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**TITLE: NEW YORK FOOD ANALYSIS  
(SDG 8: DECENT WORK AND ECONOMIC GROWTH)**

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## **ABSTRACT**

This study explores entrepreneurship in the food industry through analyzing a dataset of food orders from New York City restaurants, with a focus on customer cuisine preferences, restaurant performance, and service efficiency. The dataset, sourced from Kaggle and consisting of 1162 rows and 9 columns, contains information such as order IDs, restaurant names, cuisine types, order costs, customer ratings, delivery times and food preparation times. The project's primary goals are to identify popular cuisines and top-rated restaurants, optimize food preparation times, and compare performance on weekdays and weekends. The study applies detailed analysis to uncover trends in ordering patterns, average spending habits, and the impact of preparation times on customer satisfaction.

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## INTRODUCTION

Across the globe, there exist a variety of cuisine types from various ethnic backgrounds. Each has its own unique flavours and cultural significance. These cuisines not only showcase food traditions but also add to the cultural diversity of cities. Today, people from all backgrounds enjoy and appreciate cuisines from other cultures. So, in a busy city like New York, knowing which popular cuisine types are there can help us understand what New York citizens like to eat.

In this project, we will analyse food ordering and delivery data for New York City citizens to find out which cuisine is the most popular there. Using a dataset from Kaggle, we will identify the ranking for each cuisine in New York. In our project, there are 14 cuisine types that we will explore, which are American, Italian, Japanese, Chinese, Indian, Mexican, Thai, Middle Eastern, Mediterranean, Korean, Vietnamese, Spanish, French, and Southern. Insights from our project will help suggest which types of restaurants might be successful in New York.

The study has the following objectives:

1) Understand popular cuisine types:

We want to identify which types of cuisines are most frequently ordered and preferred by New York City residents by analyzing the data to spot trends in popular cuisine types. This will give restaurant owners insights into customer behavior and help them find new business opportunities.

2) Optimize operational efficiency

We will use the analysis to provide recommendations for restaurants on how to optimize their operations. This includes insights on the number of customers during weekends and weekdays, helping improve efficiency during peak times. Additionally, we will provide information on the typical budget range that customers tend to spend, allowing restaurant owners to adjust their offerings accordingly.

3) Predicting future trends.

We analyze historical data to predict future trends in cuisine preferences. By understanding these trends, restaurant owners and food service providers can stay ahead in the market. This information can also guide restaurant owners who want to open new establishments, helping them make informed decisions.

## **PROJECT DESCRIPTION**

The project involves the analysis of a dataset that includes details on food orders in New York at different restaurants. Many features in the data offer light on customer choices, restaurant performance, and customer service efficiency. The project's goal is to find patterns and trends that can enhance restaurant services and customer satisfaction by looking at those features. The dataset includes attributes such as order ID, customer ID, restaurant name, cuisine type, order cost, day of the week, customer rating, food preparation time, and delivery time. It also contains qualitative information like customer ratings and quantitative information like the cost of each order.

The dataset used for this study includes extensive data on food orders from different restaurants, offering a thorough foundation for examining patron behaviors and business operations. Key features include order and customer unique IDs, restaurant name, and cuisine type such as Japanese, American, Indian etc. This data also contains customer ratings, the day of the week the order was placed, the cost of each order, the time it took to prepare the food, and the time it took to deliver it. An extensive analysis of spending trends, customer tastes, and the effectiveness of restaurant operations is made possible by this huge amount of data. Through these features, an entrepreneur seeks to identify trends and relationships that might improve the efficiency and quality of service provided by restaurants.

This project is important to analyze customer behavior by determining popular cuisines, ordering patterns, and average spending patterns on various days of the week. Gaining insight into customer tastes and how they link to order time will be made easier with this analysis. Furthermore, by analyzing important indicators like food preparation time and customer ratings, the project aims to evaluate restaurant performance. Finding out how effective various restaurants are and how they affect customer satisfaction will be achieved in this way.

## DATA DESCRIPTION

We get our project dataset from Kaggle website named NYC Restaurant Data. This dataset contains the different data related to an online food ordering on delivery app of New York City Restaurants. All the 9 columns in the dataset indicate the customer experience and the favorite cuisine type of people in New York City. This dataset contains 1162 rows and 9 columns.

No	Title	Explanation	Type
1.	Order ID	Unique ID of the order	Qualitative
2.	Customer ID	ID of the customer who ordered the food	Qualitative
3.	Restaurant Name	Name of the restaurant in New York City	Qualitative
4.	Cuisine Type	Cuisine ordered by the customers	Qualitative
5.	Cost of Order	Cost of each order	Quantitative
6.	Day of the week	The order placed on a weekday and weekend	Qualitative
7.	Rating	Rating given by the customer out of 5	Qualitative
8.	Food Preparation	Time taken by the restaurant to prepare the food	Quantitative
9.	Delivery Time	Time taken by the delivery person to deliver the food package	Quantitative

## DATA PREPARATION

```
{r}
file_path<- file.choose()
df<-read.csv(file_path , header=TRUE)
head(df)
tail(df)
...
```



	order_id	customer_id	restaurant_name	cuisine_type	cost_of_the_order	day_of_the_week	rating	food_preparation_time
1893	1477473	97838	Han Dynasty	Chinese	29.15	Weekend	Not given	29
1894	1476701	292602	Chipotle Mexican Grill \$1.99 Delivery	Mexican	22.31	Weekend	5	31
1895	1477421	397537	The Smile	American	12.18	Weekend	5	31
1896	1477819	35309	Blue Ribbon Sushi	Japanese	25.22	Weekday	Not given	31
1897	1477513	64151	Jack's Wife Freda	Mediterranean	12.18	Weekday	5	23
1898	1478056	120353	Blue Ribbon Sushi	Japanese	19.45	Weekend	Not given	28

6 rows | 1-9 of 9 columns

*read and explore dataset*

```
{r}
dim(df)
```

```
[1] 1898    9
```

*Dimension of data frames*

```
{r}
names(df)
```

```
[1] "order_id"          "customer_id"
[3] "restaurant_name"   "cuisine_type"
[5] "cost_of_the_order" "day_of_the_week"
[7] "rating"            "food_preparation_time"
[9] "delivery_time"
```

*Name of variable of each column*



```

{r}
str(df)

```

```

'data.frame': 1898 obs. of 9 variables:
 $ order_id      : int  1477147 1477685 1477070 1477334 1478249 1477224 1477894 1477859 1477174 1477311 ...
 $ customer_id   : int  337525 358141 66393 106968 76942 147468 157711 89574 121706 39705 ...
 $ restaurant_name : chr  "Hangawi" "Blue Ribbon Sushi Izakaya" "Cafe Habana" "Blue Ribbon Fried Chicken" ...
 $ cuisine_type  : chr  "Korean" "Japanese" "Mexican" "American" ...
 $ cost_of_the_order : num  30.8 12.1 12.2 29.2 11.6 ...
 $ day_of_the_week : chr  "Weekend" "Weekend" "Weekday" "Weekend" ...
 $ rating        : chr  "Not given" "Not given" "5" "3" ...
 $ food_preparation_time: int  25 25 23 25 25 20 28 33 21 29 ...
 $ delivery_time  : int  20 23 28 15 24 24 21 30 26 26 ...

```

*Explore the values of each column*

```

{r}
column_types <- sapply(df, class)
as.data.frame(column_types)

```

	column_types <chr>
order_id	integer
customer_id	integer
restaurant_name	character
cuisine_type	character
cost_of_the_order	numeric
day_of_the_week	character
rating	character
food_preparation_time	integer
delivery_time	integer

9 rows

*Data type of the column*

```

{r}
missing_values <- colSums(is.na(df))
missing_column <- missing_values[missing_values >=1]
as.data.frame(missing_column)

```

0 rows

*Find the missing values*

```

{r}
unique_counts <- sapply(df, function(x) length(unique(x)))
as.data.frame(unique_counts)

```

	unique_counts <int>
order_id	1898
customer_id	1200
restaurant_name	178
cuisine_type	14
cost_of_the_order	312
day_of_the_week	2
rating	4
food_preparation_time	16
delivery_time	19

9 rows

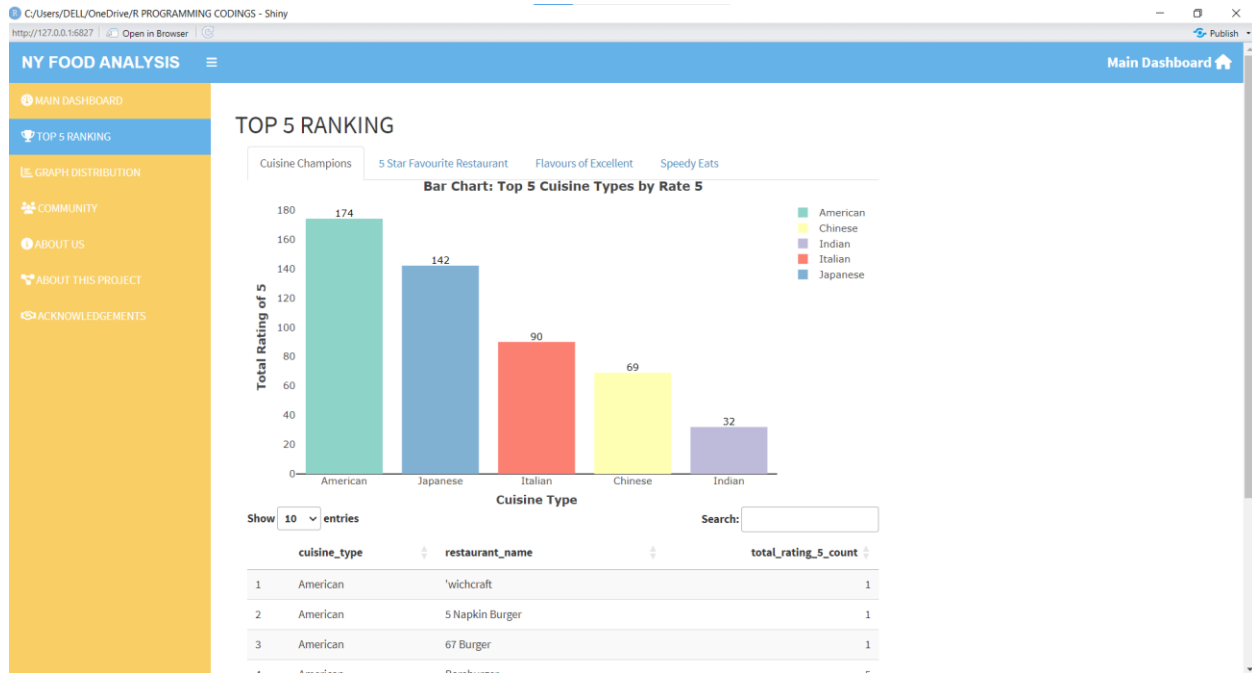
### *Count the unique value*

In this part, we will prepare the obtained data to get a better insight in future analysis. First, we do the renaming column to make sure the name represents well the data they hold and give the audience an early description about the data in the column. Sometimes, we also rename the column to remove unwanted characters or symbols to make it nice. But in this case, we chose to use the same name because the name suits its table very well. In this project we use the data from the csv and the column we use is Order ID, Customer ID, Restaurant Name, Cuisine Type, Cost of order, day of the week, rating, food preparation and Delivery time. As the figure above these datasets have no missing value and are very clean with no noisy datasets.

## DATA ANALYSIS, RESULTS AND DISCUSSION

### TOP 5 RANKING

#### BAR CHART: TOP 5 CUISINE TYPE BY RATE 5



#### Result:

Based on bar chart titled "Top 5 Cuisine Types by Rate 5" shows the total rating of 5 for five different cuisine types in New York included are American, Japanese, Italian, Chinese, and Indian. The bars represent the total number of ratings each cuisine received rated 5. American cuisine with a total rating of 174, American cuisine tops the chart, indicating it is the most favored among the cuisines listed when it comes to receiving a perfect rating. Following American, Japanese cuisine has a total rating of 142. This high rating shows significant popularity and a strong preference among diners. Italian cuisine is in the middle with a total rating of 90. This suggests that it is also well-liked but not as much as American and Japanese cuisines. With a total rating of 69, Chinese cuisine is somewhat less favored compared to the top three but still makes it to the top five. Indian cuisine has the lowest total rating of 32 among the top five, indicating it is the least favored in this group for receiving a perfect rating.

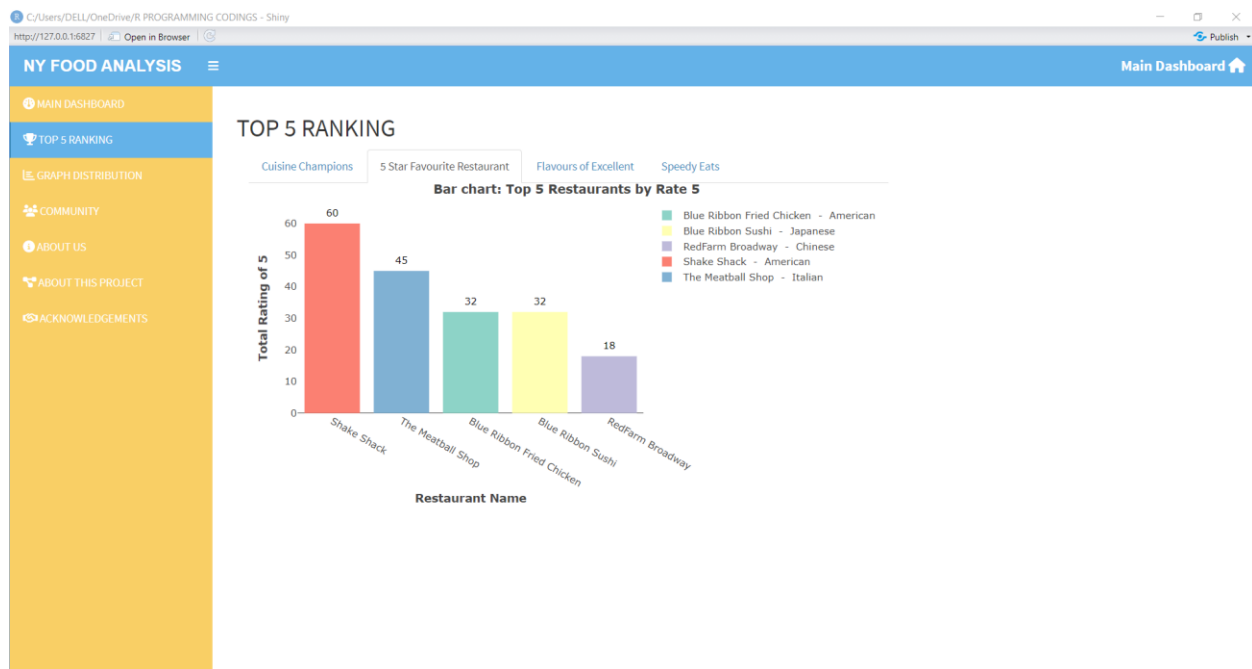
## Discussion:

The chart provides valuable insight into eating preferences in New York. The popularity of American cuisine might be due to the familiarity and comfort it provides to tourists as well as locals. The outstanding performance of Japanese cuisine suggests a great deal of enjoyment for its unique flavors, as well as a belief that it is a healthier or more exotic choice. Italian cuisine's enduring popularity shows its worldwide appeal, probably driven by loved dishes such as pasta and pizza. Chinese cuisine's fourth-place ranking shows it is popular but doesn't get as many perfect reviews, which might be due to different quality among restaurants or a certain portion of the population that values it highly.



To enhance the user-friendly interface, we have created a feature below the bar chart visualization that allows users to search for their desired cuisine type. Upon searching, a list of restaurant names offering that cuisine type and total rate of 5 will appear. This feature facilitates easy access for users to identify restaurants located near to their homes and good rating restaurants, thereby proving the efficiency of our system and reducing time wastage for customers.

## BAR CHART: TOP 5 RESTAURANT BY RATE 5



### Results:

The bar chart titled "Top 5 Restaurants by Rate 5" displays the total number of perfect ratings (rating of 5) received by the top five restaurants in New York. The bars represent the total number of perfect ratings each restaurant received. Leading the chart with 60 perfect ratings. The Shake Shack, an American fast-casual restaurant, is the most favored restaurant among the top five. Its popularity could be attributed to its well-loved menu items such as burgers and shakes, appealing to a customer. With 45 perfect ratings, The Meatball Shop, an Italian restaurant, is the second most highly rated. Its unique focus on meatballs and Italian cuisine likely resonates well with diners looking for a specialized dining experience. Also tied for third with 32 perfect ratings, Blue Ribbon Fried Chicken, an American restaurant, showcases the popularity of its fried chicken. This suggests a significant demand for well-prepared, flavorful fried chicken. For third place, Blue Ribbon Sushi has received 32 perfect ratings. This Japanese restaurant's inclusion in the top five indicates a strong preference for high-quality sushi and Japanese cuisine. In fifth place, RedFarm Broadway, a Chinese restaurant, has received 19 perfect ratings. Although it has the fewest ratings among the top five, its inclusion shows that it still holds a notable place in the hearts of diners who appreciate Chinese cuisine.

**Discussion:**

This analysis highlights several key trends in New York restaurant preferences. The dominance of American cuisine, as seen with Shake Shack and Blue-Ribbon Fried Chicken, suggests a broad appeal of familiar comfort foods. The popularity of specialized dining experiences, such as those offered by The Meatball Shop, shows that unique restaurant concepts can attract a customer. The strong performance of Blue-Ribbon Sushi points to a growing appreciation for high-quality, authentic Japanese cuisine. Lastly, RedFarm Broadway's presence in the top five, despite having fewer perfect ratings, indicates that there is a demand for Chinese cuisine.

## PIE CHART: TOP 5 CUISINE BY TOTAL ORDERS



### Result:

The pie chart showcases the top 5 cuisine types by total orders in New York City. These cuisine types are American, Japanese, Italian, Chinese, and Indian. The largest proportion of orders is from American cuisine, accounting for 36.9% of the total orders. This is followed by Japanese cuisine, comprising 27.4% of the orders, then Italian cuisine at 17.3%, Chinese cuisine at 13.4%, and Indian cuisine at 5.02%.

This indicates that the most popular cuisines in New York City are American and Japanese, together contributing to more than half of the total orders. Conversely, the smallest proportion of orders is from Indian cuisine, which accounts for only 5.02% of the total orders. Although Indian cuisine is the smallest proportion, it is still representing a notable presence among New York's citizen since Indian cuisine are shortlisted in Top 5 cuisine types by total orders in New York City.

## Discussion:

The results indicate that American and Japanese cuisines dominate the market, with their combined proportion making up more than half (64.3%) of total orders. This suggests a strong preference for these cuisines among New York citizens. The larger proportion of American cuisine is likely due to the dataset being collected in New York City. However, the second-highest proportion, followed by Japanese cuisine, may be due to the convenience of Japanese dishes such as sushi, ramen, and bento boxes for takeout or quick dining, aligning well with the fast-paced lifestyle of New York workers.

This provides benefits for businesses or restaurants looking to expand or focus their offerings. It would be strategic to prioritize American and Japanese cuisines due to their high demand. However, there is also potential in offering Italian and Chinese cuisines, which also show substantial popularity. This data provides insights into consumer tastes and strategic focus areas for restaurant founders looking to open a new branch.

Show 10 entries

Search:

	cuisine_type	restaurant_name
87	Japanese	Asuka Sushi
88	Japanese	Benihana
89	Japanese	Blue Ribbon Sushi
90	Japanese	Blue Ribbon Sushi Bar & Grill
91	Japanese	Blue Ribbon Sushi Izakaya
92	Japanese	Donburi-ya
93	Japanese	Go! Go! Curry!
94	Japanese	Haru Gramercy Park
95	Japanese	Hatsuhana
96	Japanese	Hibino

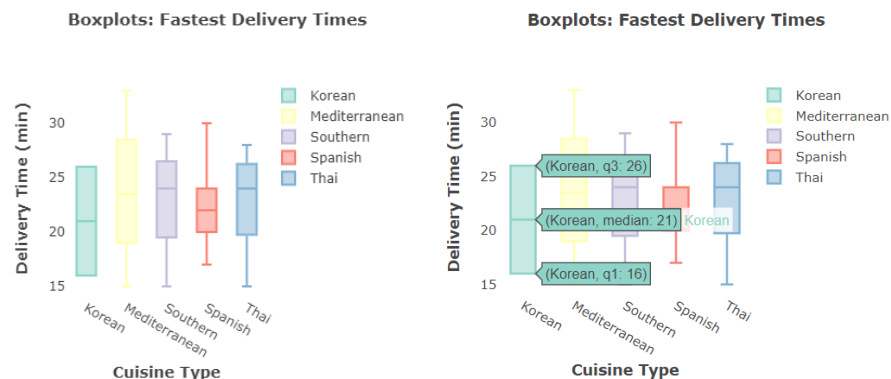
Showing 1 to 10 of 28 entries (filtered from 114 total entries)

Previous 1 2 3 Next

To enhance the user-friendly interface, we have created a feature below the pie chart visualization that allows users to search for their desired cuisine type. Upon searching, a list of restaurant names offering that cuisine type will appear. This feature facilitates easy access for users to identify restaurants located near to their homes, thereby proving the efficiency of our system and reducing time wastage for customers.



## BOXPLOT: FASTEST DELIVERY TIMES



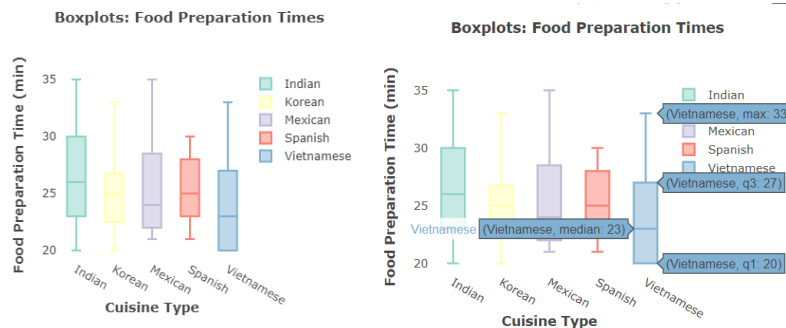
### Result:

We are using a boxplot chart to identify the distribution of food delivery times for different cuisine types. From the delivery times, we observe that Korean cuisine has the lowest median delivery time, around 20 minutes, while Southern and Thai cuisines have the highest median delivery time, around 25 minutes. Spanish cuisine shows a median delivery time around 25 minutes, suggesting a moderate delivery time. The same trend is observed for Mediterranean cuisine. Overall, this suggests that efficient delivery processes are associated with Korean cuisine, while Southern and Thai cuisines appear to have the least efficient delivery processes.

### Discussion:

Korean cuisine stands out with the shortest median delivery time of around 21 minutes, suggesting an efficient delivery operation related to Korean cuisine type. The quicker delivery times for Korean cuisine might be because Korean dishes are quick to prepare like grab-and-go meals in contrast, Southern and Thai cuisines exhibit the longest median delivery times, around 25 minutes, suggesting their potential challenges in delivery operation. Southern and Thai dishes take longer to cook because they're more complicated and need more ingredients that might be harder to find. That's why deliveries for these dishes might take longer compared to others. The result obtained, highlighted how important it is for restaurant to have efficient delivery systems to keep customer happy with their services and keep them stay ahead in the market since it can help the business optimize their delivery operations to meet customer need and customer expectation better.

## BOXPLOT: FOOD PREPARATION



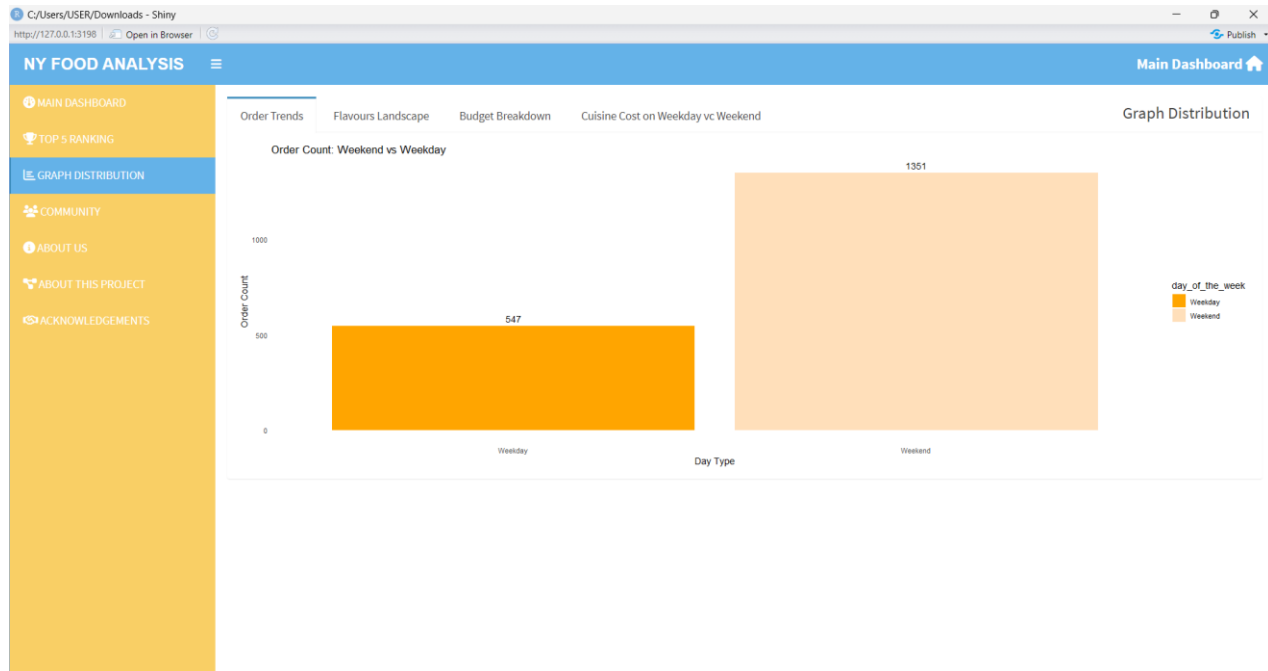
### Result:

We are using a boxplot chart to identify the distribution of food preparation times for different cuisine types. From the observation, Vietnamese cuisine has the lowest median preparation time, which is around 23 minutes, followed by Mexican cuisine at 24 minutes. Both Spanish and Korean cuisines take around 25 minutes to prepare. Indian cuisine has the highest median preparation time, around 30 minutes. This shows that Vietnamese food takes slightly less time to prepare compared to other cuisine types. The longest preparation time is for Indian cuisine, likely because it uses a variety of spices and ingredients.

### Discussion:

Vietnamese cuisine is the most time-efficient, with a median preparation time of less than 25 minutes. This is likely because Vietnamese dishes often use fresh ingredients that don't need much cooking. Mexican food also has a short prep time, around 24 minutes, due to simple dishes like tacos and burritos. Spanish and Korean cuisines take about 25 minutes each, reflecting their straightforward cooking processes. On the other hand, Indian cuisine takes the longest to prepare, around 30 minutes, due to its complex dishes and variety of spices. These insights can help restaurant owners optimize their kitchen operations and better manage customer expectations, ensuring efficient service for quicker-prep cuisines and maintaining quality for those that take longer. Additionally, this information benefits customers by helping them make informed decisions when ordering food, especially if they are in a hurry or on a tight schedule, allowing them to choose cuisines that can be prepared and delivered quickly.

## BAR CHART: ORDER COUNT IN WEEKEND VS WEEKDAY



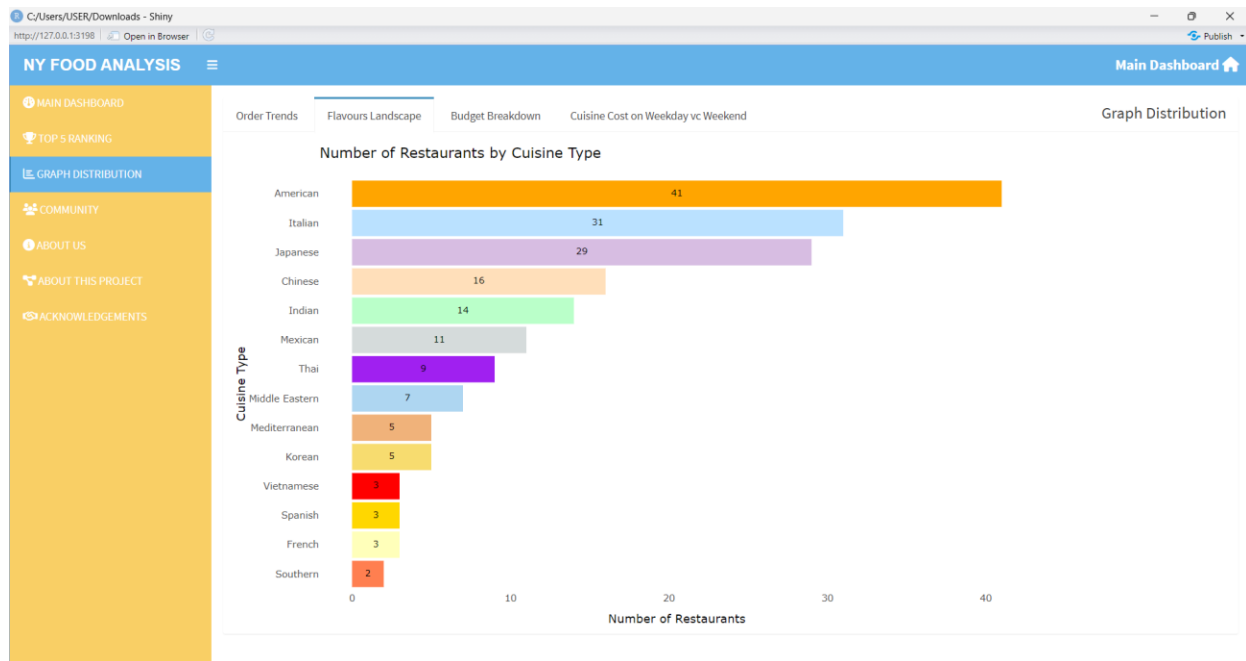
### Result:

In the category 'GRAPH DISTRIBUTION' under the 'NY FOOD ANALYSIS' dashboard, there is a bar graph that shows the amount of food orders per weekdays and weekends. Some of them are the following: It can showcase how the number of orders placed during weekends is much higher as compared to the regular work weeks. Particularly, according to the given graph of the number of orders, 547 of them are ordered through the week while 1051 of them are ordered through the weekend. The workdays are represented in darker orange while the weekends are represented in a lighter orange as depicted below. During superficial examination of the color-coded bars, one can easily tell the difference between workdays and weekends. As can be observed in the above-stated data, food orders are likely to be more dominant on weekends, thus, food businesses may require adapting their operations and promotion plans to fit these times.

### Discussion:

As you can see here the order trend on weekends is more than weekdays. So, we suggest if you are a new customer and want some time to try our excellent restaurant for fun, we would suggest you go on weekdays rather than weekends since weekends can be very crowded and the waiting time of course higher than weekdays.

## HORIZONTAL BAR CHART: NUMBERS OF RESTAURANT BY CUISINE TYPE



### Result:

The “cuisine type” from the “NY FOOD ANALYSIS” represented under the “GRAPH DISTRIBUTION” section establishes the restaurants’ distribution based on the type of cuisine offered. The data shows that American has dominant position with 41 restaurants in total, the second is Italian with 31 restaurants and the third is Japanese restaurants with 29 places. Chinese has the largest number of restaurants with 16 outlets, Indian restaurants are second with 14 outlets, and Mexican has the least with 11 outlets. Other explored types of cuisine include Thai with 9 restaurants, Middle Eastern with 9, Mediterranean with 5 restaurants, Korean with 5 restaurants, Vietnamese with 3 restaurants, Spanish, French, and Southern each having 3 restaurants and the remaining restaurants serving Vietnamese foods.

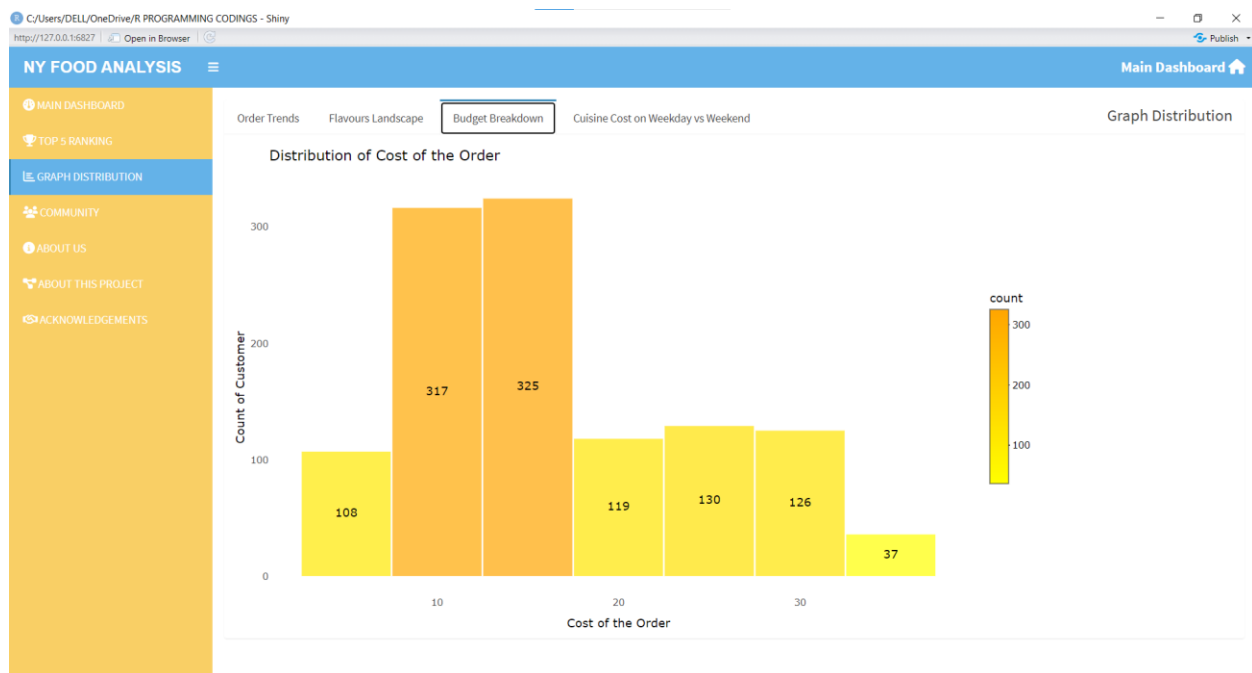
This distribution also shows a bias or existence of the America, Italian, and Japanese cuisine, which may mean that such cuisines are or are in-demand in the part of the map analyzed. On the other hand, the lower numbers for the other cuisines may be attributed to the small or specific markets they appeal to or, less popular than the Italian cuisine as presented in the table above.

**Discussion:**

These entail that foods from American, Italian and Japanese restaurants may be popular amongst people in the region due to the large proportions expressed above. This could be because of their being popular foods and having many standard products, some of them are burgers, pizzas, and sushi. The relatively smaller figures in the other categories could be attributed to lesser utilization or fewer people interested in establishing those forms of restaurant business.

The following information is beneficial to restaurant owners and investors who want to venture into the food business. Observing trends in which cuisines are patronized can help in deciding what sort of eating-place to establish. The lower numbers also indicate that there could be opportunities for more choices to be offered in the market pertaining to the specific cuisine type. More consumers would be encouraged to patronize restaurants and other eateries if these trends are grasped to develop an ideal menu and other operations which would pull more individuals into such businesses.

## HISTOGRAM: DISTRIBUTION OF COST OF THE ORDER



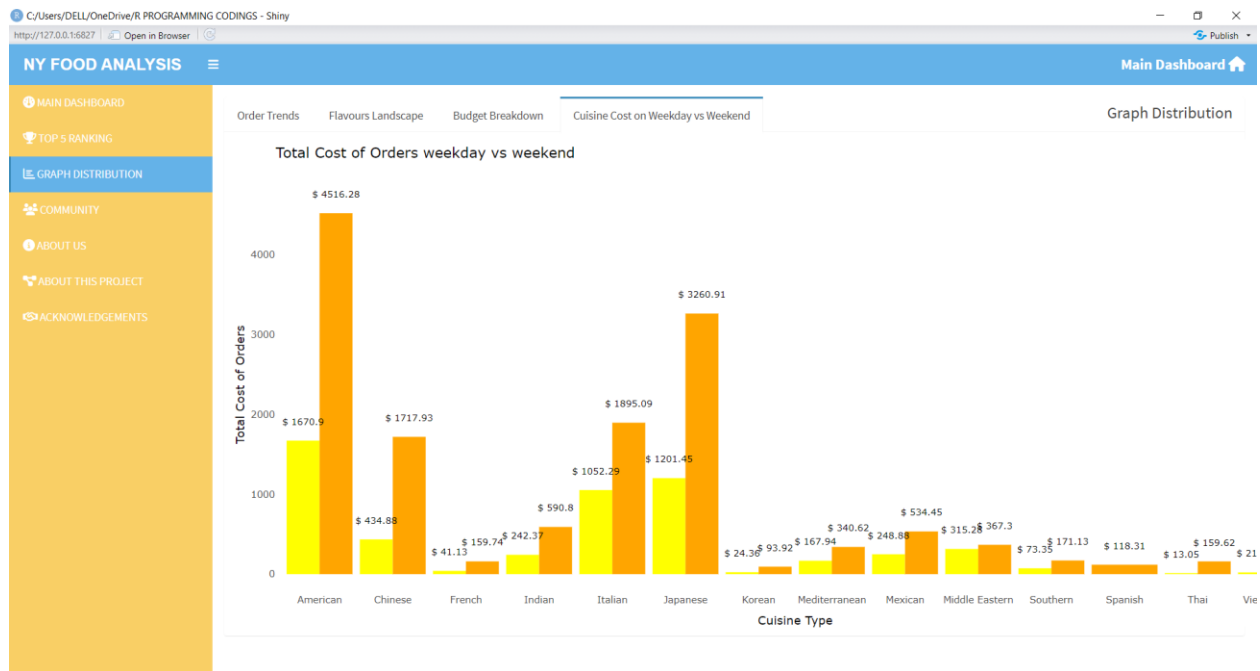
### Result:

The histogram presents informative data in the form of a bar chart that shows how customers' food order costs are distributed. This analysis offers a comprehensive view of how much customers are willing to spend on their orders, highlighting key trends and patterns. The bar chart shows the total number of customers that fall into each cost get and divides customer orders into many categories. The cost of the order is segmented into ranges of \$0 - \$10, \$10 - \$20, \$20 - \$30, \$30 and above. The y-axis represents the count of customers, while the x-axis represents the cost of the orders. The \$10 - \$15 cost range is the most popular among customers, with counts of 317 and 325 respectively. This indicates that a significant portion of the customer base prefers to spend. The \$30 and above are less range spent, with 126 and 37 customers. It suggests that most customers are either careful with their spending or do not think the high cost of the order orders or more expensive are worth it to buy. The \$0 - \$10 also the second less range with only 108 customers. This because of the prices that all the restaurants already set not to cheap and within that cost, customer only get some drink or snack. The use of a color gradient from yellow to orange highlights the difference for count of customer within each cost of the order range. The darker shades show that for higher count of customer.

**Discussion:**

The distribution of food order costs among New York customers offers valuable insights into spending behavior. The spending patterns is crucial for businesses in the food industry. Many restaurants should concentrate on offering cost within this price range to draw in and keep most customers, as indicated by the high concentration of orders in the \$10 – \$30 range. The restaurant should make special offers, combo deals, discounts, happy hour prices and more to keep get the demand from customers. For the highest range of cost of the order, any of the restaurants face this problem should investigate whether customers no order for it just because of expensive or it's because of other factors such as quality of the food, quantity of the food that not suitable with the cost set. When it comes to do marketing strategies, the restaurants should highlight the popular \$10 - \$30 range to get the largest of customer that interested in it when do promotions and advertisements.

## SIDE BY SIDE BAR CHART: TOTAL COST OF ORDERS WEEKDAY VS WEEKEND



### Result:

The histogram offers a detailed comparison of the total cost of orders for various cuisine types on weekdays versus weekends. The chart categorizes various cuisine types, displaying the total cost of orders. The weekdays represented by yellow bars and weekends represented by darker orange bars. The y-axis measures the total cost of orders, while the x-axis lists the different cuisine types.

American cuisine shows that the highest in total order cost on weekends and weekdays among all cuisine types. This shows that customers are likely to spend their time on weekend with their friends or family by ordering the American cuisine. Similar to American cuisine, Chinese cuisine sees a substantial rise in spending on weekends. Japanese cuisine also one of a significant in weekend spending because of the Japanese cuisine that can be snack or gathering food also such as Sushi, Shabu Shabu, Oden and more.



**Discussion:**

The clear preference for certain cuisines on weekends suggests that restaurants specializing in American, Chinese, Italian, and Japanese cuisines should prepare for higher traffic and larger orders on weekends. For cuisines like French and Indian, which see higher spending on weekdays, restaurants could focus on attracting weekday customers through lunch or dinner because many customers busy with work and already tired to cook for the food. The significant increase in spending on weekends for certain cuisines highlights the importance of strategic planning for businesses to meet customer demand effectively.

## CONCLUSION

The project "Unraveling New York City Restaurant Food Ordering & Delivery" undertakes a comprehensive analysis of food ordering trends and restaurant performance in New York City, providing valuable insights into customer preferences and operational efficiencies. Through an in-depth examination of a dataset from Kaggle, the project identified significant patterns that can enhance restaurant services and customer satisfaction. The popularity of American food is one of the main conclusions, with restaurants like Shake Shack and Blue-Ribbon Fried Chicken leading the way. This implies that comfort meals are highly preferred by consumers. Additionally, visitors looking for unusual culinary alternatives are drawn to special eating experiences like those provided by The Meatball Shop. The survey also shows that there is a rising demand for great Japanese food, as seen by Blue Ribbon Sushi's great success. Moreover, RedFarm Broadway's ranking among the best restaurants indicates a strong desire for Chinese food, even though it has fewer perfect reviews.

Important information about the operational effectiveness of different restaurants may be discovered from a review of food preparation and delivery times. Quick delivery and effective food preparation stand out as important variables affecting client pleasure. By comparing order quantities, reviews, and expenses across weekdays and weekends, the research highlights significant tendencies that restaurants may use to adjust their marketing plans and increase sales during sluggish periods. Restaurants may better satisfy customer demands by reducing their operations and identifying these patterns.

To sum up, the project shows how effective data-driven decision-making can be in the food industry. The study provides actionable information that can help restaurants improve their services and overall customer experience by highlighting important patterns in consumer choices and restaurant performance. The results highlight how important it is to understand customer preferences and operational effectiveness to thrive in a competitive city like New York City. The project offers a strong basis for strategic planning and advancement in the restaurant industry.

## **LIMITATIONS OF THE STUDY**

The current database has limitations in processing and analyzing food places. The lack of explicit price data makes it difficult to accurately associate costs, as it conflates price and delivery charges. This makes detailed cost analysis difficult, which is crucial for understanding pricing trends and consumer spending behavior. Additionally, the lack of precise restaurant locations hinders effective mapping and spatial analysis, which is essential for visualizing food distribution, identifying food deserts, and analyzing regional preferences and market saturation.

Another significant limitation is the categorization of temporal data into just weekends and weekdays, without detailed daily breakdowns. This restricts our ability to perform a more granular temporal analysis that could reveal important trends and patterns in customer behavior on specific days. For instance, daily analysis of data could provide insights into peak dining times, day-specific promotions, and the impact of holidays and special events on restaurant performance.

Furthermore, the database does not include specific menu items, impeding any in-depth examination of menu offerings. Detailed menu data would allow us to analyze popular dishes, dietary preferences, and the diversity of cuisine options available at different restaurants. This information is vital for menu optimization, culinary trend analysis, and understanding customer preferences at a granular level.

Lastly, the limited quantitative data in the database hinders robust statistical analyses and meaningful insights. A richer dataset with more variables would improve multivariate analyses, predictive modeling, and comprehensive evaluations of restaurant performance and customer satisfaction. This reduces the scope and depth of analysis, impacting data-driven decisions and strategic recommendations.

These limitations collectively impact our capacity to conduct thorough and nuanced analysis of the food places within our dataset. Addressing these data gaps would significantly enhance our ability to perform detailed, actionable analyses that could inform business strategies and improve the overall understanding of the food service market.

## **APPENDIX**

### **LINK TO KAGGLE WEBSITE:**

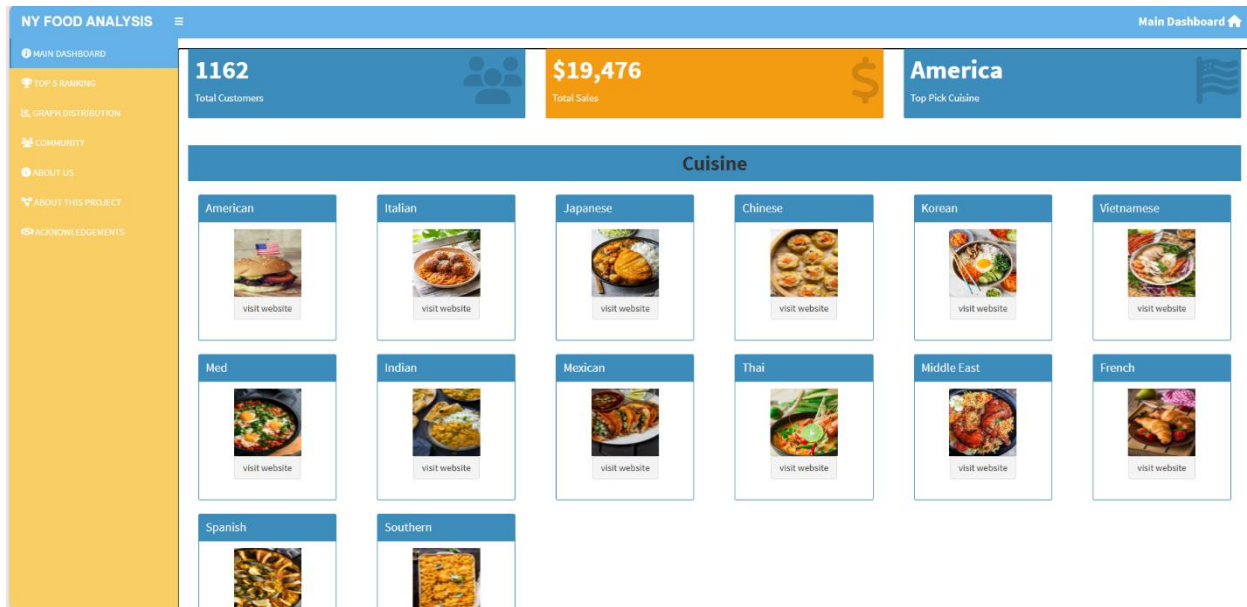
[https://www.kaggle.com/datasets/ahsan81/food-ordering-and-delivery-app-dataset?select=food\\_order.csv](https://www.kaggle.com/datasets/ahsan81/food-ordering-and-delivery-app-dataset?select=food_order.csv)

### **R CODE FILE, DATASET, VIDEO, & SLIDE PRESENTATION**

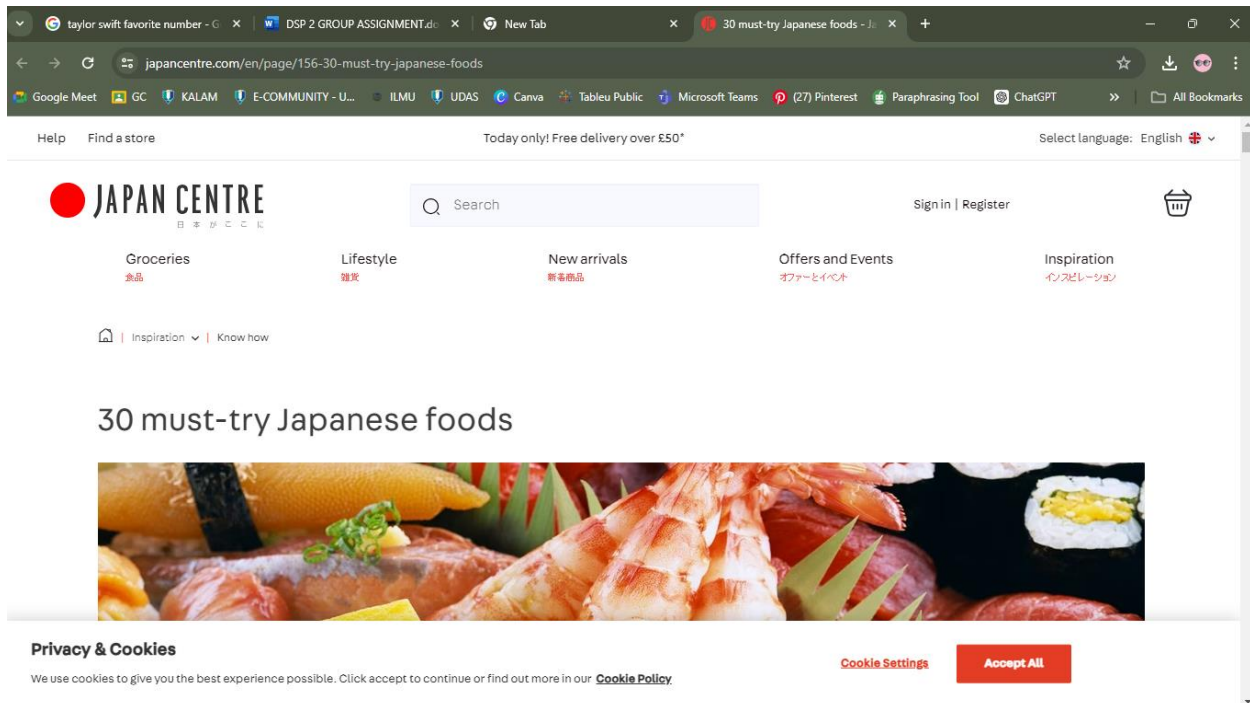
<https://drive.google.com/drive/folders/1uGbZwGuKEn9p0coRGc8jT-fqAttNhbyc?usp=sharing>

# COMPLETE GUI SCREENSHOT

## TAB 1: MAIN DASHBOARD



*Main dashboard shows variety of cuisine in New York City*



*Click "visit website" on the main dashboard for the for the cuisine you are interested in to learn more about it.*

## TAB 2: TOP 5 RANKING

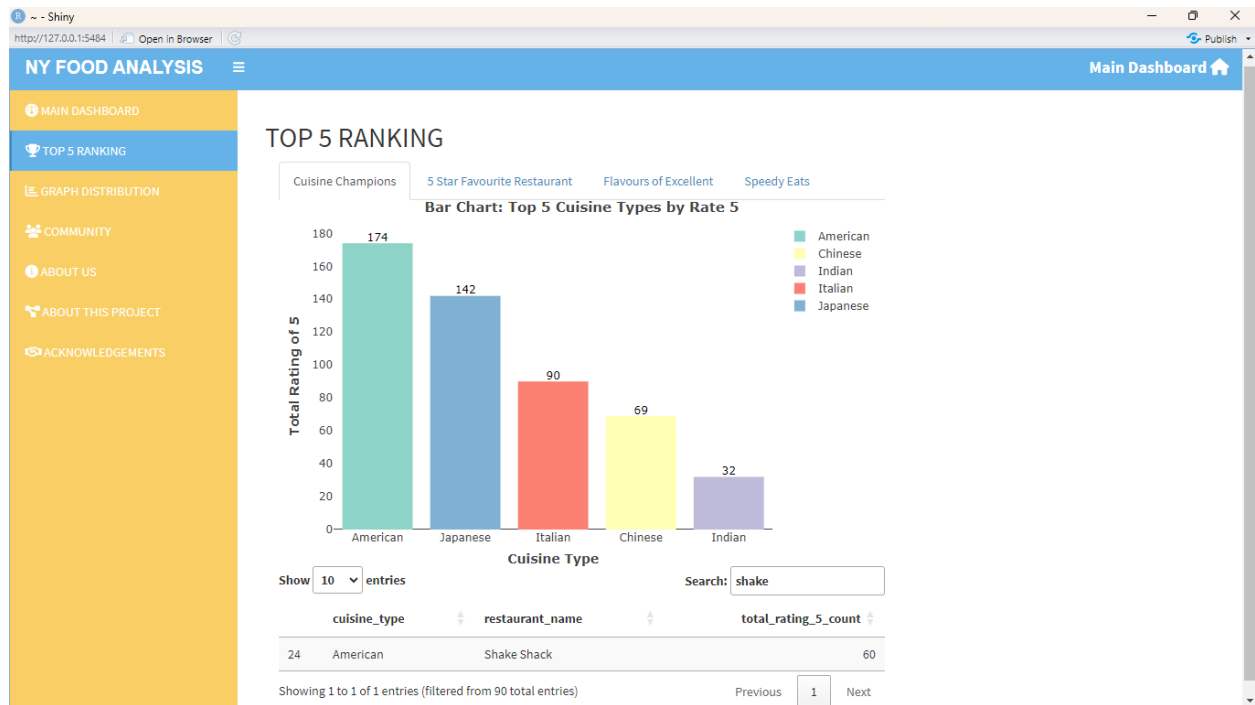


Chart 1: Cuisine Champions and Search Tab

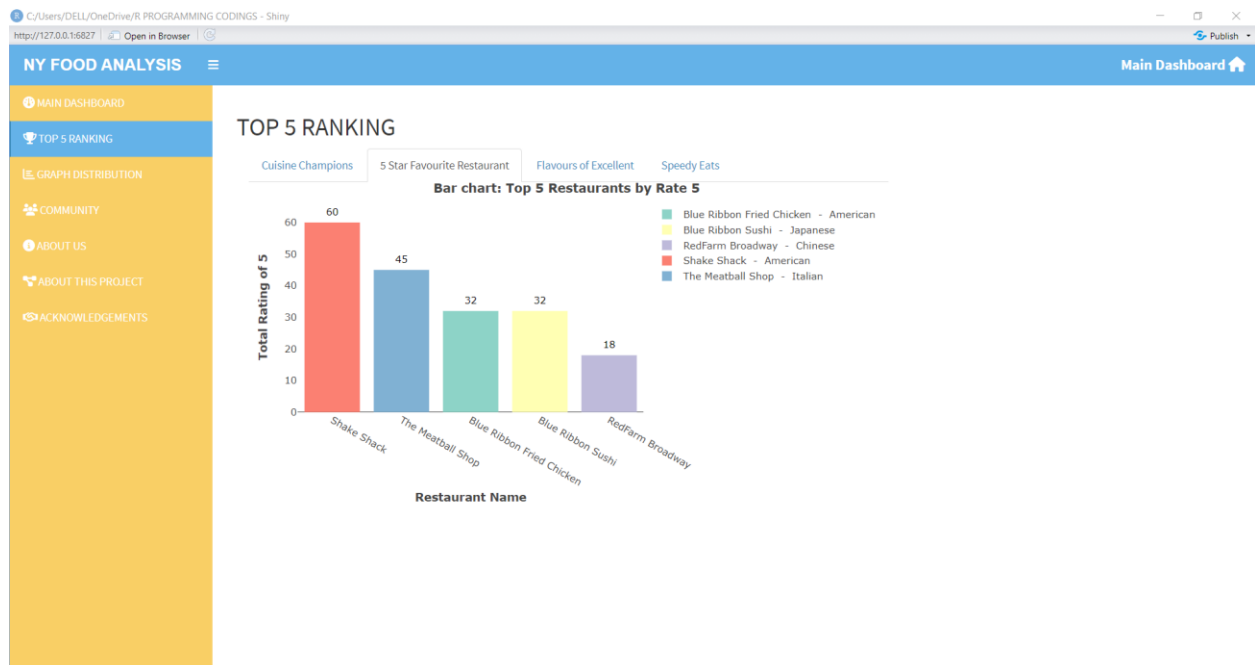


Chart 2: 5 Star Favorite Restaurant

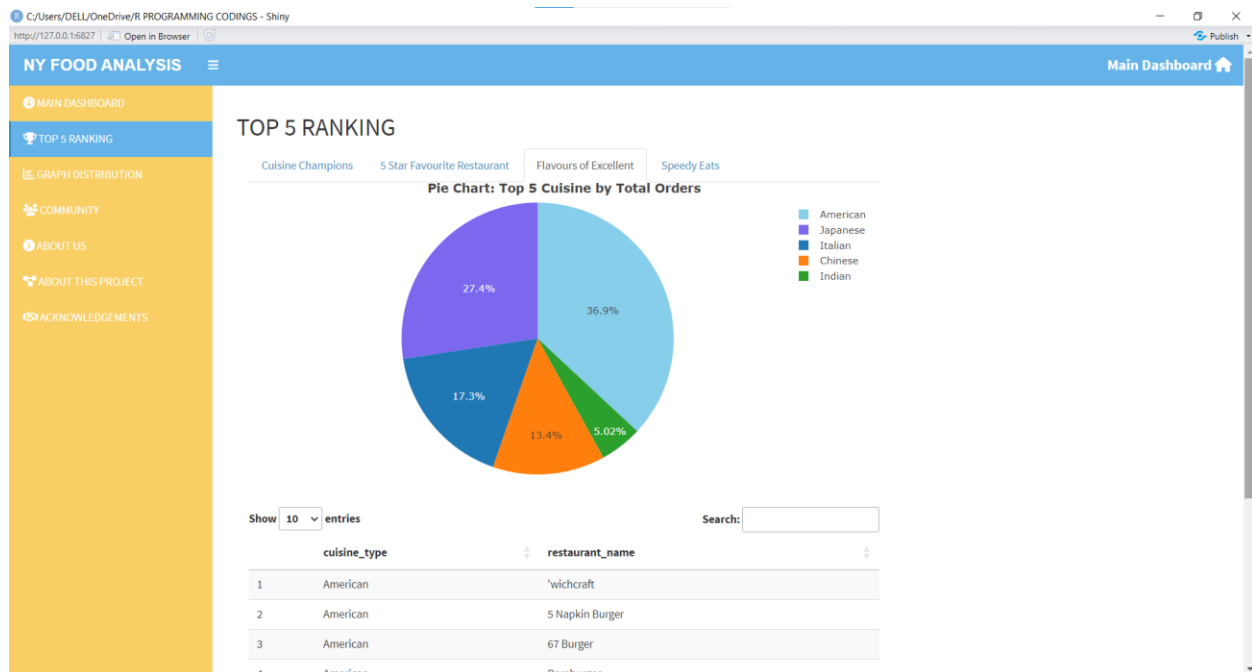


Chart 3: Flavors of Excellent

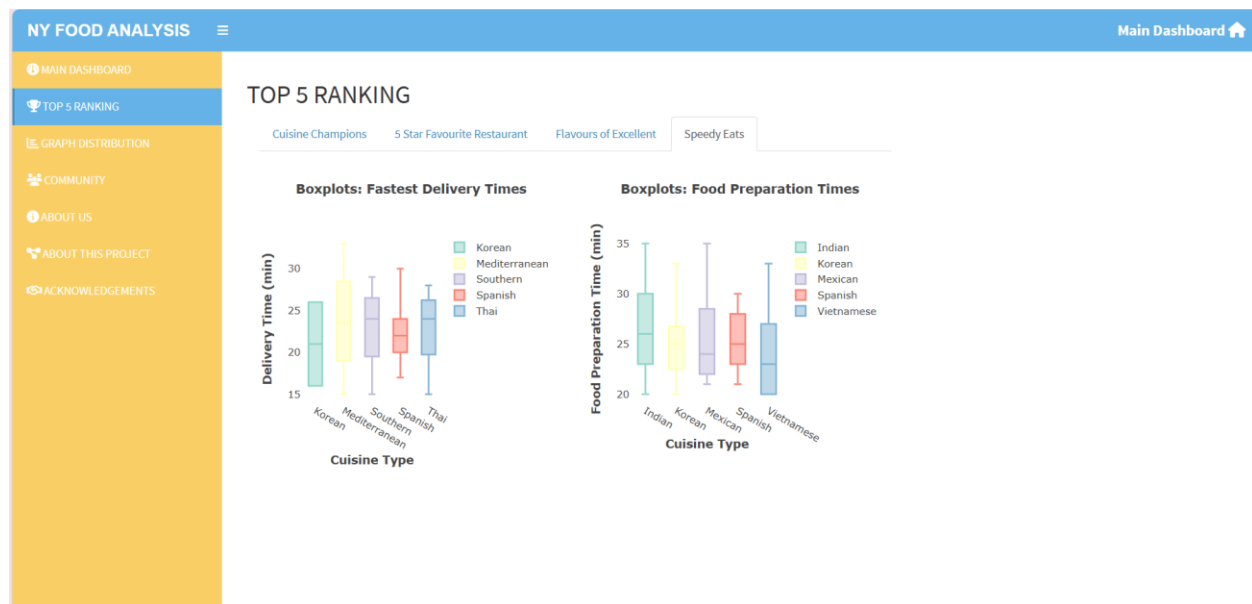


Chart 4: Speedy Eats

## TAB 3: GRAPH DISTRIBUTION

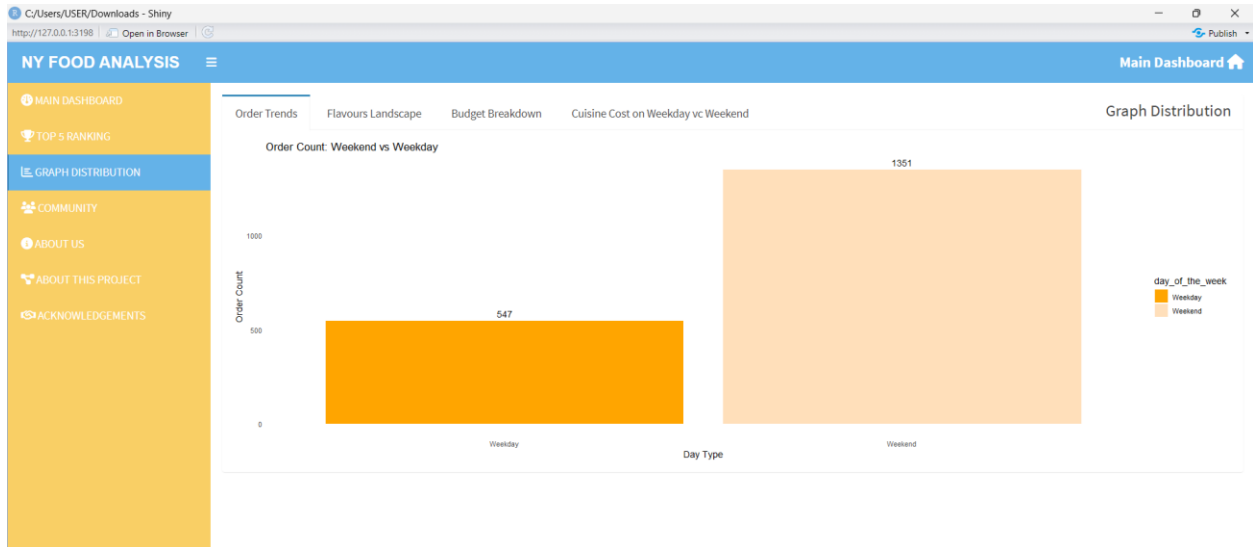


Chart 5: Order Trends

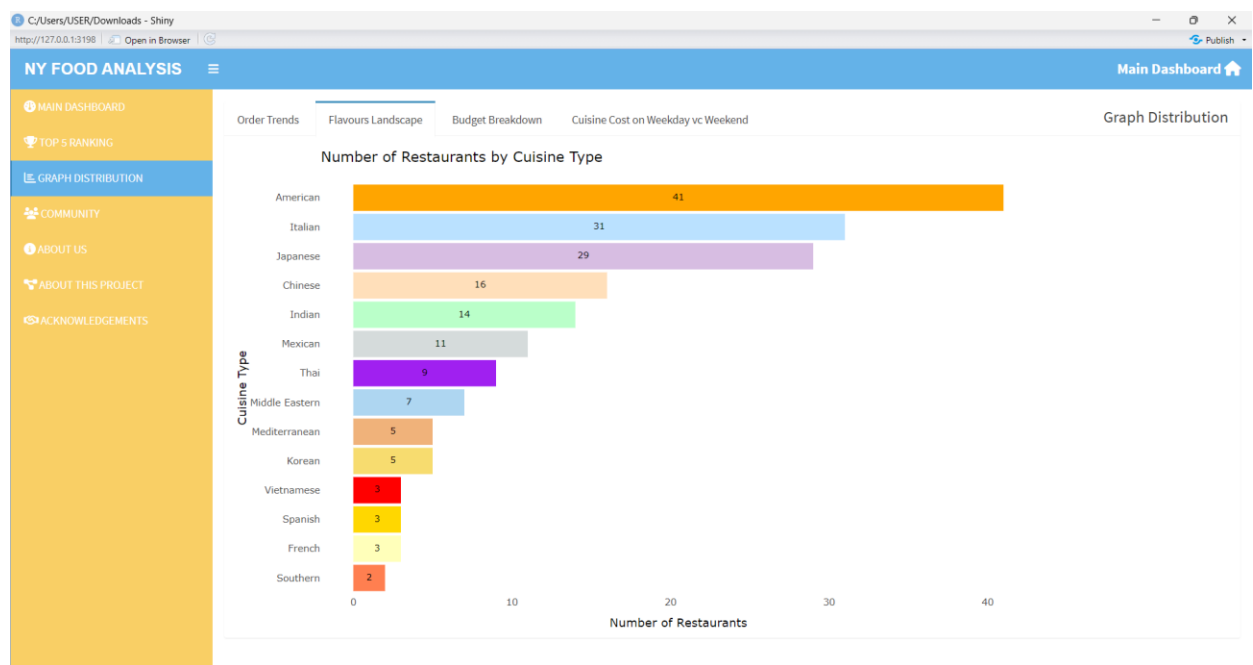
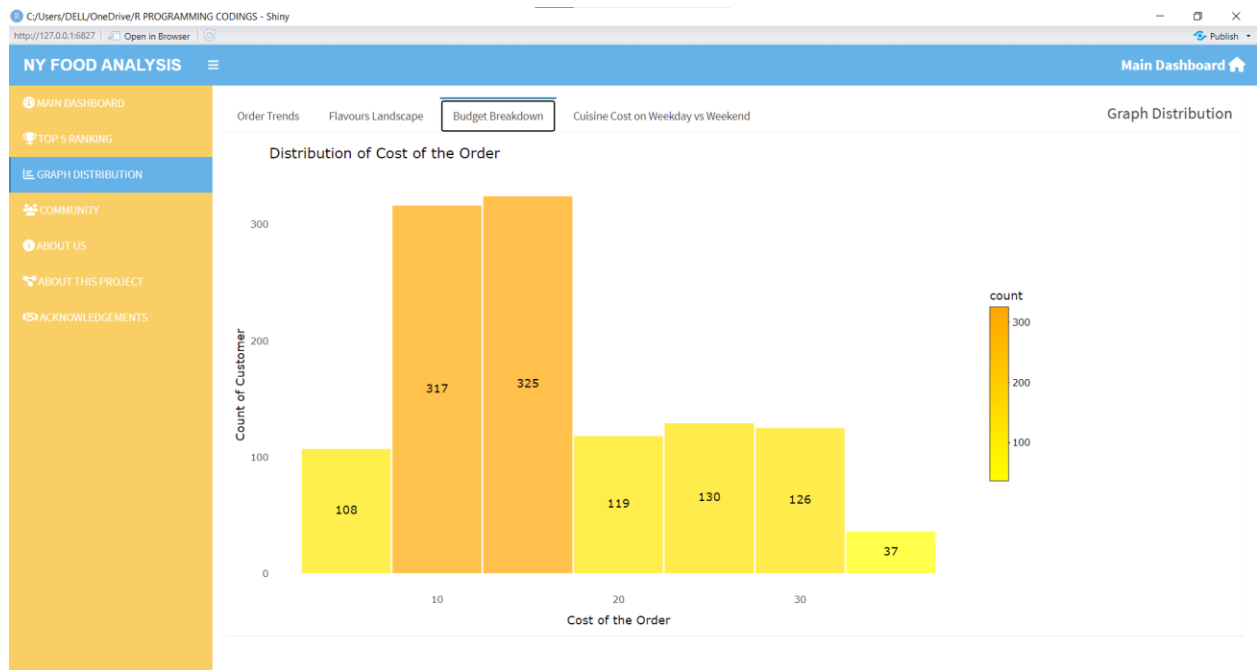
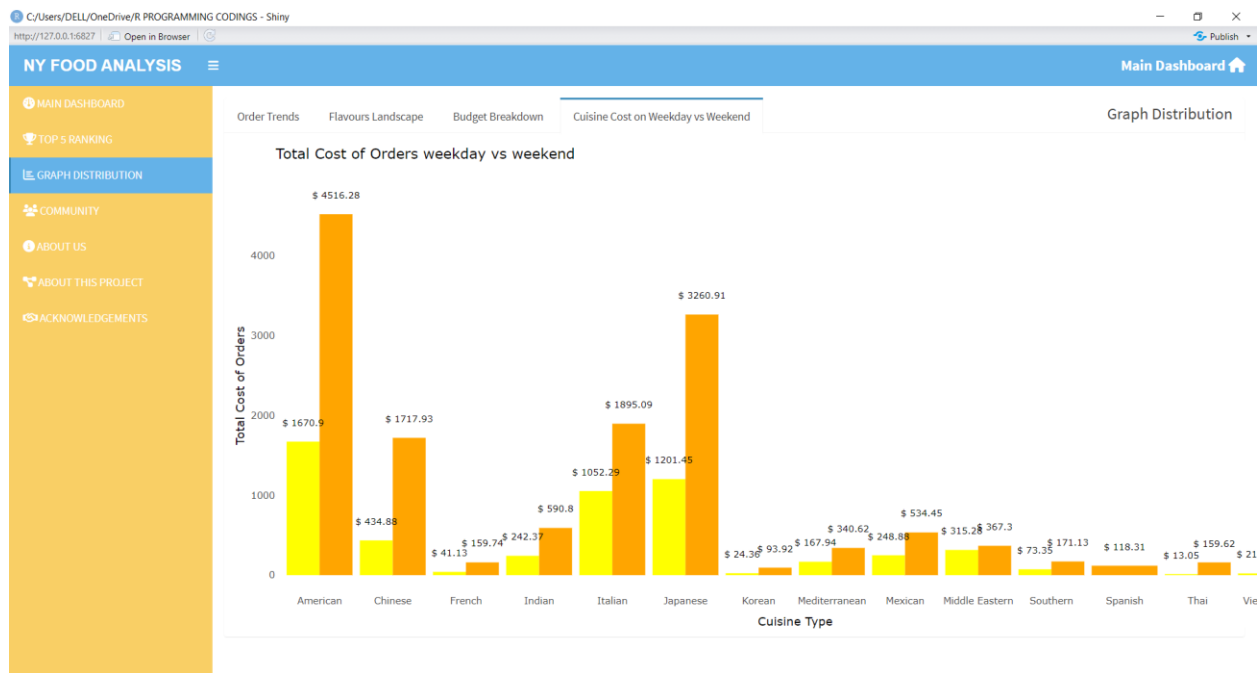


Chart 6: Flavors Landscape





*Chart 7: Budget Breakdown*



*Chart 8: Cuisine Cost on Weekday vs Weekend*

## TAB 4: COMMUNITY

NY FOOD ANALYSIS

MAIN DASHBOARD  
TOP 5 RANKING  
GRAPH DISTRIBUTION  
**COMMUNITY**  
ABOUT US  
ABOUT THIS PROJECT  
ACKNOWLEDGEMENTS

Food Lover Feedback

Your Name:

Your Review:

SUBMIT FEEDBACK

Show 10 entries

Search:

Name	Review
No data available in table	

Showing 0 to 0 of 0 entries

Previous Next

*Food Lover Feedback Dashboard*

Food Lover Feedback

Your Name:

Your Review:

SUBMIT FEEDBACK

Show 10 entries

Search:

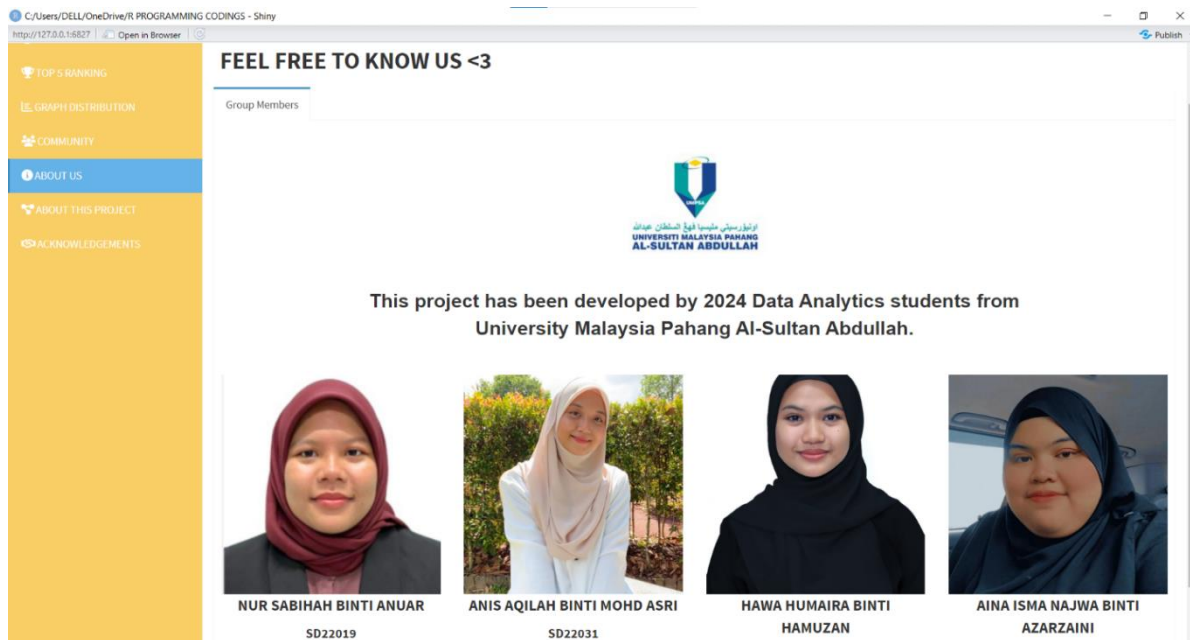
Name	Review
1 LEVI ACKERMAN	Donburi-ya serves the best Salmon Menta Rice I've ever had!

Showing 1 to 1 of 1 entries

Previous 1 Next

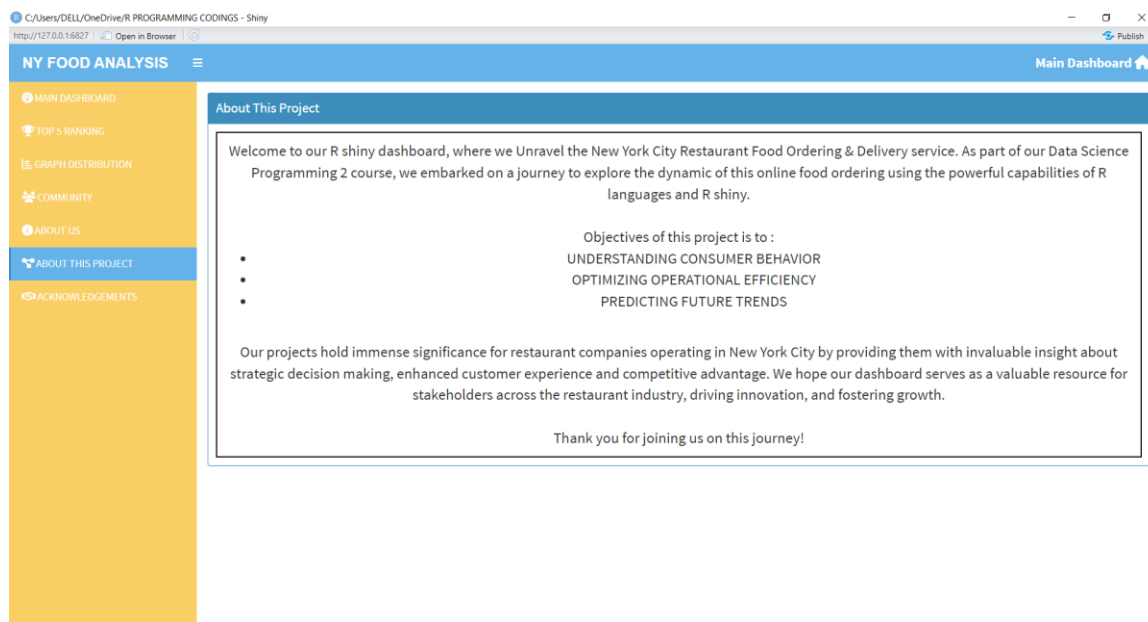
*Enter your name and review and it will display in table below*

## TAB 5: ABOUT US



*About Us Dashboard. We scraped the picture from LinkedIn profile picture  
with copy image address*

## TAB 6: ABOUT THIS PROJECT



*About our project dashboard*

## TAB 7: ACKNOWLEDGEMENTS

D:/ANIS AQILAH UMP/UMP EDUCATION/YEAR 2/SEMESTER 2/DSP II/GROUP ASSIGNMENT - Shiny

http://127.0.0.1:5627 Open in Browser Publish

TOP 5 RANKING

GRAPH DISTRIBUTION


COMMUNITY

ABOUT US

ABOUT THIS PROJECT

ACKNOWLEDGEMENTS

Dear Prof. Dr. Roslinazairimah Zakaria



Dear Prof. Dr. Roslinazairimah Zakaria, We hope you are well. As our 14-week course ends, we want to thank you for your wonderful guidance and support. Your kindness and advice, both for studies and life, have helped us a lot. We are very grateful for all the R language knowledge you have taught us and for inviting Dr. Rado Yendra from Indonesia to teach us more. We want you to know that this project is a combination of the knowledge you taught in class and what we explored ourselves. We will definitely use this knowledge in the future. We are sad to hear about your upcoming retirement, but we wish you a happy and restful retirement. May you be blessed with health and wealth. Thank you, Dr. Ros, for everything. With thanks,  
Sabihah, Anis, Hawa, & Aina

*Special dashboard for our dear Dr. Ros <3*