

Data Analysis Report

Introduction:

I have used Python for this analysis. The dataset provides a consolidated view of restaurants listed across multiple food delivery and review platforms, namely Deliveroo, JustEat, and UberEats. Each row represents a single restaurant (venue), and the columns capture platform-specific details such as prices, reviews, availability, and promotions. This structure enables cross-platform comparisons. For the purpose of this analysis, I have assumed that missing values in the venue_id_% columns indicate that the restaurant is not registered on the corresponding platform.

Case Study Questions:

1. Data Cleansing & Exploration

o Identify any data quality issues in the dataset (e.g., missing values, duplicates, outliers) and explain how you would handle them.

Findings:

I analysed the dataset for data quality issues including duplicates, missing values, and outliers. Here's a summary of my findings and how I addressed them:

Duplicates

I approached duplicate detection in two ways:

1. Duplicate venue_id Entries:

Repeated venue_ids may indicate the same restaurant listed multiple times on a platform, potentially with different details.

venue_id_deliveroo: 1,851 duplicate entries (excluding blanks)

venue_id_justeat: 2,014 duplicate entries (excluding blanks)

venue_id_ubereats: 2,318 duplicate entries (excluding blanks)

venue_id_googleplaces: 6,258 duplicate entries (excluding blanks)

For example, venue_id_deliveroo = deliveroo/uk/472882 has a different UberEats venue ID and dashboard link, indicating platform-specific variations.

2. Exact Row Duplicates:

I found 0 fully identical rows across the dataset.

No rows were removed due to duplication.

Missing Values

Instead of looking at missing values across the entire dataset, I scoped the analysis platform-wise — considering missing values only for rows where the platform's venue ID was present.

I focused on key fields relevant to this analysis: Ratings, Reviews, Brand, and Food Types.

Handling strategy:

- Ratings: Could be Imputed using the mean rating grouped by brand.
- Reviews: Could be filled with median or 0 to represent no available reviews.
- Food Types: Could Inferred from other platforms (if available), otherwise marked as "Missing".
- Brand: could be Extracted from name patterns or labeled as "Unknown" when undeterminable.

Outliers

Outlier detection was not conducted as part of this assessment. Given the diversity of platforms, locations, and restaurant types, numerical values are expected to vary significantly. Treating such variance as outliers could risk removing valid data.

Note: If required in future stages, outliers can be detected using IQR or Z-score methods within individual platforms to account for distributional differences.

o Summarise the dataset using key statistics (e.g., average ratings, total reviews per platform, number of unique brands).

Findings:

Platform	Average Rating	Total Reviews	Unique Brands
Deliveroo	4.40	11388207	515
JustEat	4.01	37092340	527
UberEats	4.19	45232494	512
GooglePlaces	4.13	31953000	N/A

The dataset reveals that UberEats has the highest customer engagement with 45.2 million reviews and a solid average rating of 4.19, while JustEat offers the widest variety with 527 unique brands but has a slightly lower average rating of 4.01. Deliveroo stands out for customer satisfaction, achieving the highest average rating of 4.40, though it has a smaller volume of reviews. Google Places, despite lacking brand-level data, contributes significantly with 31.9 million reviews and a strong average rating of 4.13, highlighting its role in restaurant discovery.

2. Brand Performance Analysis

o Identify the top 10 brands with the highest average rating. How reliable are these ratings based on the number of reviews?

Findings:

Platform	Brand	Avg_Rating	Total_Reviews	Reliability
Deliveroo	Zapp	4.9	5000	High
Deliveroo	Oddono's	4.9	1000	High
JustEat	Cafe De Nata	4.9	63	Low
Deliveroo	Koox Organic Juices	4.88	3132	High
UberEats	Majestic Wine	4.85	2929	High
Deliveroo	Acai Berry	4.85	4944	High
Deliveroo	Venchi	4.85	787	Medium
Deliveroo	SNOG Frozen Yogurt	4.85	1000	High
UberEats	Oddono's	4.83	2460	High
Deliveroo	Screwfix	4.83	1657	High

The top 10 brands with the highest average ratings are led by **Zapp** and **Oddono's** on Deliveroo, both with a **4.9 average rating**. Most of these highly-rated brands also have a **large number of reviews**, indicating that their ratings are **reliable**. For instance, Zapp has **5000 reviews**, and Acai Berry has **4944 reviews**, both suggesting strong and consistent customer satisfaction. However, **Cafe De Nata** on JustEat, despite sharing a 4.9 rating, only has **63 reviews**, making its rating **less reliable** compared to others. Overall, **most top-rated brands have strong review counts**, reinforcing the **credibility of their high ratings**.

o Are there brands that have high ratings but a low number of reviews? What does this suggest?

Findings:

Yes, there are brands such as **Vape Blizz**, **Risotteria**, and **Bone Daddies** that have high average ratings (above 4.6) but very low total review counts (less than 30):

Brand	Total_Reviews	Average_Rating
Vape Blizz	3.0	5.0
Risotteria	25.0	4.9
Bone Daddies	0	4.68

This suggests that these high ratings may not be reliable indicators of consistent customer satisfaction. With such a small sample size, a few positive reviews can disproportionately inflate the average rating. In the case of **Bone Daddies**, the presence of a rating despite having zero reviews raises concerns about data validity or possible aggregation from other sources. Overall, brands with high ratings but low review volume should be interpreted cautiously, as they may not accurately reflect wider customer opinion.

3. Delivery Platform Insights

o Compare the average ratings across different delivery platforms. Which platform has the highest and lowest average rating?

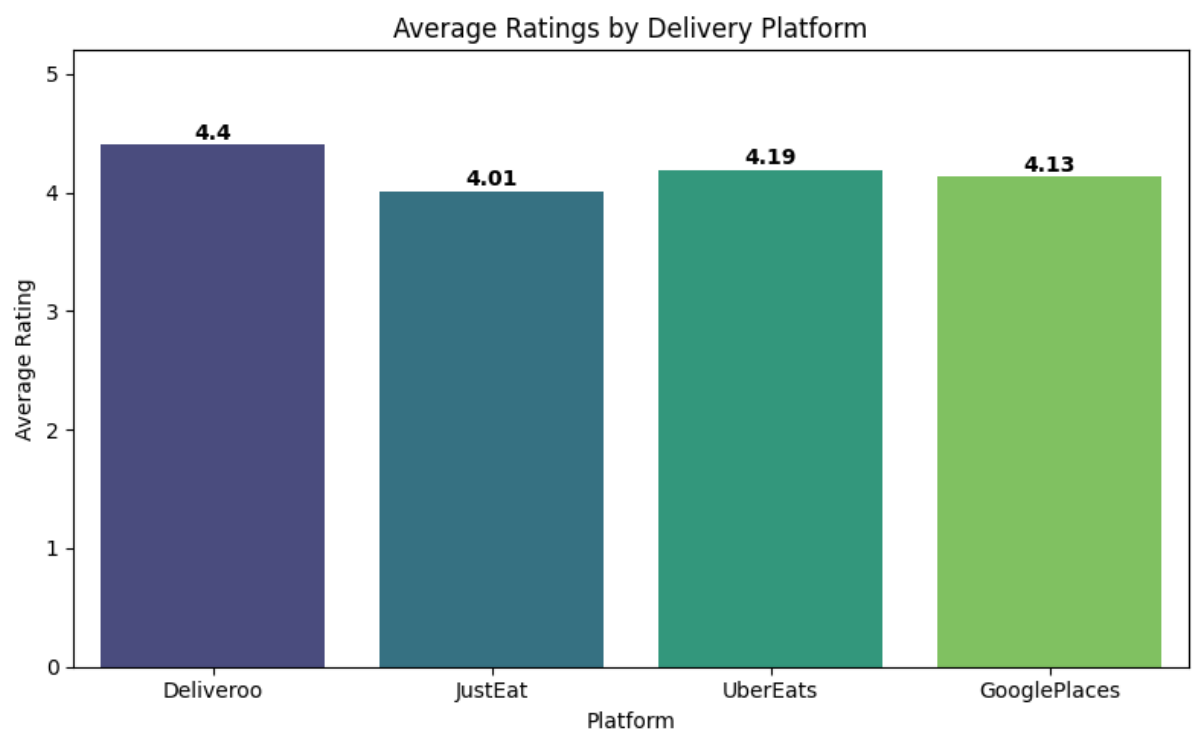
Findings:

Average Rating by Platform:

Platform	Average Rating
Deliveroo	4.40
JustEat	4.01
UberEats	4.19
GooglePlaces	4.13

Highest Rated Platform: Deliveroo with 4.4
Lowest Rated Platform: JustEat with 4.01

Deliveroo leads in customer satisfaction based on average ratings, while JustEat shows the lowest average, possibly indicating room for improvement in user experience or service quality.



o Is there a correlation between the number of reviews and ratings for each platform? What insights can be drawn?

Findings:

Deliveroo - Correlation between reviews and ratings: 0.23

Justeat - Correlation between reviews and ratings: -0.069

Ubereats - Correlation between reviews and ratings: 0.007

Googleplaces - Correlation between reviews and ratings: 0.05

The correlation between the number of reviews and ratings varies across platforms.

Deliveroo shows a **weak positive correlation (0.23)**, suggesting that as the number of reviews increases, ratings tend to slightly increase too. In contrast, **JustEat** exhibits a **very weak negative correlation (-0.069)**, indicating no meaningful relationship and possibly more variability in rating quality. **UberEats (0.007)** and **Google Places (0.05)** show almost **no correlation**, implying that a high number of reviews doesn't necessarily align with higher or lower ratings on those platforms.

This suggests that **user rating behavior is inconsistent across platforms**, and platforms like JustEat may have ratings less influenced by popularity (number of reviews), while Deliveroo shows some link between popularity and better ratings.

4. Food Type Trends

o Identify the food types with the highest and lowest average ratings. What factors could contribute to these variations?

Findings:

Top 5 Food Types by Average Rating:

Food_Type	Average_Rating
Dessert Sandwiches Tea	5.0
NEW Afghan Burgers	5.0
Thai Vegan	5.0
NEW Breakfast Coffee	5.0
Dinner Turkish	5.0

Bottom 5 Food Types by Average Rating:

Food_Type	Average_Rating
Breakfast Scottish	1.0
NEW Chinese Noodles	1.0
Chicken Crepes Halal Indian	1.0
Burgers Sandwiches Scottish	1.0
Flowers Groceries Shops	1.0

The **top-rated food types**, all scoring a perfect 5.0 average, typically consist of niche or curated combinations such as *Dessert|Sandwiches|Tea*, *Dinner|Fusion*, or *Thai|Vegan*. These categories suggest:

- **Specialty offerings** that target specific tastes or dietary preferences (e.g., vegan, fusion).
- **Newly launched or boutique outlets**, which might only have a few but highly positive reviews.
- **Limited exposure**, meaning their perfect ratings could be skewed due to a **small number of reviews**.

On the other hand, the **lowest-rated food types** often include broader, more mass-market categories like *Breakfast|Scottish*, *Chicken|Crepes|Halal|Indian*, or *NEW*|Chinese|Noodles*. Contributing factors may include:

- **Inconsistency in quality** due to a wider variety of items being offered.
- **Logistical challenges** in maintaining quality (especially for groceries or breakfast deliveries).
- **Customer expectations** being harder to meet when the menu spans multiple cuisines or styles.
- Possibly **higher competition** in these common categories leading to mixed reviews.

o Are there food types where a specific delivery platform performs significantly better or worse?

Findings:

Food Type	Deliveroo	JustEat	UberEats	Rating Range
Burgers Noodles Sandwiches	5	1	NaN	4
American Drinks	4.87	1	NaN	3.87
Kebab Middle Eastern Sandwiches	4.8	1	4.2	3.8
Fresh Food Grocery Snacks	4.8	1	NaN	3.8
Gelato Italian Pasta	4.75	1	4.5	3.75
Alcohol Middle Eastern Peruvian	NaN	1	4.7	3.7
Falafel Mediterranean Vegetarian	4.7	1	NaN	3.7
Chicken Drinks Sandwiches	4.5	1	4.7	3.7
British Brunch Gluten Free	4.7	1	NaN	3.7
Drinks Italian Salads	4.7	1	4.45	3.7

The analysis reveals significant variations in customer satisfaction across delivery platforms for certain food types. Notably, food types like **"Burgers|Noodles|Sandwiches"** and **"American|Drinks"** received exceptionally high ratings on **Deliveroo** (5.0 and 4.87 respectively) but extremely low ratings on **JustEat** (1.0), resulting in a rating range of nearly **4 points**.

This pattern continues across multiple categories. For instance, **"Kebab|Middle Eastern|Sandwiches"** and **"Fresh Food|Grocery|Snacks"** also show sharp contrasts, with high scores on Deliveroo and very poor ones on JustEat. In a few cases like **"Alcohol|Middle Eastern|Peruvian"**, UberEats rated highly (4.7) while JustEat again remained at the lowest possible score (1.0).

These discrepancies could indicate:

- **Inflated or skewed ratings due to low review counts**, where a few very positive or negative reviews disproportionately influence the average.
- **Platform-specific operational issues** (e.g., delivery time, packaging, food temperature),
- **Differences in user expectations or demographics** across platforms,
- Or possibly **data quality issues** if the number of reviews is too small on certain platforms.

Such trends highlight how a restaurant's or food type's reputation can be **platform-dependent**, and emphasize the importance of maintaining consistent service quality across all delivery services.

5. Business Recommendations

o Based on your analysis, what key insights can be provided to improve brand performance on delivery platforms?

Approach:

Business Recommendations

Based on the analysis of ratings, reviews, food types, and platform performance, several actionable insights emerge that can help improve brand performance on delivery platforms:

1. Focus on Building Review Volume

- Many high-rated brands (e.g., Vape Blizz, Risotteria) have very few reviews, making the ratings less reliable and potentially misleading.
- Recommendation: Encourage satisfied customers to leave reviews through post-delivery prompts or incentives. A higher volume of reviews not only boosts credibility but also improves platform visibility through algorithms.

2. Platform-Specific Quality Control

- Significant discrepancies were observed between platforms for the same food types (e.g., Burgers|Noodles|Sandwiches rated 5.0 on Deliveroo vs. 1.0 on JustEat).
- Recommendation: Conduct platform-specific audits to identify operational issues (e.g., delivery time, packaging) and tailor strategies accordingly. Maintaining consistent service quality across all platforms is crucial.

3. Strengthen Performance on JustEat

- JustEat consistently showed the lowest average rating (4.01) among platforms. Also, the Food_Type rating are the lowest.
- Recommendation: Review customer feedback specifically from JustEat to understand pain points. Consider optimizing packaging, delivery speed, or menu presentation on this platform.

4. Cautiously Expand Multi-Cuisine Menus

- Food types with multiple cuisines (e.g., Chicken|Crepes|Halal|Indian) tended to have lower ratings.
- Recommendation: Avoid overcrowding menus. Focus on delivering fewer items exceptionally well rather than a broad range with inconsistent quality.

o If LKN is going to develop a new brand, what would your recommendations be, based on the known factors and the dataset?

Approach:

New Brand Strategy Recommendations for LKN

If LKN plans to launch a new food brand, the data suggests several strategic directions that can increase the chances of success:

1. Target Niche, High-Rated Food Categories

- Categories like Thai|Vegan, Dessert|Sandwiches|Tea, and Breakfast|Coffee received perfect 5.0 ratings.
- Recommendation: Launch a brand that focuses on trendy, niche offerings—especially those that cater to health-conscious or specialty diets (e.g., vegan, gluten-free, fusion). These categories generate strong positive sentiment and are less saturated.

2. Prioritize Deliveroo as the Launch Platform

- Deliveroo had the highest average rating (4.40) and consistently performed better for multiple food types compared to JustEat and UberEats.
- Recommendation: Introduce the brand on Deliveroo first, where user satisfaction appears to be higher. Once established, expand to other platforms with optimized offerings.

3. Build Review Volume Early

- Many highly rated venues had very few reviews, making their ratings potentially unstable or misleading.
- Recommendation: Encourage reviews from the start through loyalty points, discounts for feedback, or in-app reminders. Early traction in reviews can improve discoverability and trust.

4. Highlight Platform-Specific Strengths

- Some food types performed exceptionally well on one platform but poorly on others (e.g., American|Drinks rated 4.87 on Deliveroo vs. 1.0 on JustEat).
- Recommendation: Consider customizing the menu or pricing slightly per platform to align with user preferences and expectations.

o If a brand is looking to expand into a new city, what factors should they consider based on the dataset?

Approach:

Factors a Brand Should Consider Before Expanding Into a New City

Based on the data from multiple delivery platforms and brand performance across food types and ratings, here are key factors a brand should consider before entering a new city:

1. Platform Performance Varies by Food Type

- Some platforms consistently rate certain food types higher than others.
- Action: Research which delivery platforms dominate in the new city and which food types are most popular or highly rated on each. For example, if Deliveroo has a strong presence and performs well for vegan or fusion food, the brand should align offerings accordingly.

2. Volume of Reviews vs. Rating Stability

- Many top-rated venues had very few reviews, making ratings volatile.
- Action: Assess how many reviews similar brands receive in the new city. Low review counts may suggest a newer market or less platform engagement, which can make building trust slower but also provides opportunity to stand out early.

3. Food Type Trends

- Niche food types (e.g., Thai|Vegan, Dessert|Sandwiches|Tea) received consistently high ratings.
- Broader or multi-cuisine types (e.g., Halal|Indian|Chicken) had lower average ratings.
- Action: Focus on specialized, high-performing food categories that align with local trends or gaps in the market.

5. Operational Logistics

- Lower ratings in some categories may stem from delivery delays, packaging issues, or inconsistent food quality.
- Action: Ensure strong operational readiness in the new city—partner with local delivery agents, invest in sturdy packaging, and run trials to maintain consistency.

Summary:

This analysis was conducted using Python and focused on understanding brand performance across food delivery platforms—Deliveroo, JustEat, UberEats, and Google Places. The dataset provided a unified view of restaurants listed on these platforms, allowing for a detailed comparison of reviews, ratings, pricing, availability, and promotions. It was assumed that missing values in platform-specific venue columns indicated that the restaurant was not registered on that particular platform.

The findings show that while some brands have extremely high ratings, these are often based on a very low number of reviews, raising questions about the reliability of such ratings.

In comparing average ratings across platforms, Deliveroo emerged as the best-performing platform with an average rating of 4.4, while JustEat had the lowest at 4.01. However, the correlation between the number of reviews and ratings was weak or non-existent across all platforms.

Platform-specific discrepancies were also evident. Certain food types performed significantly better on one platform compared to another. For instance, multiple combinations received top scores on Deliveroo but only 1.0 on JustEat.

Throughout the analysis, careful attention was paid to data quality and integrity. Some anomalies—like ratings without reviews—were noted and treated as possible inconsistencies or aggregations from other data sources. The overall methodology included cleaning the dataset, aggregating metrics at the brand and food-type levels, analysing correlations, and interpreting results from a business perspective.

This structured analysis provides valuable insights for LKN to make informed decisions around brand development, platform partnerships, and service offerings. It also underlines the importance of data quality and the value of combining both quantitative metrics and contextual understanding in assessing brand performance.