ONLINE FOOD ORDERING ANALYSIS

Sample data from an online food ordering / delivery App of New York Restaurants

DATA 506

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Unnamed: 0	order_id	customer_id	restaurant_name	cuisine_type	cost_of_the_order	day_of_the_week	rating	food_preparation_time	delivery_time
0	1477147	337525	Hangawi	Korean	30.750000	Weekend	4.349699	25.0	20.0
1	1477685	358141	Blue Ribbon Sushi Izakaya	Japanese	12.080000	Weekend	4.349699	25.0	23.0
2	1477070	66393	Cafe Habana	Mexican	12.230000	Weekday	5.000000	23.0	28.0
3	1477334	106968	Blue Ribbon Fried Chicken	American	29.200000	Weekend	3.000000	25.0	15.0
4	1478249	76942	Dirty Bird to Go	American	11.590000	Weekday	4.000000	25.0	24.0
5	1477224	147468	Tamarind TriBeCa	Indian	16.549875	Weekday	3.000000	20.0	24.0
6	1477894	157711	The Meatball Shop	Italian	6.070000	Weekend	4.349699	28.0	21.0
7	1477859	89574	Barbounia	Mediterranean	5.970000	Weekday	4.346717	33.0	30.0
8	1477174	121706	Anjappar Chettinad	Indian	16.440000	Weekday	5.000000	21.0	26.0
9	1477311	39705	Bukhara Grill	Indian	7.180000	Weekday	5.000000	29.0	26.0

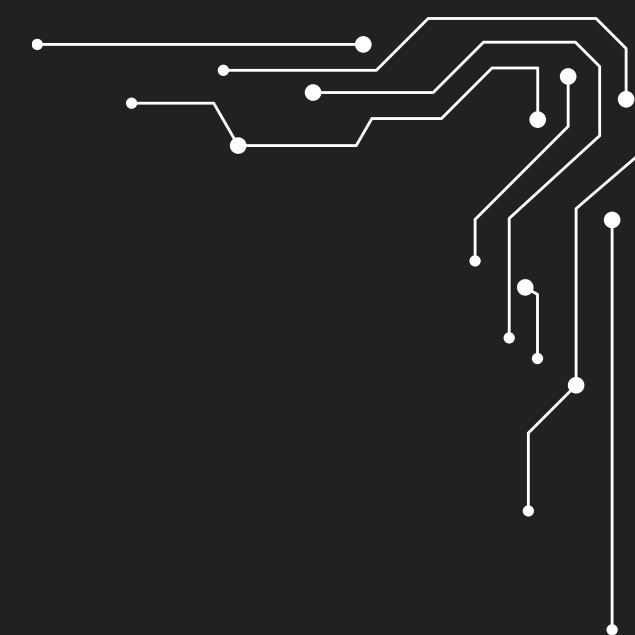Each row represents one order, including information about:

1.Order ID and Customer ID 2.Restaurant name and its cuisine type

3.Cost of the order 4.Day of the week (Weekday or Weekend)

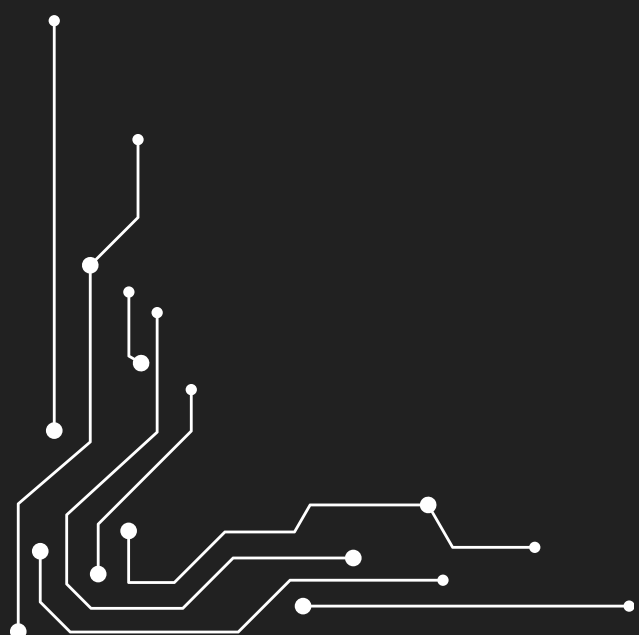5.Customer rating 6.Food preparation time (in minutes)   7.Delivery time (in minutes)
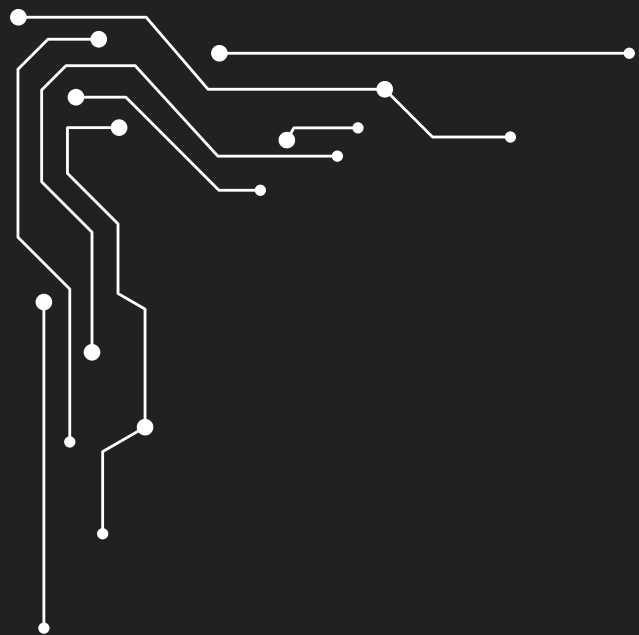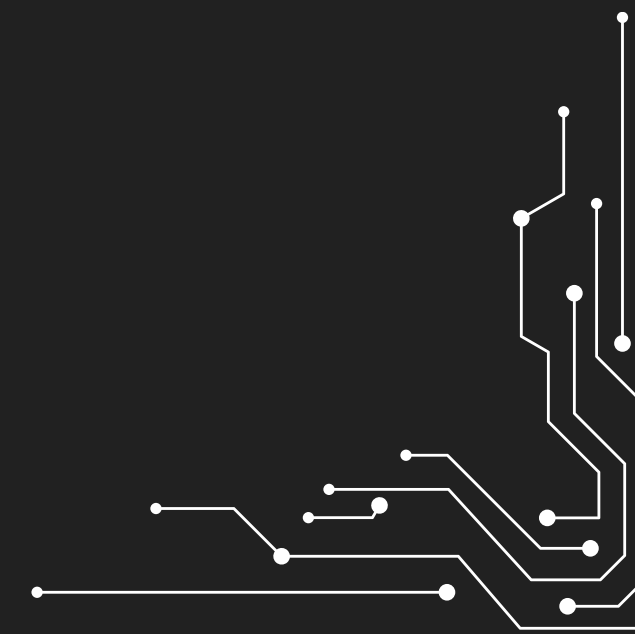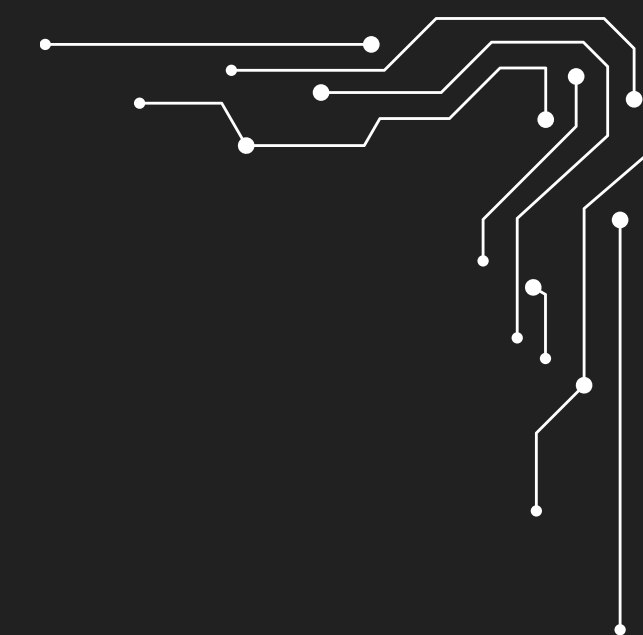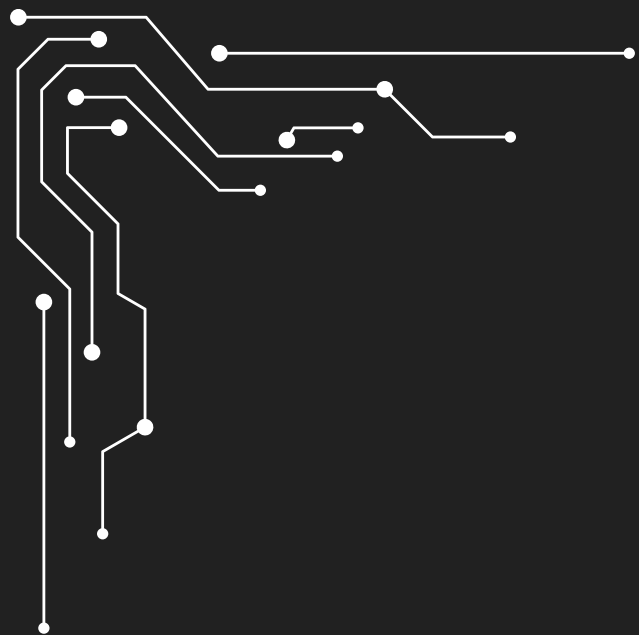
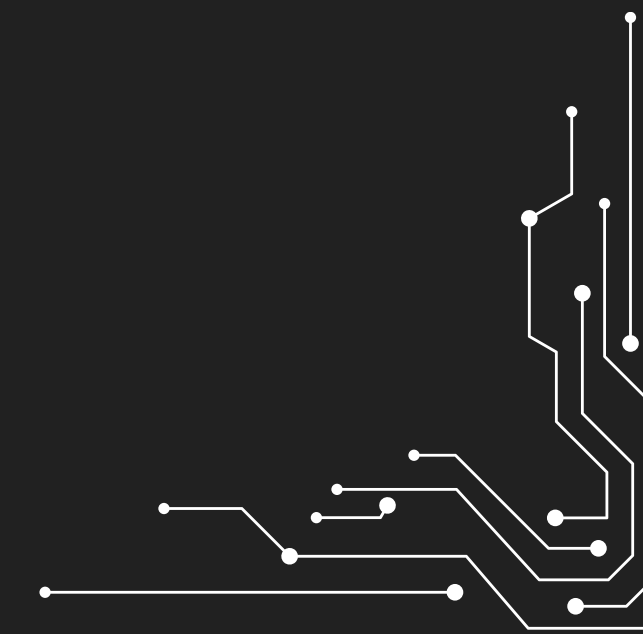1.Customer Experience Insights

2. Restaurant Operations Insights

3.Delivery Performance Insights

1.Customer Experience Insights

Customer Experience
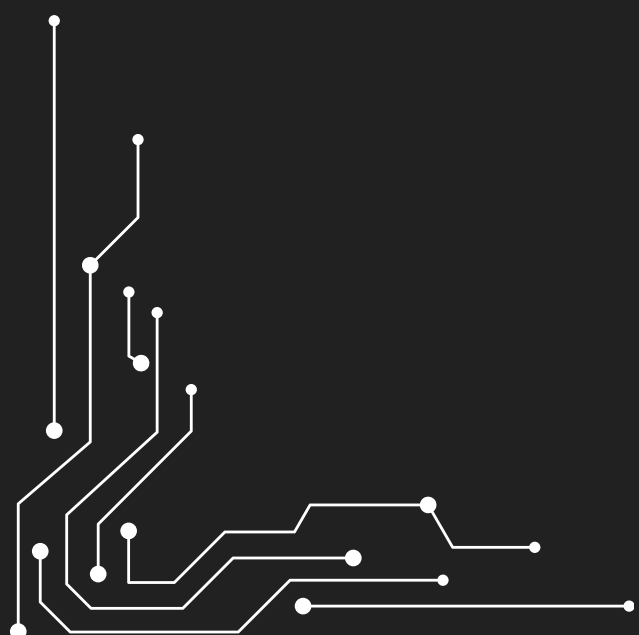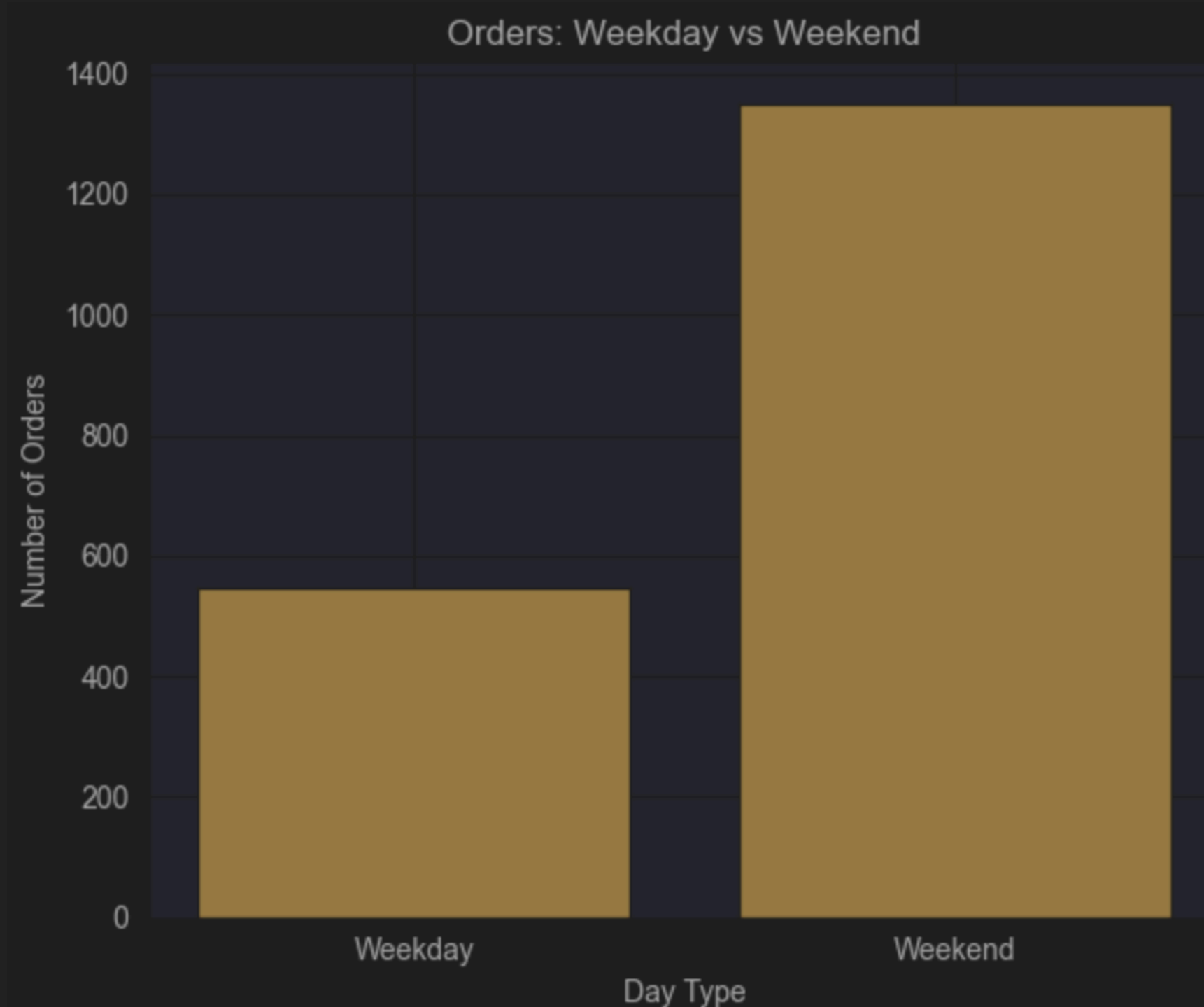

WEEKDAY VS WEEKEND ORDERS

Key Insights
 • Weekend orders are much higher than weekday orders.
 • This means the area is not a pure business district. It is a mixed area with many homes and families.
 • Food demand comes from family meals, friends' gatherings, and social activities, especially on weekends.

Business Suggestions
Weekend Strategy (very important):
 • Offer family combo and 2–4 person meal deals
 • Give big weekend discounts (e.g., "Spend $50, get $10 off")
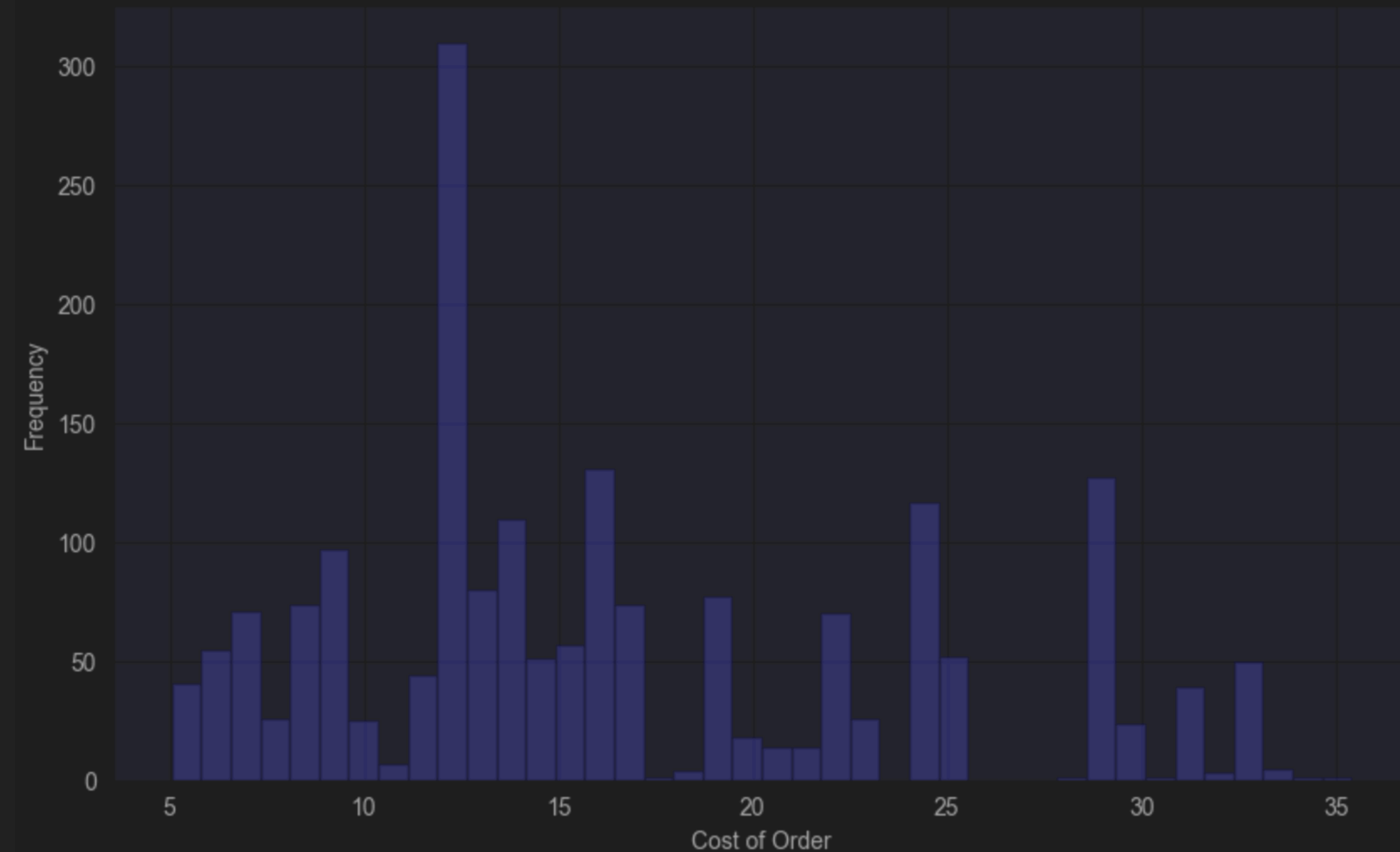 • Promote food that fits group dining (pizza, fried chicken, BBQ)

# Customer Experience

Cost of Order Distribution

Key Insights
 • Most orders are in the $10–$25 range.
 • This shows customers in this area are price-sensitive and prefer value-for-money options.

Business Suggestions
 • Add more affordable, good-value meals (rice bowls, pasta, poke, quick Chinese dishes)
 • Restaurants with high prices should offer under-$25 meal sets to attract more customers

2. Restaurant Operations Insights
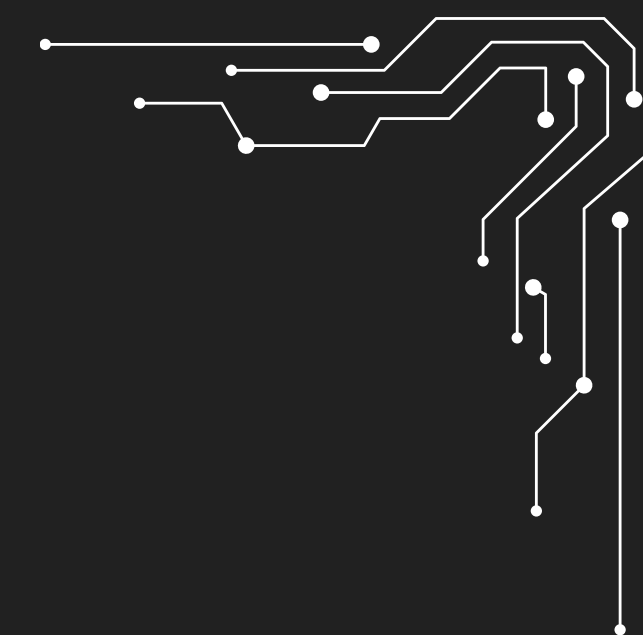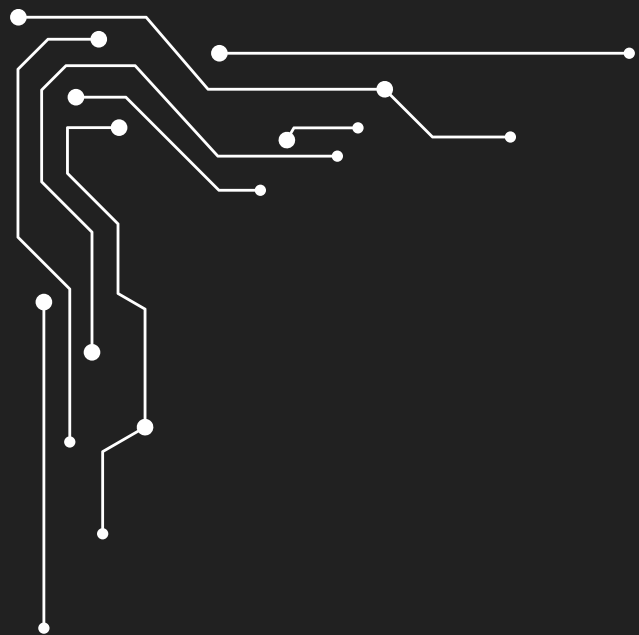
Restaurant Operations Insights
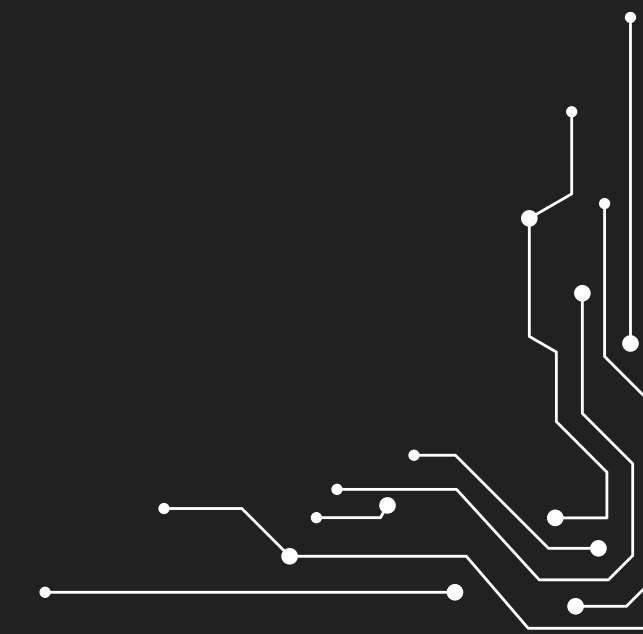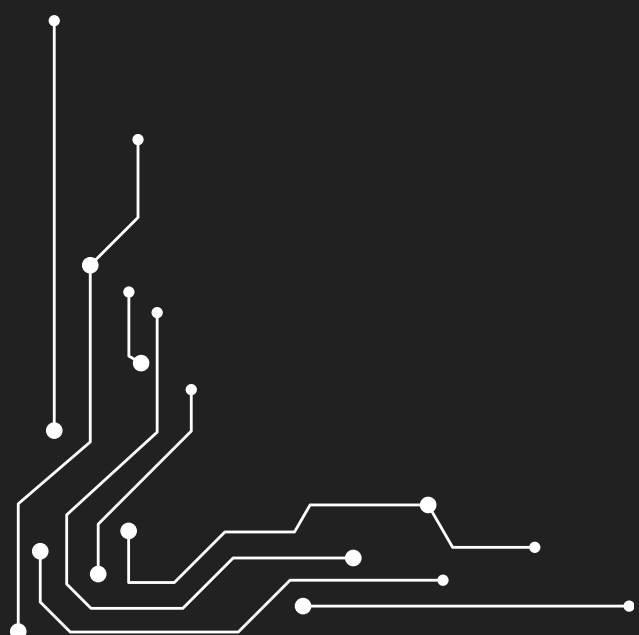

Restaurant Rating vs Order Volume

Key Insights
 • Restaurants with many orders usually have ratings between 4.2 and 4.5.
 • Restaurants with ratings below 4.0 have very low order volume.
 • This means customers avoid low-rating restaurants.

Business Suggestions
 • Support restaurants with 4.2–4.5 ratings → they can grow more
 • Help low-rating restaurants understand their problems by individuals:
 • taste issues
 • packaging

Restaurant Operations Insights


Ranking of Orders by Cuisine Type
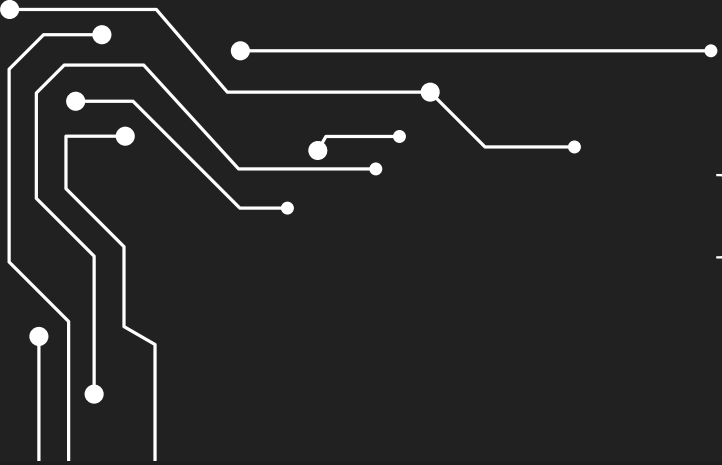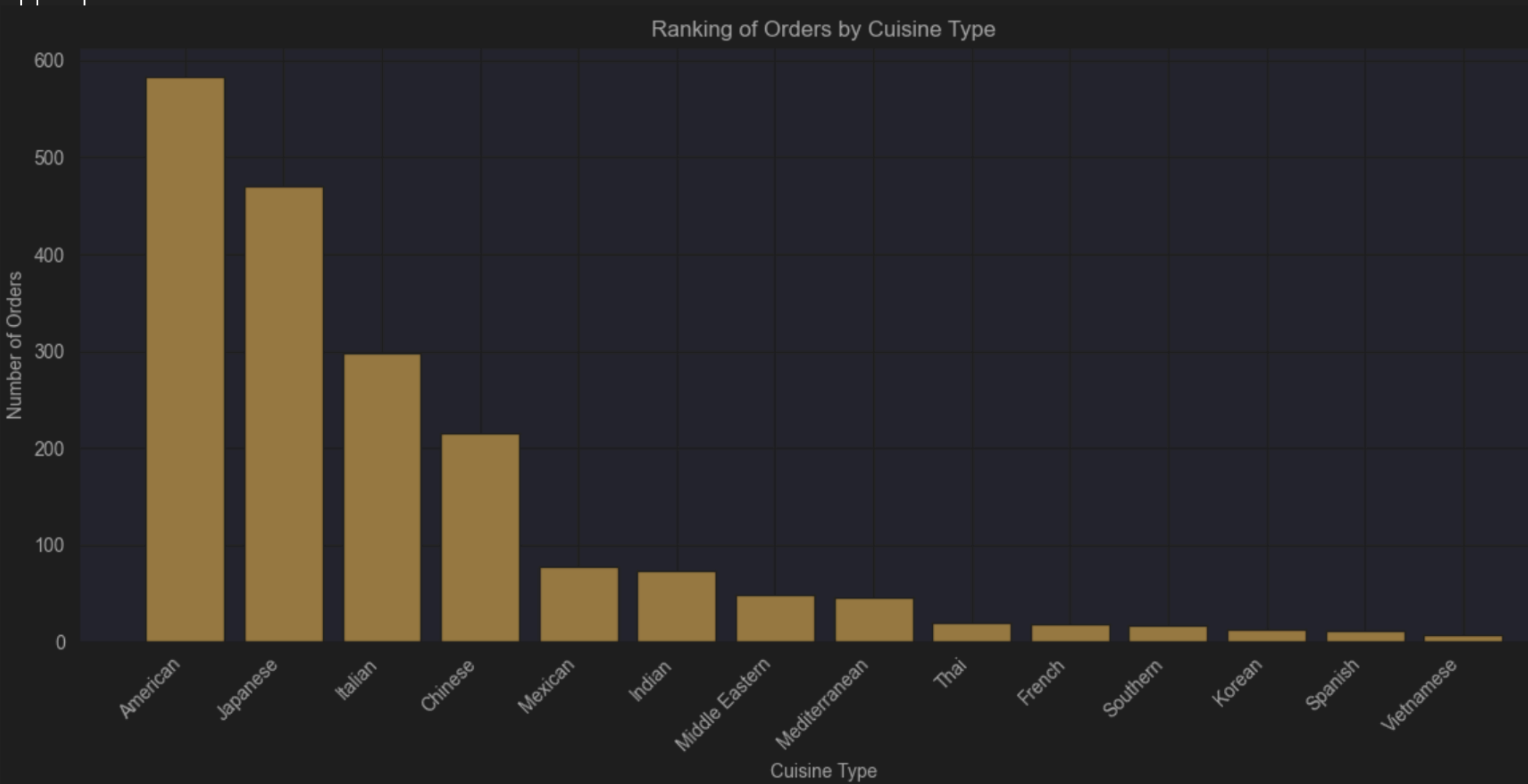
Key Insights
 • American, Japanese, Italian, and Chinese food = 85% of all orders
 • These four cuisines are the core of this area.

Business Suggestions
 • Create special marketing for these cuisines:
 • "Sushi Week"
 • "Burger Festival"
 • "Italian Week"
 • "Chinese Meal Specials"

Restaurant Operations Insights

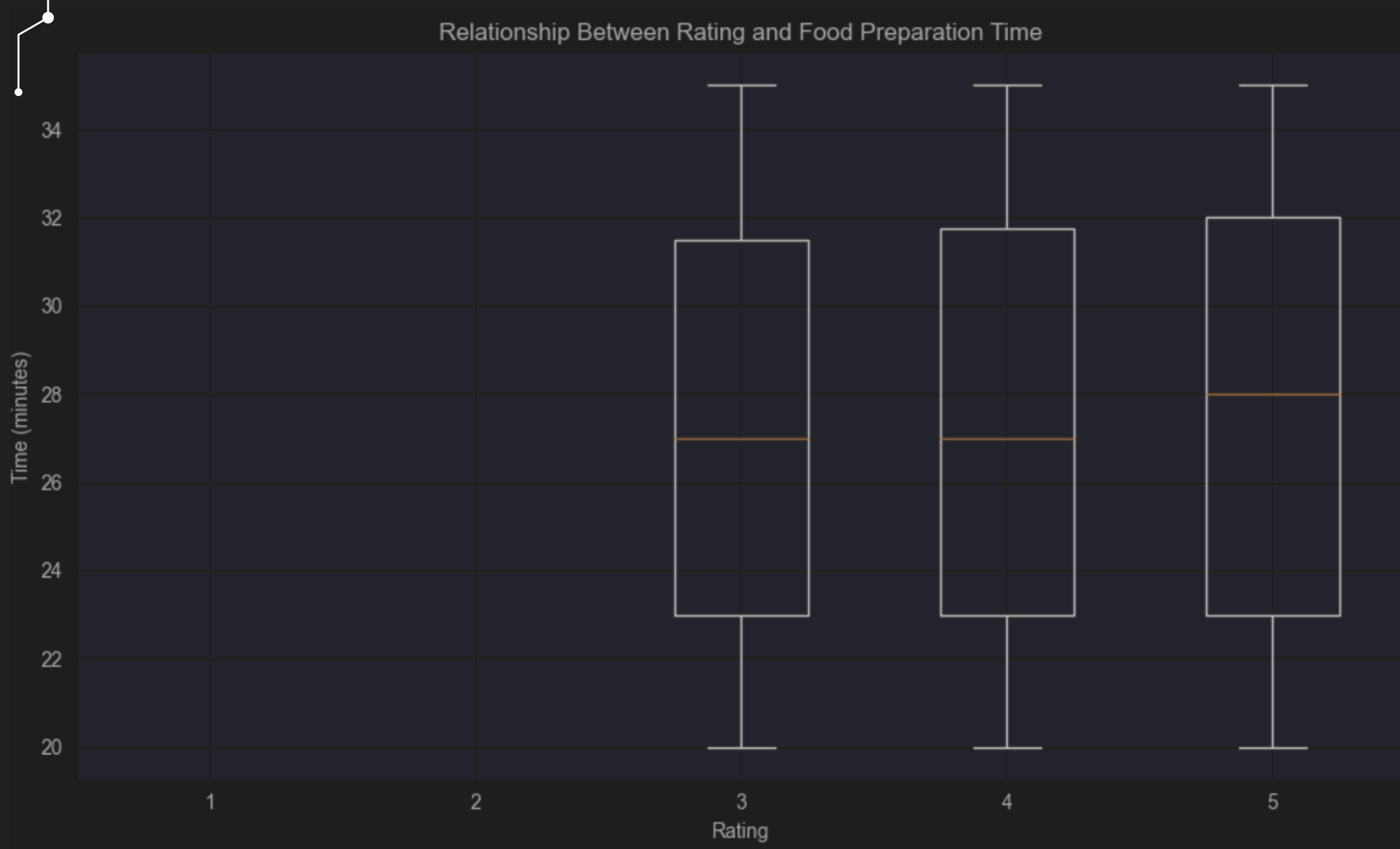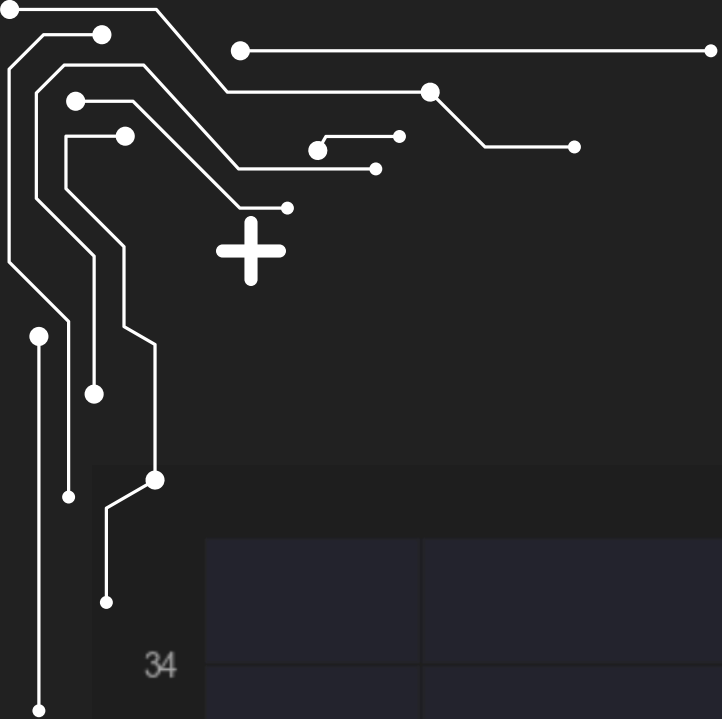Histogram of Restaurants' Average Preparation Times
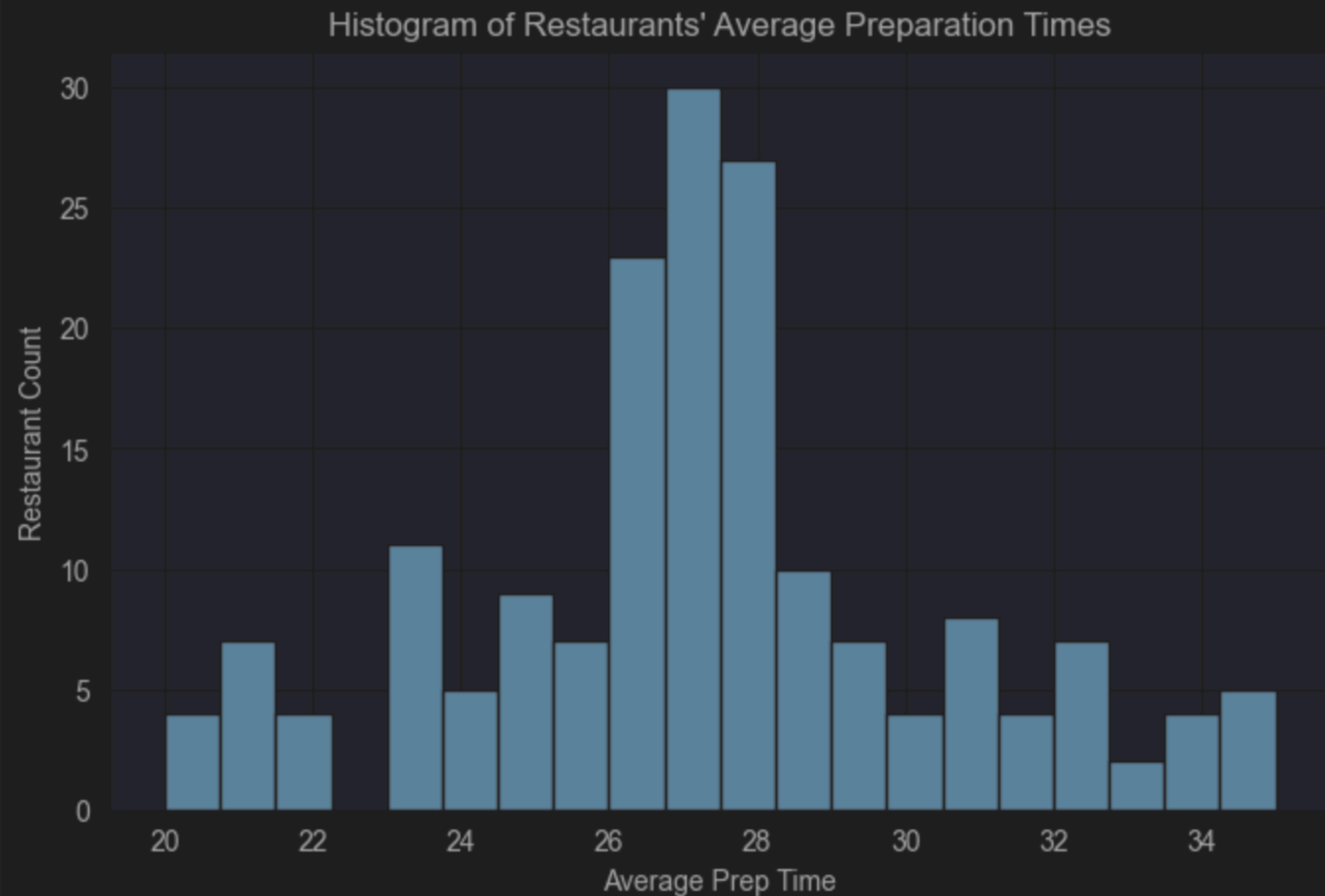
Key Insights
 • Prep time is stable between 20–35 minutes
 • No outliers → restaurants in this area have stable operations.

Business Suggestions
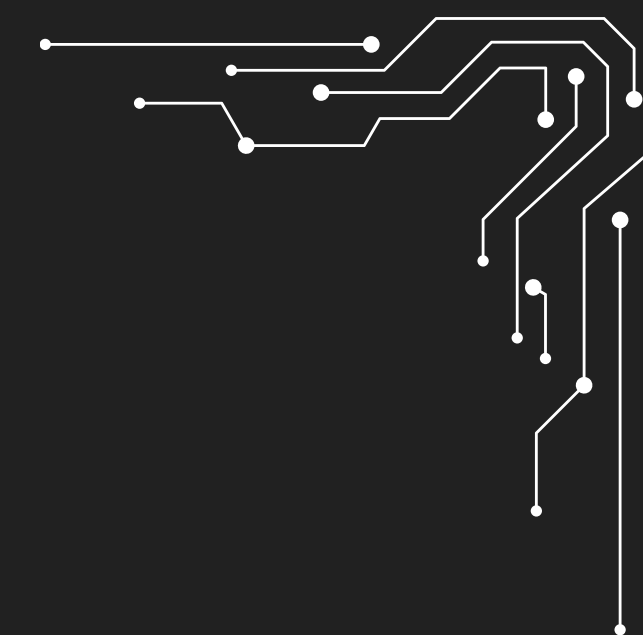 • This area can handle more orders during busy hours.

Relationship Between Rating and Food Preparation Time
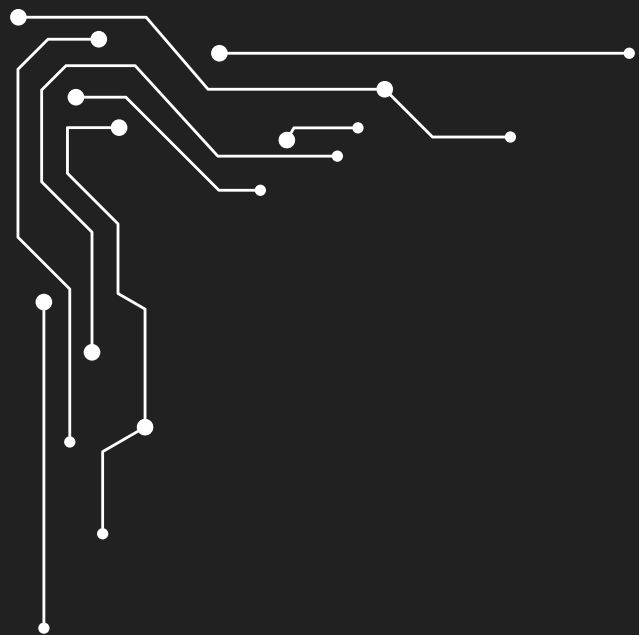

Key Insights
 • Ratings do not change much with different prep times.
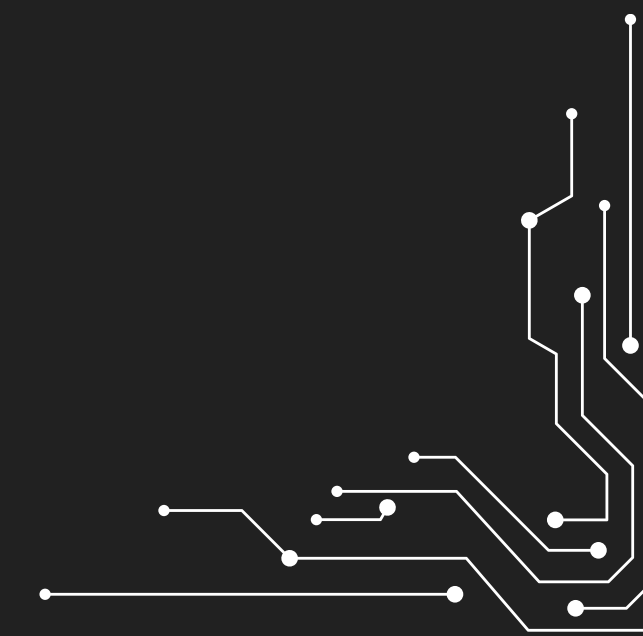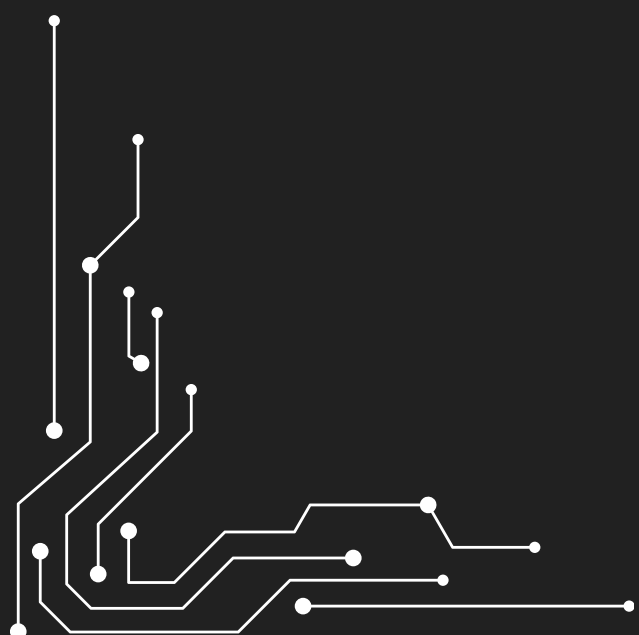 • This means food quality matters more than speed in this area.

Business Suggestions
Restaurants should focus on:
 • Taste consistency
 • Better packaging
 • Keeping food hot
 • Reducing mistakes

3.Delivery Performance Insights

Delivery Performance Insights

Average Delivery Time: Weekday vs Weekend

Average Delivery Time (minutes)
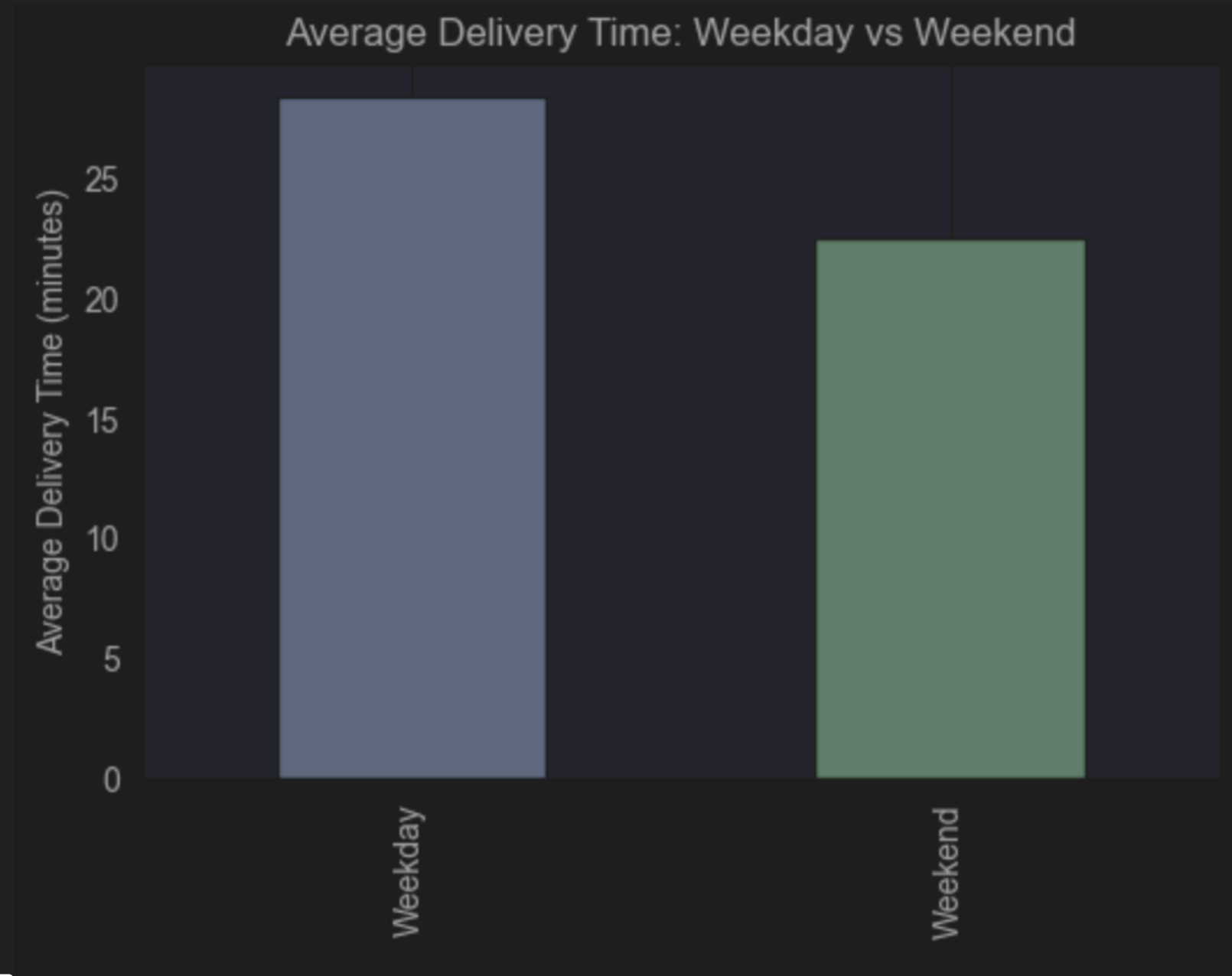
Weekday

Weekend

Key Insights
- Weekday delivery time is longer (≈ 28 minutes)
- Weekend delivery is faster (≈ 22 minutes)

Business Suggestions
- Add more drivers during weekday lunch time
- Reduce driver numbers a bit during weekends (to save cost)
- Try batch delivery during peak hours

Delivery Performance Insights
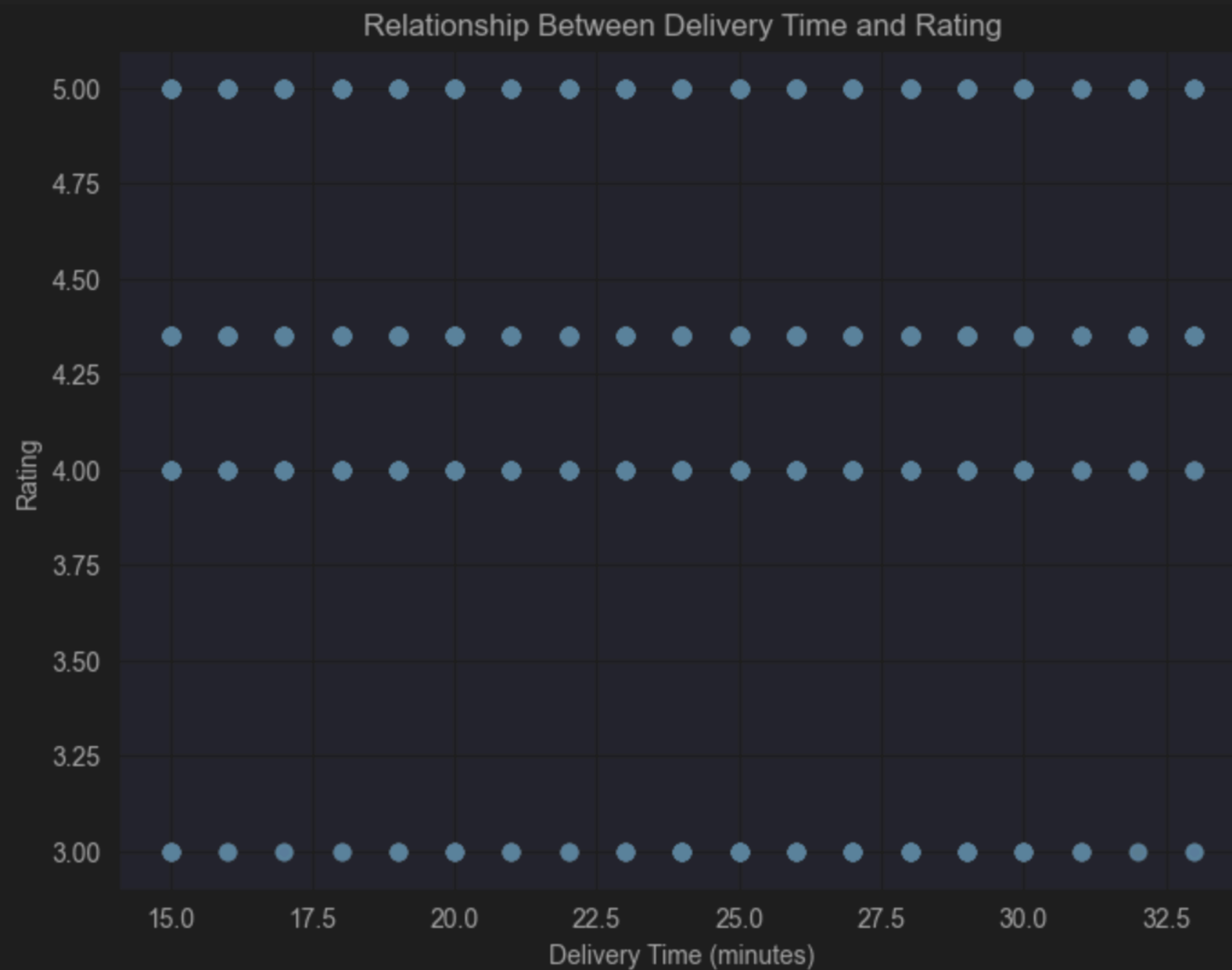
Relationship Between Delivery Time and Rating

Key Insights
 • Delivery time (15–32 minutes) has almost no effect on rating
 • Customers in this area are comfortable with this level of delivery time

Business Suggestions
 • No need to increase drivers too much
To improve ratings, focus on:
 • food temperature
 • packaging quality
 • taste

What Domain Knowledge Did I have to Acquire?

Prior Experience:

- Basic understanding of restaurant operations.
- Fundamentals of delivery logistics.
- Methods for consumer behavior analysis.

New Knowledge for This Project:

- New York-specific food market dynamics.
- Dominant cuisine preferences (American, Japanese, Italian, Chinese).

Difficulties and Challenges

Data Cleaning was the primary hurdle:

- Handling missing values and outlier orders.
- Converting categorical data (e.g., weekday/weekend, cuisine type) into numeric formats for analysis.

Skill Development Required:

- Becoming more proficient with Python/Pandas for data transformation.
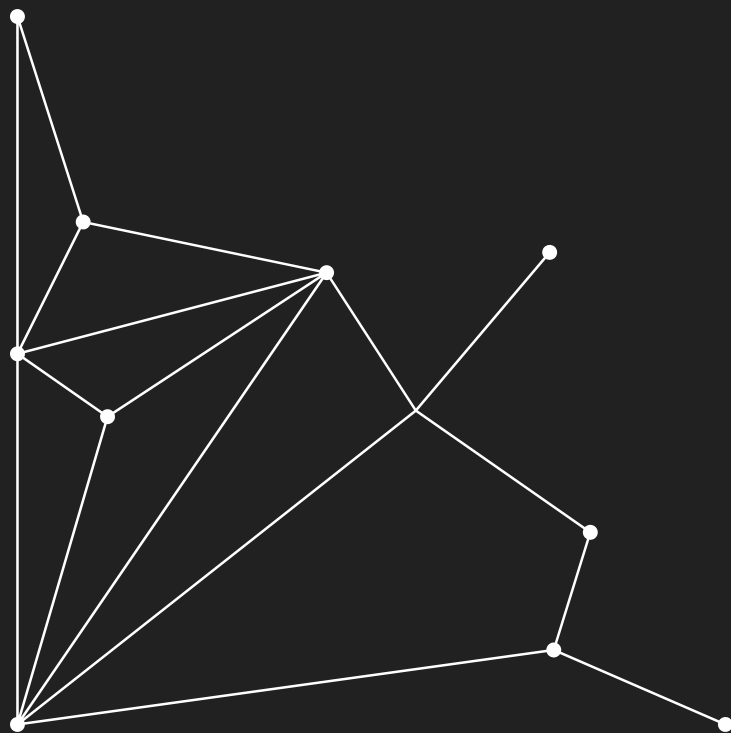- Learning efficient methods to identify and handle outliers.

Future Work

- **Expand Beyond My Usual Scope:**
  - I aim to step outside my past experience and explore new areas of analysis.
- **Try New Methods:**
  - Collect and analyze more data.
  - Learn to perform new types of analysis, like seasonal trend studies or A/B tests for promotions.
- **Goal:** Keep growing my skills to find deeper insights for the business.

THANK YOU!