STRATEGIC DECISION-MAKING USING POWER-BI

PROJECT REPORT SUBMISSION 2

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1. PROBLEM STATEMENT

"Unlocking Zomato's potential: How to serve the right cuisines, at the right price, in the right place!"

Zomato operates in a highly competitive food delivery and restaurant aggregation market. With thousands of restaurants offering diverse cuisines across numerous cities, there is a need to optimize operations by identifying what customers truly desire, where they prefer it, and how to deliver the best experience. The challenge lies in leveraging data on cuisines, restaurant ratings, locality preferences, and pricing to maximize customer satisfaction and revenue while ensuring scalability across urban and semi-urban markets.

Objectives

Identify Cuisine Popularity

Analyze which cuisines are most preferred in different cities and localities to help Zomato prioritize partnerships and promotions with restaurants specializing in those cuisines.

Optimize Pricing Strategy

Understand the correlation between "Average Cost for Two" and customer satisfaction (aggregate ratings and votes) to align restaurant pricing with customer expectations in specific areas.

Enhance Delivery Services

Examine gaps in delivery availability ("Has Online Delivery" and "Is Delivering Now") and suggest actionable strategies for improvement in underserved areas or regions with high customer demand.

Locality-Specific Insights

Evaluate restaurant density and ratings by locality to identify underperforming regions or high-demand areas that require targeted marketing or infrastructure support.

Focus on Customer Satisfaction

Leverage insights from aggregate ratings, rating text, and votes to drive quality control and enhance the dining/delivery experience, particularly in cities with growing competition.

Support for Tier-2 and Tier-3 Cities

Expand Zomato's footprint in Tier-2 and Tier-3 cities by assessing acceptance of cuisines and service quality in these regions.

Expected Outcomes

Increased Customer Retention

By aligning offerings with customer preferences and pricing expectations, Zomato can foster loyalty among its user base.

Improved Revenue and Profitability

Optimized delivery services, enhanced restaurant partnerships, and locality-specific strategies will lead to increased order volumes and reduced operational inefficiencies.

Actionable Market Insights

A comprehensive understanding of market demand and consumer behavior to shape Zomato's growth strategy in emerging cities.

Competitive Advantage

Tailored solutions based on data insights will give Zomato an edge over competitors by offering superior service and cuisine options.

Scalability and Expansion

Enhanced service quality in Tier-2 and Tier-3 cities will strengthen Zomato's presence and prepare it for further geographical expansion.

2. DATA REQUIREMENT

To execute the analysis, the following columns are required:

1. Restaurant Information

- **Restaurant Name**: Identify and evaluate individual restaurants' performance.
- **City, Address, and Locality**: Segment trends geographically for cities, specific neighborhoods, and pinpoint localities with high or low performance.
- **Cuisines**: Analyze cuisine popularity and the variety of offerings.

2. Customer Ratings and Feedback

- **Aggregate Rating**: Assess customer satisfaction with restaurants.
- **Votes**: Measure the volume of customer engagement for each restaurant and validate popularity trends.
- **Rating Text and Color**: Categorize restaurants into performance tiers (e.g., "Excellent," "Very Good") to understand quality distribution.

3. Cost and Pricing Data

- **Average Cost for Two**: Analyze pricing patterns and determine optimal price points for specific areas or cuisines.
- **Price Range**: Segment restaurants into budget-friendly, mid-range, and premium categories.
- **Currency**: Maintain consistency for restaurants in international markets.

4. Delivery and Booking Features

- **Has Table Booking**: Analyze the availability of reservation features and its impact on customer experience.
- **Has Online Delivery**: Examine online delivery options and service availability across regions.
- **Is Delivering Now**: Identify real-time delivery capabilities and pinpoint operational gaps.
- **Switch to Order Menu**: Understand the preference for delivery over dine-in, highlighting areas for service optimization.

5. Geographic Segmentation

- **Country**: Compare restaurant performance across international and domestic markets.

- **City and Locality**: Drill down into city-specific and locality-specific trends for targeted action plans.

6. Popularity Metrics

- **Cuisines**: Determine the most popular cuisines across regions and their impact on customer demand.
- **Restaurant Density by Locality**: Assess competition and saturation in specific areas.

7. Operational Metrics

- **Delivery Availability (Has Online Delivery and Is Delivering Now)**: Evaluate gaps in service and opportunities for expanding delivery coverage.

How This Dataset Supports the Analysis

Cuisine Analysis: Using the "Cuisines" column, we can identify the most popular cuisines and their geographic preferences.

City and Locality Trends: Insights from the "City" and "Locality" columns will highlight high-demand areas and underperforming regions.

Customer Satisfaction: The "Aggregate Rating," "Votes," and "Rating Text" columns will be instrumental in gauging customer perceptions and pinpointing quality improvements.

Pricing Insights: The "Average Cost for Two" and "Price Range" columns will support the development of price optimization strategies.

Delivery Services: Columns like "Has Online Delivery" and "Is Delivering Now" will help identify gaps in service availability and opportunities for improvement.

3. DATA COLLECTION

To solve the business problem effectively, data collection is a critical step. This process involves gathering, organizing, and validating the required information to generate actionable insights. Below is a detailed explanation of the data collection process aligned with Zomato's context and the uploaded dataset.

Data Sources

1. **Internal Data (Zomato Database)**

   o **Restaurant Listings**: Data about all restaurants listed on Zomato, including name, address, locality, city, and country.

   o **User Feedback**: Customer ratings, reviews, and votes collected through the Zomato platform.

   o **Operational Data**: Delivery availability, pricing details, and service status (real-time availability).

   o **Cuisines Offered**: Data on the variety and popularity of cuisines provided by each restaurant.

2. **External Data (Optional for Validation)**

   o **Competitor Insights**: Data on restaurant offerings, pricing, and ratings from competitors like Swiggy, Uber Eats, etc.

   o **Demographic and Economic Data**: Information on income levels, purchasing power, and food preferences in specific regions.

   o **Market Trends**: Industry reports and studies on food delivery trends, cuisine popularity, and customer behavior.

Collection Methods

1. **API Integration**

   o Zomato's platform data can be extracted using its public or private APIs for real-time updates on restaurant details, customer reviews, and operational data.

   o APIs can also fetch user engagement metrics like votes, rating breakdowns, and cuisine performance.

2. **Database Extraction**

   o Structured Query Language (SQL) can be used to extract historical data from Zomato's database, providing a comprehensive view of trends over time.

3. **User Surveys and Feedback Forms**

   o Surveys can be conducted to capture additional customer preferences, satisfaction levels, and delivery feedback.

4. **Web Scraping (if APIs are unavailable)**

   o Data about competitor pricing, customer reviews, and restaurant density in various localities can be scraped from websites.

5. **External Partnerships**

   o Collaborations with local authorities or market research firms for demographic and regional data collection.

Key Data Fields to Collect

Data Type	Details
Restaurant Details	Name, address, locality, city, and country.
Cuisines	Types of cuisines offered by each restaurant.
Customer Feedback	Aggregate ratings, votes, review text, and rating tiers (e.g., "Excellent").
Pricing Information	Average cost for two, price range, and currency.
Delivery Data	Online delivery availability, real-time delivery status, and delivery frequency.
Operational Metrics	Restaurant density in localities, availability of table booking, etc.
Market Trends	Seasonal or regional demand for specific cuisines or services.

Data validation is a critical process to ensure that the dataset used for analysis is accurate, unbiased, transparent, and reliable. For Zomato's sales analysis, it involves identifying potential biases, maintaining transparency in the data preparation process, and ensuring the dataset's reliability to support actionable insights.

1. Bias Identification and Mitigation

Types of Bias in the Dataset

- **Geographic Bias**:

  - Overrepresentation of certain cities (e.g., metropolitan areas like Delhi or Mumbai) might skew results, underestimating trends in Tier 2 and Tier 3 cities.

  - **Mitigation**: Use stratified sampling to ensure proportional representation from all geographic regions.

- **Cuisines Bias**:

  - Popular cuisines (e.g., North Indian, Chinese) might overshadow insights on niche or emerging cuisines.

  - **Mitigation**: Weight cuisines equally during analysis or focus separately on niche cuisine trends.

- **Rating Bias**:

  - High-rated restaurants might receive more attention due to larger customer bases, leading to the exclusion of underrepresented restaurants.

  - **Mitigation**: Normalize ratings by restaurant size or number of reviews to reduce skewness.

- **Customer Demographic Bias**:

  - Certain income groups or age demographics might dominate specific cuisine preferences or order behaviors.

  - **Mitigation**: Incorporate demographic data (if available) to segment trends more effectively.

2. Ensuring Transparency

Transparency in data handling ensures stakeholders can trust the insights derived.

Steps for Transparency

1. **Document Data Sources**:

   o Clearly list the origins of all data fields (e.g., Zomato API, user feedback, manual input).

2. **Preprocessing Steps**:

   o Document all preprocessing techniques, including handling missing values, outlier treatment, and data transformations.

3. **Feature Engineering Documentation**:

   o Maintain a log of all created variables (e.g., grouping cuisines, segmenting price ranges).

4. **Assumptions Declaration**:

   o Explicitly state assumptions made during the analysis (e.g., average cost for two as a proxy for pricing competitiveness).

5. **Version Control**:

   o Implement version control for datasets to track modifications and ensure reproducibility of analysis.

3. Reliability of the Dataset

Validation Steps for Reliability

1. **Data Accuracy**:

   o **Validation**: Compare fields such as restaurant locations, ratings, and pricing against live Zomato data to verify correctness.

   o **Tool**: Use APIs or web scraping to cross-check information in real time.

2. **Consistency Checks**:

   o **Validation**: Ensure that data formats are consistent (e.g., currency is the same across all countries, cuisine names are standardized).

3. **Handling Missing Data**:

   o **Validation**:

      ▪ Identify missing fields (e.g., some restaurants may not have ratings or delivery availability data).

- Use imputation techniques or exclude incomplete entries based on analysis requirements.

4. **Duplicate Removal**:

    o **Validation**: Remove duplicate restaurant entries by checking unique identifiers like restaurant names and addresses.

5. **Outlier Detection**:

    o **Validation**: Identify anomalies in data fields like extremely high ratings, votes, or pricing (e.g., restaurants with a price range far beyond the average).

    o **Mitigation**: Validate anomalies with secondary sources or remove if unjustifiable.

6. **Timeliness**:

    o **Validation**: Ensure data is up-to-date, especially fields like "Is Delivering Now" and "Has Online Delivery," which may change frequently.

Outcome of Data Validation

By ensuring bias-free, transparent, and reliable data, Zomato can:

- Generate trustworthy insights to improve operations and customer satisfaction.

- Build confidence among stakeholders in the analysis process.

- Reduce the risk of incorrect business decisions caused by flawed data.

5. DATA CLEANING

Purpose: To prepare the dataset for meaningful analysis by addressing errors, inconsistencies, and irrelevant data.
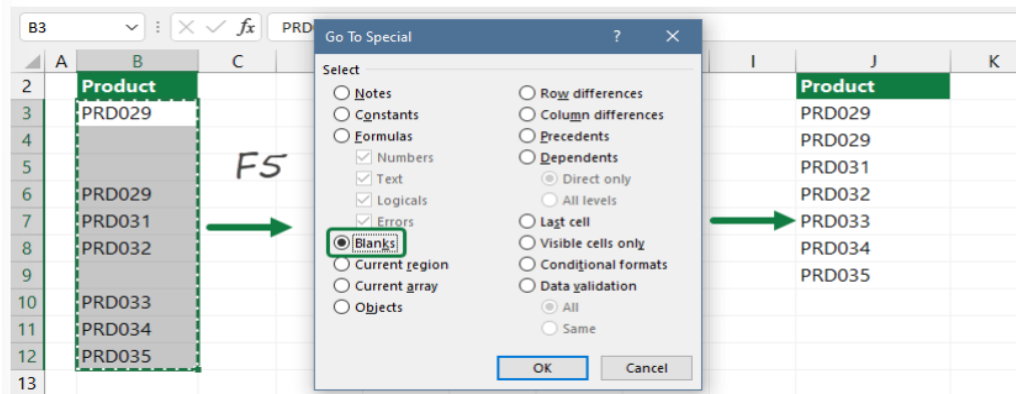
Data cleaning involves detecting and rectifying errors, handling missing values, and standardizing the dataset.

Steps in Data Cleaning

1. **Handling Missing Values**

   o **Check for Missing Data**: Identify columns with null or empty values (e.g., Aggregate Rating, Online Delivery Availability).

   o **Imputation Methods**:

      ▪ Numeric Data: Replace with the mean, median, or mode (e.g., average cost).

      ▪ Categorical Data: Replace with the most frequent value or "Not Available".

      ▪ Drop Rows: If the missing data is extensive and cannot be accurately filled.

2. **Removing Duplicates**

   o **Detection**: Identify duplicate rows based on unique fields like Restaurant Name, Address, and Locality.

   o **Action**: Retain the first instance of each duplicate and remove redundant entries.

3. **Standardizing Formats**

   o **Cuisines**: Ensure uniform naming conventions for cuisines (e.g., "North Indian" vs. "North-Indian").

- o **Cost Standardization**: Convert all costs into a consistent currency (e.g., INR).

- o **City and Locality Names**: Ensure consistent capitalization and spacing (e.g., "Bangalore" vs. "Bengaluru").

4. **Handling Outliers**

- o Identify unusual entries in numeric columns like Aggregate Rating (e.g., values above 5) or Average Cost for Two.

- o **Action**:

   - ▪ Validate outliers with external sources (e.g., live Zomato data).

   - ▪ Remove or adjust extreme values if they are deemed erroneous.

5. **Dropping Irrelevant Columns**

- o Remove columns that do not contribute to the analysis or insights (e.g., URLs or restaurant-specific IDs, if not used).

6. **Encoding Categorical Data**

- o Convert categorical variables (e.g., Has Online Delivery, Is Delivering Now) into binary or numerical formats for analysis.

Tools for Cleaning

- **Python**: Libraries like Pandas and NumPy for cleaning operations.

- **Power BI/Tableau**: Visual exploration of missing data and anomalies.

2. Exploratory Data Analysis (EDA)

EDA helps in understanding the dataset's structure, relationships, and patterns, serving as a foundation for in-depth analysis.

Steps in EDA

1. **Dataset Overview**

- o **Understand Dimensions**: Number of rows and columns.

- o **Data Types**: Identify column types (numeric, categorical, text).

- o **Summary Statistics**:

   - ▪ Numeric Fields: Mean, median, standard deviation, and percentiles for Aggregate Rating, Votes, Average Cost for Two.

- Categorical Fields: Distribution of values in Cuisines, City, Has Online Delivery.

2. **Univariate Analysis**

    o **Objective**: Explore individual variables.

    o **Visualizations**:

    - Bar Charts: Distribution of top cuisines, restaurant density by city/locality.

    - Histograms: Average cost distribution or ratings.

3. **Bivariate Analysis**

    o **Objective**: Study relationships between two variables.

    o **Visualizations**:

    - Scatter Plots: Relationship between Aggregate Rating and Votes.

    - Heatmaps: Correlation between numeric variables (e.g., Votes and Cost for Two).

4. **Multivariate Analysis**

    o **Objective**: Understand complex interactions between multiple variables.

    o **Visualizations**:

    - Grouped Bar Charts: Cuisine popularity by city.

    - Box Plots: Distribution of cost for specific cuisines or cities.

5. **Anomaly Detection**

    o Identify unusual patterns, such as cities with unusually low ratings or high delivery availability.

6. **Segmentation**

    o Segment restaurants by:

    - City or locality.

    - Delivery vs. non-delivery options.

    - Cost brackets (low, medium, high).

Tools for EDA

- **Python**: Matplotlib, Seaborn, and Pandas Profiling for visual and statistical analysis.

- **Power BI/Tableau**: Interactive dashboards for drilling down into data.

Outcomes of Data Cleaning and EDA

- **High-Quality Dataset**: Clean, consistent, and ready for analysis.

- **Initial Insights**:

    o   Identification of the most popular cuisines, top-performing localities, and customer preferences.

    o   Early detection of potential problem areas (e.g., underperforming cities).

- **Hypothesis Formation**: Insights from EDA guide hypotheses for advanced analyses like customer segmentation or predictive modeling.

7. TOOLS SELECTION

The choice of tools plays a vital role in efficiently handling, cleaning, validating, and analyzing the Zomato dataset. Below is a detailed guide to selecting the right tools for each phase of the process.

1. Data Cleaning Tools

These tools are used to preprocess the dataset, resolve inconsistencies, and handle missing data.

Key Tools

1. **Python**:

   o Libraries:

      ▪ **Pandas**: For handling missing data, removing duplicates, and data transformations.

      ▪ **NumPy**: For numerical operations and handling array-based datasets.

   o Strength: Python's flexibility allows custom cleaning scripts for specific requirements.

2. **Excel/Google Sheets**:

   o For quick manual checks and small-scale cleaning tasks like filling missing values and applying basic formulas.

   o Strength: Intuitive for beginners and suitable for lightweight datasets.

3. **Power BI/Tableau Prep**:

   o For visual exploration of missing data and identifying anomalies through interactive dashboards.

   o Strength: Provides a clear visual understanding of data inconsistencies.

4. **OpenRefine**:

   o Best for: Standardizing text data (e.g., cuisine names, city names) and identifying duplicates.

   o Strength: Excellent for working with messy text datasets.

2. Data Validation Tools

To ensure the dataset's accuracy, consistency, and completeness, these tools provide mechanisms for validating data.

Key Tools

1. **Python**:

   o Libraries:

      ▪ **Great Expectations**: A powerful library to validate data integrity by setting rules for column values and consistency checks.

      ▪ **SciPy/Statsmodels**: For statistical validation and outlier detection.

   o Strength: Automates data validation and integrates seamlessly with other data pipelines.

2. **SQL**:

   o For cross-checking data consistency and running queries to identify duplicates, missing values, or outliers.

   o Strength: Ideal for relational database structures.

3. **Power BI/Tableau**:

   o For creating visualizations to detect outliers and observe trends in the data.

4. **Custom Scripts (Python/R)**:

   o Best for: Tailored validation workflows specific to business problems.

3. Exploratory Data Analysis (EDA) Tools

EDA involves exploring the dataset to uncover patterns, relationships, and insights.

Key Tools

1. **Python**:

   o Libraries:

      ▪ **Matplotlib/Seaborn**: For creating detailed visualizations like scatter plots, heatmaps, and bar charts.

      ▪ **Pandas Profiling**: Generates a comprehensive report summarizing data characteristics.

o Strength: Highly customizable visualizations and statistical analysis.

2. **Power BI/Tableau**:

   o For interactive dashboards and real-time visualizations.

   o Strength: Allows segmentation, filtering, and dynamic exploration of data.

3. **Excel**:

   o For simple pivot tables and basic chart creation.

   o Strength: Accessible and easy to use for straightforward EDA tasks.

4. **R**:

   o Libraries like **ggplot2** for advanced statistical plots.

   o Strength: Focused statistical analysis and high-quality visualizations.

4. Advanced Analysis and Modeling Tools

For deeper insights, tools for predictive modeling and machine learning are required.

Key Tools

1. **Python**: Libraries:

   - **Scikit-learn**: For clustering, segmentation, and predictive modeling.

   - **Statsmodels**: For hypothesis testing and regression analysis.

2. **R**: Best for: Statistical modeling and advanced machine learning with packages like **caret** and **randomForest**.

3. **Power BI/Tableau**: For forecasting trends using built-in predictive features.

5. Data Storage and Retrieval Tools

To manage and store large datasets, these tools ensure seamless access during analysis.

Key Tools

1. **SQL-Based Databases**:

   o **MySQL/PostgreSQL**: For structured data storage and retrieval.

   o Strength: Highly scalable and reliable for querying large datasets.

2. **Cloud Solutions**:

   o **Google BigQuery/AWS Redshift**: For managing extensive datasets in the cloud.

   o Strength: Suitable for collaborative environments and large-scale data.

6. Reporting and Visualization Tools

To communicate findings effectively to stakeholders.

Key Tools

1. **Power BI/Tableau**:

   o For creating interactive dashboards with drill-down capabilities.

   o Strength: Ideal for business presentations and decision-making.

2. **Excel**:

   o For simple reports and summary tables.

3. **Google Data Studio**:

   o For online, shareable dashboards.

1. Univariate Analysis

Univariate analysis explores one variable at a time to understand its distribution, magnitude, and trends.

Relevant Graphs:

1. **Top Cuisine in India (Bar Chart)**:

    o **Purpose**: Identifies the most popular cuisines. The bar chart clearly shows that North Indian cuisine dominates, followed by regional variations, cafes, and Chinese.

    o **Insight**: This helps Zomato focus on popular cuisines and prioritize marketing for these categories, especially in areas with limited offerings.

2. **Restaurant by Country (Pie Chart)**:

    o **Purpose**: Displays the share of restaurants in each country, emphasizing Zomato's dominance in India.

    o **Insight**: Since India accounts for 8.65K restaurants (over 90% of the total), Zomato should focus on improving services and customer experience domestically.

3. **Restaurant by Locality (Bar Chart)**:

    o **Purpose**: Highlights the concentration of restaurants in specific localities.

    o **Insight**: Rajouri Garden (122 restaurants) and Shahdara (99) are key localities. Understanding why these localities perform well (e.g., high footfall, residential density) can guide expansion strategies in similar areas.

4. **KPIs (Total Restaurants, Cities, Cuisines, Countries, Average Cost)**:

    o **Purpose**: Offers a snapshot of Zomato's scale and diversity.

    o **Insight**: Metrics like "Total Cities" (140) and "Average Cost" (₹1.20K) help assess Zomato's market penetration and pricing strategy.

2. Bivariate Analysis

Bivariate analysis examines relationships between two variables to uncover patterns.

Relevant Graphs:

1. **Cuisines and Aggregate Rating by Restaurant (Bar Chart)**:

- o **Purpose**: Compares the number of cuisines a restaurant offers with its aggregate rating.

- o **Insight**: Domino's Pizza offers the most cuisines (217) while maintaining high ratings. Conversely, Green Chick Chop has lower ratings despite offering many cuisines. This indicates:

  - Offering more cuisines isn't enough; quality matters.

  - Restaurants with high ratings could be featured prominently in Zomato's recommendations.

2. **Restaurant by City (Donut Chart)**:

   - o **Purpose**: Displays the distribution of restaurants across key cities.

   - o **Insight**: New Delhi leads with 5.47K restaurants, reflecting high demand. Gurgaon (1.12K) and Noida (1.08K) are secondary hubs. This information helps Zomato allocate resources effectively across cities.

3. **Top Cuisine in India vs. Restaurant Count (Bar Chart)**:

   - o **Purpose**: Links the popularity of cuisines with restaurant distribution.

   - o **Insight**: While North Indian cuisine dominates, cuisines like Street Food and Bakery have fewer restaurants. Promoting these niche cuisines could increase customer diversity.

3. Multivariate Analysis

Multivariate analysis looks at three or more variables to uncover complex relationships.

Relevant Graphs:

1. **Cuisines vs. Aggregate Rating vs. Restaurants (Bar Chart)**:

   - o **Purpose**: Correlates cuisines offered, ratings received, and the number of restaurants.

   - o **Insight**: Domino's Pizza excels across all parameters, making it a benchmark for other chains. Zomato can promote similar chains offering high ratings and variety.

2. **Restaurant by Country vs. City vs. Cuisine (Pie & Donut Charts)**:

   - o **Purpose**: Connects the geographic spread of restaurants (countries and cities) with popular cuisines.

- **Insight**: In India, New Delhi dominates in terms of restaurant count and likely has high demand for North Indian cuisine. Zomato could replicate New Delhi's success model in underperforming cities like Noida.

3. **Restaurant by Locality vs. Cuisine Variety vs. Rating (Bar Chart)**:

   - **Purpose**: Links localities with the diversity of cuisines and average ratings.

   - **Insight**: Localities like Rajouri Garden and Shahdara, with high restaurant counts, may attract diverse customer demographics. If these areas also have high ratings, they could serve as case studies for improving operations in less popular localities.

4. **Has Online Delivery & Has Delivery Now (Filters)**:

   - **Purpose**: Segments restaurants by delivery capability and real-time availability.

   - **Insight**: Identifies areas or cuisines where delivery services are underrepresented, guiding operational improvements. This is critical for customer satisfaction and retention.

Why Each Graph is Relevant

1. **Bar Charts (Cuisines and Localities)**:

   - Highlight numerical trends like restaurant count or cuisine popularity.

   - Reveal actionable insights such as which areas or cuisines need more focus.

2. **Pie/Donut Charts (Country and City Distribution)**:

   - Provide proportional comparisons, making it easier to visualize market dominance.

   - Identify regions with potential for growth or additional investment.
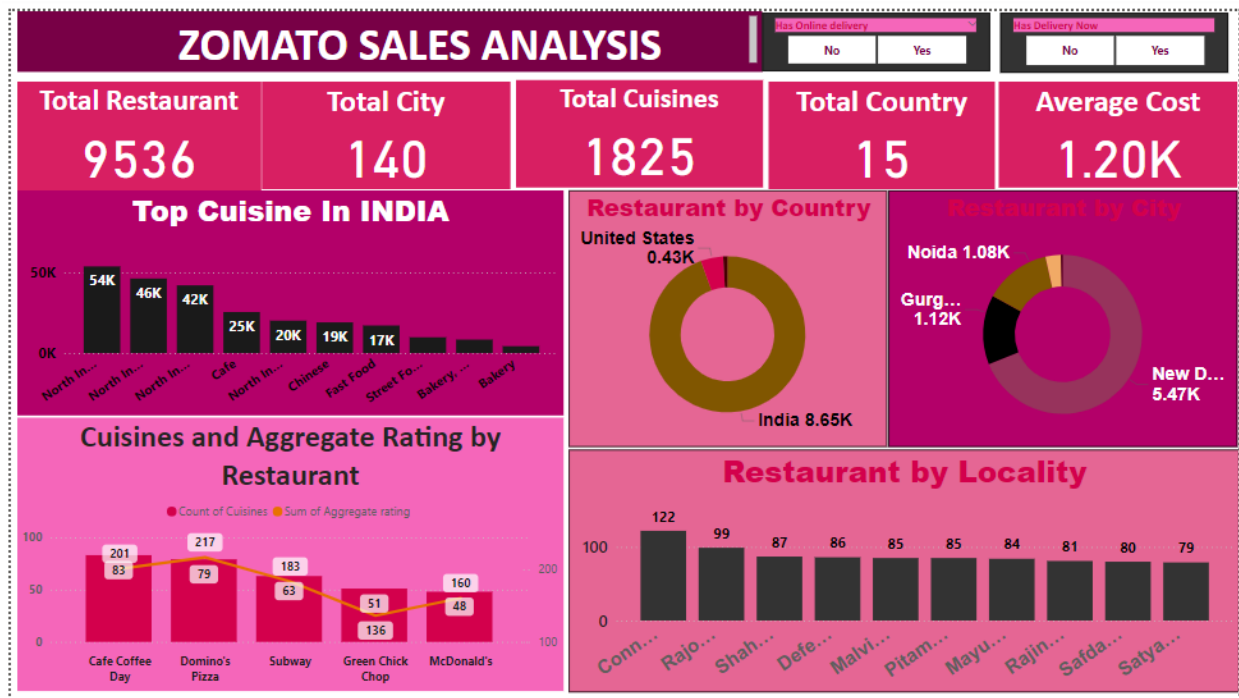
3. **KPIs (Total Metrics)**:

   - Act as benchmarks to assess Zomato's scale and progress over time.

   - Guide strategic planning by identifying key focus areas.

4. **Delivery Filters**:

   - Allow dynamic segmentation, identifying gaps in service availability.

   - Help Zomato ensure operational readiness for high-demand areas.

ZOMATO SALES ANALYSIS

Total Restaurant	Total City	Total Cuisines	Total Country	Average Cost
9536	140	1825	15	1.20K

1. Univariate Analysis

This involves analyzing each variable independently to understand its distribution and central tendencies.

- **Total Restaurants**: There are 9,536 restaurants listed.
- **Total Cities**: Zomato operates in 140 cities.
- **Total Cuisines**: 1,825 different cuisines are available.
- **Total Countries**: Zomato operates in 15 countries, with the majority (8.65K) of restaurants in India.
- **Average Cost**: ₹1.20K (1,200) is the average cost per meal.
- **Top Cuisine in India**:
    - North Indian (54K) dominates, followed by:
        - Other regional variations of North Indian (46K, 42K),
        - Cafe (25K),
        - Chinese (20K).
- **Restaurant by Locality**: Localities like Rajouri Garden (122 restaurants) dominate the list, followed by Shahdara (99), Defence Colony (87), and others.

2. Bivariate Analysis

This involves examining relationships between two variables to identify trends or patterns.

- **Cuisines vs. Aggregate Rating**:
    - Restaurants like Domino's Pizza and Cafe Coffee Day are highly rated.

- o Domino's Pizza has the highest count of cuisines (217) and a significant aggregate rating.
  - o Green Chick Chop has the lowest aggregate rating despite a decent number of cuisines (160).
- **Restaurant by Country**:
  - o India dominates with 8.65K restaurants compared to the United States (0.43K).
- **Restaurant by City**:
  - o New Delhi leads with 5.47K restaurants, followed by Gurgaon (1.12K) and Noida (1.08K).

3. Multivariate Analysis

This examines three or more variables simultaneously to uncover more complex patterns.

- **Top Cuisine vs. Aggregate Rating vs. City**:
  - o North Indian cuisine, which is most popular, likely contributes significantly to high aggregate ratings in top-performing cities like New Delhi.
- **Restaurant Locality vs. Cuisine Variety vs. Rating**:
  - o Localities like Rajouri Garden, with the highest number of restaurants, might feature diverse cuisines and better ratings, reflecting the area's customer preferences.
- **Delivery and Online Presence**:
  - o Filters like "Has Online Delivery" and "Has Delivery Now" can further refine data to focus on operational aspects of Zomato's services in different regions.

Insights and Recommendations

1. **Focus on Top-Performing Cities**:
   - o With New Delhi hosting the most restaurants, targeted campaigns or additional partnerships in this city could increase revenue.
2. **Diversify Cuisine Offerings**:
   - o While North Indian cuisine is dominant, promoting underrepresented cuisines (e.g., Street Food, Bakery) could attract a niche customer base.
3. **Enhance Locality-Level Analysis**:
   - o Data from Rajouri Garden and Shahdara suggest an opportunity to replicate their success in other areas with fewer restaurants.
4. **Customer Segmentation**:
   - o By analyzing restaurant count and average cost by city/locality, Zomato can segment its customer base for personalized marketing efforts.
5. **Strengthen Online Delivery**:
   - o Enhancing the "Has Online Delivery" experience could boost customer satisfaction and restaurant visibility.

Actionable Recommendations

1. **Expand Delivery Services**:

   o Use the filters to identify areas where delivery services are limited and target improvements.

2. **Invest in Niche Cuisines**:

   o Promote underrepresented cuisines like Street Food or Bakery in high-demand cities.

3. **Optimize Underperforming Cities**:

   o Replicate the success of New Delhi in cities like Gurgaon or Noida by analyzing local preferences.

4. **Focus on Locality-Level Insights**:

   o Rajouri Garden and Shahdara could serve as models for expanding to similar localities.

5. **Enhance Customer Experience**:

   o Leverage high-rated restaurants to improve customer satisfaction and retention.

9. STORYTELLING/BUSINESS IMPACT

Setting the Scene: A Growing Business in a Competitive Market

Zomato operates in a fiercely competitive food-tech industry where customer satisfaction, delivery efficiency, and a diverse restaurant base are the keys to success. The company has expanded to 15 countries, serving over 140 cities and offering 1,825 cuisines. But as competition intensifies, Zomato must identify growth opportunities and address gaps to maintain its leadership.

The Narrative of Insights: Connecting the Dots

1. **India: Zomato's Heartbeat**

   o **Observation**: With **90% of its restaurants based in India**, Zomato's success hinges on excelling in the domestic market.

   o **Business Impact**: The overwhelming focus on India demands a razor-sharp approach to understand customer preferences, localities, and service quality.

   o **Action**: Zomato should double down on personalization in key cities and underserved markets to maximize its domestic revenue potential.

2. **Diversity is the Secret Sauce**

   o **Observation**: Zomato caters to diverse tastes, with **North Indian cuisine** dominating. However, cuisines like **Street Food** and **Bakery** are underserved despite significant demand.

   o **Business Impact**: Failing to expand offerings for niche cuisines risks alienating food lovers looking for unique dining options.

   o **Action**: Invest in promoting and onboarding restaurants that serve niche or regional cuisines, catering to a broader audience.

3. **City by City: Identifying Growth Hubs**

   o **Observation**: Cities like **New Delhi (5.47K restaurants)** overshadow smaller hubs like Gurgaon and Noida.

   o **Business Impact**: New Delhi's success highlights untapped potential in Tier-1 cities that could grow with better market penetration strategies.

   o **Action**: Use New Delhi as a model to expand services in Gurgaon and Noida, tailoring offerings to meet local demand trends.

4. **Local Insights: The Power of Localities**

   o **Observation**: Localities like **Rajouri Garden** (122 restaurants) and **Shahdara** (99 restaurants) are hotspots of dining activity.

   o **Business Impact**: Concentrated success in certain localities provides a template for replicating similar outcomes in other cities or underperforming areas.

   o **Action**: Analyze successful localities to identify factors (e.g., customer density, demand for cuisines, ratings) and replicate these strategies in new regions.

5. **High Ratings Drive High Returns**

   o **Observation**: Restaurants like **Domino's Pizza** offer **high ratings** while catering to diverse tastes.

   o **Business Impact**: Promoting high-rated restaurants builds customer trust and enhances the brand's reputation.

   o **Action**: Feature high-performing restaurants in marketing campaigns and create loyalty programs to encourage repeat business.

6. **The Delivery Dilemma**

   o **Observation**: A significant portion of restaurants lacks real-time delivery availability, limiting customer convenience.

   o **Business Impact**: Missed opportunities for delivery result in revenue losses and dissatisfied customers.

   o **Action**: Expand delivery infrastructure and onboard more restaurants with instant delivery capabilities, particularly in high-demand cities.

The Business Impact: A Growth Narrative

Zomato is more than a food aggregator; it is a **customer-centric brand** poised to revolutionize food delivery and dining experiences. The insights from this dashboard tell a clear story:

1. **Market Penetration**:

   o Prioritizing untapped cities and localities based on restaurant density and customer demand will grow Zomato's market share.

2. **Service Optimization**:

   o Improving delivery capabilities will enhance customer satisfaction and drive repeat business.

3. **Customer Engagement**:

   o Focusing on popular and niche cuisines alike ensures a diverse customer base, improving brand loyalty.

4. **Revenue Maximization**:

   o Encouraging high-rated restaurants to expand their offerings or delivery options can directly impact revenue growth.

Conclusion: The Zomato Growth Blueprint

By understanding the interconnected dynamics of cuisine trends, locality hotspots, and delivery availability, Zomato can unlock exponential growth. This analysis is a **blueprint for success**, ensuring the company not only meets current customer demands but also anticipates future trends, setting the stage for sustainable dominance in the food-tech industry.