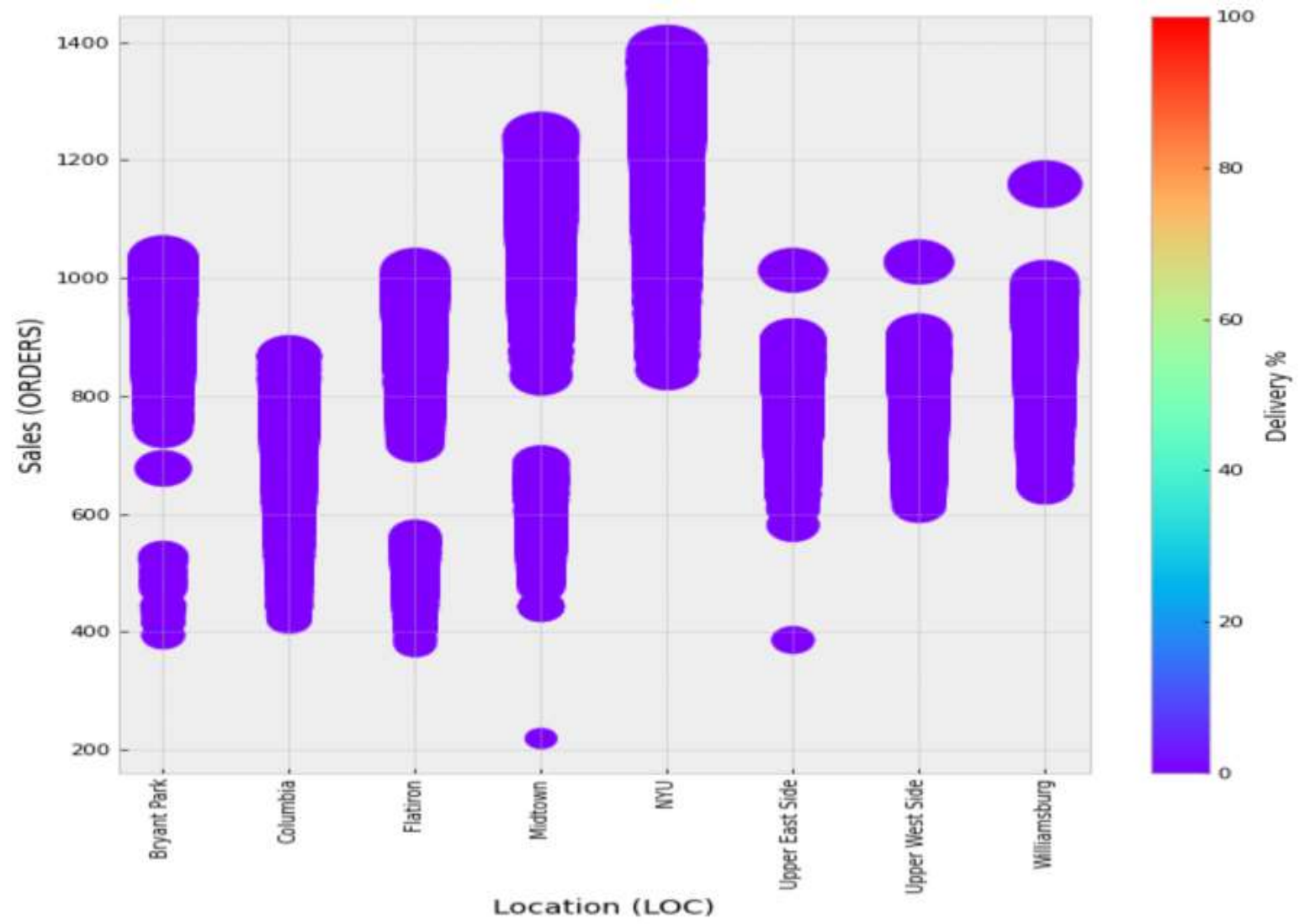


East Side



Williamsburg

*Style: Scatter Plot Chart, Grouped*




In this graph, the over-all sales per location are ‘clumped’ together by months and are overlayed by one of the dining experiences: “The percentage of delivery”

There were multiple options to apply to this graphic, concerning color and layout.

In the following slide, the data is truncated to only each location, making this same visual tell a different story.

*Style: Scatter Plot Chart, Grouped*

# SUMMARY & CONCLUSION

We hope that we have made you hunger for more data visualization and data analytics. As you can see now, data analytics can be used for most anything, including your favorite meal, snack, or dessert – it is fit for any occasion.

*We challenge you all to get out there and* ***"Take a Bite!"***

# THANK YOU

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