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Swiggy Analytics

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Introduction

Data analytics has revolutionized the food delivery industry, transforming how companies like Swiggy operate and make strategic decisions. By harnessing the power of data, food delivery services can now optimize routes, predict customer preferences, and enhance overall efficiency. This report delves into the analysis of Swiggy's food delivery data using SQL. As one of the leading food delivery platforms, Swiggy handles a vast amount of data daily, offering invaluable insights into consumer behavior, order patterns, and operational efficiency. The objective of this project is to leverage SQL to extract, analyze, and visualize key metrics that drive Swiggy's business decisions. Throughout this report, we will explore Swiggy’s data, applying SQL queries to uncover trends, identify areas for improvement, and provide actionable recommendations to enhance service delivery and customer satisfaction. This analysis not only demonstrates the practical application of SQL in real-world scenarios but also highlights the critical role of data analytics in the food delivery industry.

Data Analytic’s Role in Optimizing Food Delivery Services

Data analytics significantly influences customer satisfaction in food delivery apps by providing insights that enhance service quality,

operational efficiency, and user experience. Firstly, understanding customer preferences is crucial, as big data analytics allows food delivery platforms to analyze vast amounts of customer data, including order history, reviews, and preferences. This analysis helps identify critical factors that influence customer happiness, such as delivery time, order accuracy, and restaurant ratings. For instance, a study highlighted that the integration of customer feedback and predictive modeling techniques can uncover patterns that directly correlate with customer satisfaction levels [1]. Secondly, enhancing service quality is vital for maintaining high customer satisfaction. Research indicates that dimensions of service quality, such as reliability, responsiveness, and empathy, are crucial for customer satisfaction. Big data analytics helps optimize these dimensions by accurately predicting delivery times, ensuring order completeness, and providing timely notifications about order status. A study found that factors like accurate delivery predictions and accessible customer support significantly enhance the user experience in mobile food delivery apps [2]. Thirdly, analyzing user experience through natural language processing (NLP) of user reviews provides valuable insights into user experience. By examining sentiment dimensions and usability factors, platforms can identify areas for improvement. For example, a study demonstrated that sentiment analysis of user comments significantly impacts satisfaction levels, emphasizing the importance of understanding user sentiment in refining app features and services [3]. Finally, big data analytics plays a role in addressing operational challenges faced by food delivery services. By leveraging data from various sources, platforms can enhance their overall performance and service delivery. This includes understanding how delivery partners affect restaurant performance and customer satisfaction, leading to improved collaboration and service offerings [1] [4].

Scope of the Project

The project involves developing a comprehensive database system for Swiggy, an online food ordering and delivery platform. The database encompasses several key tables, including users, restaurants, food items, menus, orders, delivery partners, and order details. Users are identified and their interactions with various restaurants are recorded through orders, which include specifics about the food items ordered, prices, and delivery details. Restaurants offer diverse cuisines and list their food items on the menu, with pricing information. The delivery process is tracked through delivery partners and associated ratings, while detailed information about each order is stored in order details. The database is designed to facilitate a wide range of queries, enabling analysis such as identifying inactive customers, calculating average dish prices, determining the most popular restaurants, tracking monthly sales, examining order specifics for individual customers, identifying customer loyalty, and assessing revenue growth both for Swiggy overall and for individual restaurants. This project aims to support operational efficiency, customer relationship management, and strategic decision-making for Swiggy.

Objectives

Some of the objectives of the analysis were:

- Find customers who have never ordered.
- Average Price per dish.
- Find the top restaurant in terms of the number of orders for June.

- Restaurants with monthly sales greater than 1000.
- Show all orders with order details for a customer with customer ID 1 between the dates 5th May, 2022 and 16th June, 2022.
- Find restaurants with max repeated customers.
- Month over month revenue growth of Swiggy.
- Customers and their favourite food.
- Find the most loyal customers for all restaurants.
- Month-over-month revenue growth of a restaurant.

Analysis of Data

Customers who have never ordered.

```
SELECT user_id, name
FROM users
WHERE user_id NOT IN (
SELECT user_id
 FROM orders
);
```

user_id	name
6	Anupama
7	Rishabh

Key Insights:

- Indentified customers that have never ordered.
- Allows us to reach out to the users so that we can better cater to users like them in the future.

Average Price per dish

```
SELECT r.r_id, r.r_name, ROUND(AVG(m.price), 2)
AS "Average Price"
FROM restaurants r
INNER JOIN menu m ON r.r_id=m.r_id
GROUP BY r.r_id, r.r_name;
```

r_id	r_name	Average Price
1	dominos	316.67
2	kfc	215.00
3	box8	126.67
4	Dosa Plaza	176.67
5	China Town	216.67

Key Insights:

- Dominos is the priciest restaurant of all, meanwhile the box8 is the cheapest one.
- Dominos can contribute more to Swiggy's overall revenue due to high prices.
- Lack of budget-friendly restaurants.

Top restaurant in terms of the number of orders for June

```
SELECT o.r_id, r.r_name, COUNT(o.order_id) as "Number of
Orders", MONTH(o.date) as "Month"
FROM orders o
INNER JOIN restaurants r ON o.r_id=r.r_id
WHERE MONTH(o.date) = 6
GROUP BY o.r_id, MONTH(o.date)
ORDER BY COUNT(o.order_id) desc
LIMIT 1;
```

r_id	r_name	Number of Orders	Month
2	kfc	3	6

Key Insights:

- KFC serviced the most number of orders in June.
- Customers maybe in favor for more medium-budget restaurants.

Restaurants with monthly sales greater than 1000

```
SELECT r.r_name, SUM(o.amount) AS monthly_sales,
EXTRACT(MONTH FROM o.date) AS month, EXTRACT(YEAR
FROM o.date) AS year
FROM orders o
INNER JOIN restaurants r ON o.r_id = r.r_id
GROUP BY r.r_name, EXTRACT(MONTH FROM o.date),
EXTRACT(YEAR FROM o.date)
HAVING monthly_sales > 1000;
```

	r_name	Monthly Sales	Month	Year
▶	kfc	1935	7	2022
	dominos	1100	7	2022
	China Town	1050	7	2022

Key Insights:

- KFC had the most monthly sales among the restaurants that got more than Rs 1000 monthly sales.
- Two out of the 3 restaurants having more than Rs 1000 monthly sales have similar average price per dish

Order details for a customer with customer ID 1 between the dates 5th May, 2022 and 16th June, 2022.

```
SELECT u.user_id, u.name, o.order_id, f.f_name, r.r_name,
o.amount
FROM users u
INNER JOIN orders o ON u.user_id=o.user_id
INNER JOIN order_details od ON o.order_id=od.order_id
INNER JOIN food f ON od.f_id=f.f_id
INNER JOIN restaurants r ON o.r_id=r.r_id
WHERE o.date BETWEEN '2022-05-05' AND '2022-06-16'
AND u.user_id=1
ORDER BY o.order_id asc;
```

user_id	name	order_id	f_name	r_name	amount
1	Nitish	1001	Non-veg Pizza	dominos	550
1	Nitish	1001	Choco Lava cake	dominos	550
1	Nitish	1002	Choco Lava cake	kfc	415
1	Nitish	1002	Chicken Wings	kfc	415
1	Nitish	1003	Choco Lava cake	box8	240
1	Nitish	1003	Rice Meal	box8	240

Key Insights:

- The customer with customer ID 1, named Nitish, ordered from 3 different restaurants between the given dates.
- The total bill for the Dominos order was the highest, meanwhile The total bill for the box8 order was the lowest.

Restaurants with max repeated customers

```
SELECT o.r_id, r.r_name, COUNT(DISTINCT o.user_id) as
"Distinct Customers"
FROM orders o
INNER JOIN restaurants r ON o.r_id=r.r_id
GROUP BY o.r_id
ORDER BY COUNT(DISTINCT o.user_id) desc
LIMIT 1;
```

r_id	r_name	Distinct Customers
1	dominos	4

Key Insights:

- Dominos was the restaurant with the most repeated customers

Month over month revenue growth of Swiggy

```
WITH MonthlyRevenue AS (
   SELECT EXTRACT(YEAR FROM date) AS year,
EXTRACT(MONTH FROM date) AS month, SUM(amount) AS
revenue
   FROM orders
   GROUP BY EXTRACT(YEAR FROM date), EXTRACT(MONTH
FROM date)
),
MonthlyGrowth AS (
   SELECT year, month, revenue,
        LAG(revenue) OVER (ORDER BY year, month) AS
prev_revenue
   FROM MonthlyRevenue
)
SELECT year, month, revenue,
     (revenue - prev_revenue) / prev_revenue * 100 AS
revenue_growth
FROM MonthlyGrowth
WHERE prev_revenue IS NOT NULL;
```

year	month	revenue	revenue_growth
2022	6	3220	32.7835
2022	7	4845	50.4658

Key Insights:

- Revenue of Swiggy was Rs 3220 in the month of June and was Rs 4845 in the month of July.
- Revenue grew by more than 50% in the space of a month.

Customer and their Favourite Food

```
SELECT u.user_id, u.name, f.f_name, COUNT(od.f_id) AS
"Order Count"
FROM users u
JOIN orders o ON u.user_id = o.user_id
JOIN order_details od ON o.order_id = od.order_id
JOIN food f ON od.f_id = f.f_id
GROUP BY u.user_id, u.name, f.f_name
ORDER BY u.user_id, COUNT(od.f_id) desc;
```

user_id	name	Favorite Food	Order Count
1	Nitish	Choco Lava cake	5
3	Vartika	Chicken Wings	3
4	Ankit	Schezwan Noodles	3
5	Neha	Choco Lava cake	5

Key Insights:

- Choco Lava cake is the most favorite food among the customers, with 10 total orders.

The most loyal customers for all restaurants

```
SELECT r.r_name, u.user_id, u.name, COUNT(o.order_id)
AS order_count
FROM orders o
JOIN users u ON o.user_id = u.user_id
JOIN restaurants r ON o.r_id = r.r_id
GROUP BY r.r_name, u.user_id, u.name
ORDER BY r.r_name, order_count DESC;
```

r_id	r_name	user_id	Loyal Customer	Order Count
1	dominos	5	Neha	2
2	kfc	3	Vartika	3
3	box8	1	Nitish	3
4	Dosa Plaza	4	Ankit	3
5	China Town	4	Ankit	2

Key Insights:

- KFC, box8 and Dosa Plaza were the restaurants with the most order counts by a small margin.
- Doesn't show any clear difference in customer preferences.

Month-over-month revenue growth of all restaurant

```
WITH RestaurantMonthlyRevenue AS (
   SELECT r.r_id, r.r_name, EXTRACT(YEAR FROM o.date)
AS year, EXTRACT(MONTH FROM o.date) AS month,
SUM(o.amount) AS revenue
   FROM orders o
   JOIN restaurants r ON o.r_id = r.r_id
   GROUP BY r.r_id, r.r_name, EXTRACT(YEAR FROM
o.date), EXTRACT(MONTH FROM o.date)
),
RestaurantMonthlyGrowth AS (
   SELECT r_id, r_name, year, month, revenue,
        LAG(revenue) OVER (PARTITION BY r_id ORDER
BY year, month) AS prev_revenue
   FROM RestaurantMonthlyRevenue
)
SELECT r_id, r_name, year, month, revenue,
     (revenue - prev_revenue) / prev_revenue * 100 AS
revenue_growth
FROM RestaurantMonthlyGrowth
WHERE prev_revenue IS NOT NULL;
```

r_id	r_name	year	month	revenue	revenue_growth
1	dominos	2022	6	950	-5.0000
1	dominos	2022	7	1100	15.7895
2	kfc	2022	6	990	53.4884
2	kfc	2022	7	1935	95.4545
3	box8	2022	7	460	-4.1667
4	Dosa Plaza	2022	6	400	-48.7179
4	Dosa Plaza	2022	7	300	-25.0000
5	China Town	2022	7	1050	162.5000

Key Insights:

- All the restaurants experienced growth in their revenue.
- KFC achieved the biggest growth in their revenue

Recommendations

Enhance Engagement with Non-Ordering Users:

- Develop and implement targeted marketing campaigns to engage users who have registered but never ordered. Offer incentives such as first-order discounts, personalized offers, and promotional codes to convert these users into active customers.
- Conduct surveys or feedback sessions to understand why these users have not placed orders and address any barriers or concerns they might have.

Optimize Restaurant Partnerships and Menu Offerings:

- The data indicates a lack of budget-friendly restaurants. Partner with more affordable restaurants or encourage existing partners to introduce budget-friendly menu items to cater to price-sensitive customers.
- Given that Dominos, a high-priced restaurant, contributes significantly to revenue, focus on strengthening relationships with such high-value partners. Offer them promotional support to increase their visibility and order volume on the platform.

Promote and Reward Customer Loyalty:

- Implement or enhance loyalty programs to reward frequent customers and encourage repeat orders. This could include exclusive discounts, early access to new menu items, or loyalty points redeemable for future orders.
- Use insights from favorite foods and most loyal customers to tailor personalized offers. For instance, if Choco Lava cake is highly favored, promote it through personalized deals to customers who have shown a preference for similar items.

Support and Scale High-Performing Restaurants:

- Run special promotional campaigns for restaurants with proven customer loyalty and repeated orders, such as Dominos and Box8. Highlight their popular dishes and offer exclusive deals to attract more customers.

Conclusion

This project provided valuable insights into Swiggy's operations, customer preferences, and restaurant dynamics, enabling data-driven decisions to enhance user engagement, optimize offerings, and support high-performing partners. Implementing the recommended actions can drive further growth, improve customer satisfaction, and solidify Swiggy's position in the competitive food delivery market.

References

1 [Vinu Surutha Lakshmi L., Syed Shahid Raza and Praveen Gujjar (2024); AN ANALYTICS APPROACH TO STUDYING THE IMPACT OF ONLINE FOOD DELIVERY PARTNERS ON CUSTOMER SATISFACTION AT RESTAURANTS Int. J. of Adv. Res. (Apr). 40-45] (ISSN 2320-5407).

2 Park E. Computational analysis of user experience and customer satisfaction with mobile food delivery services: Evidence from big data approaches. Math Biosci Eng. 2022 Jul 12;19(10):9938-9947. doi: 10.3934/mbe.2022463. PMID: 36031976.