

Restaurant Case Study



SQL DATA ANALYTICS PROJECT

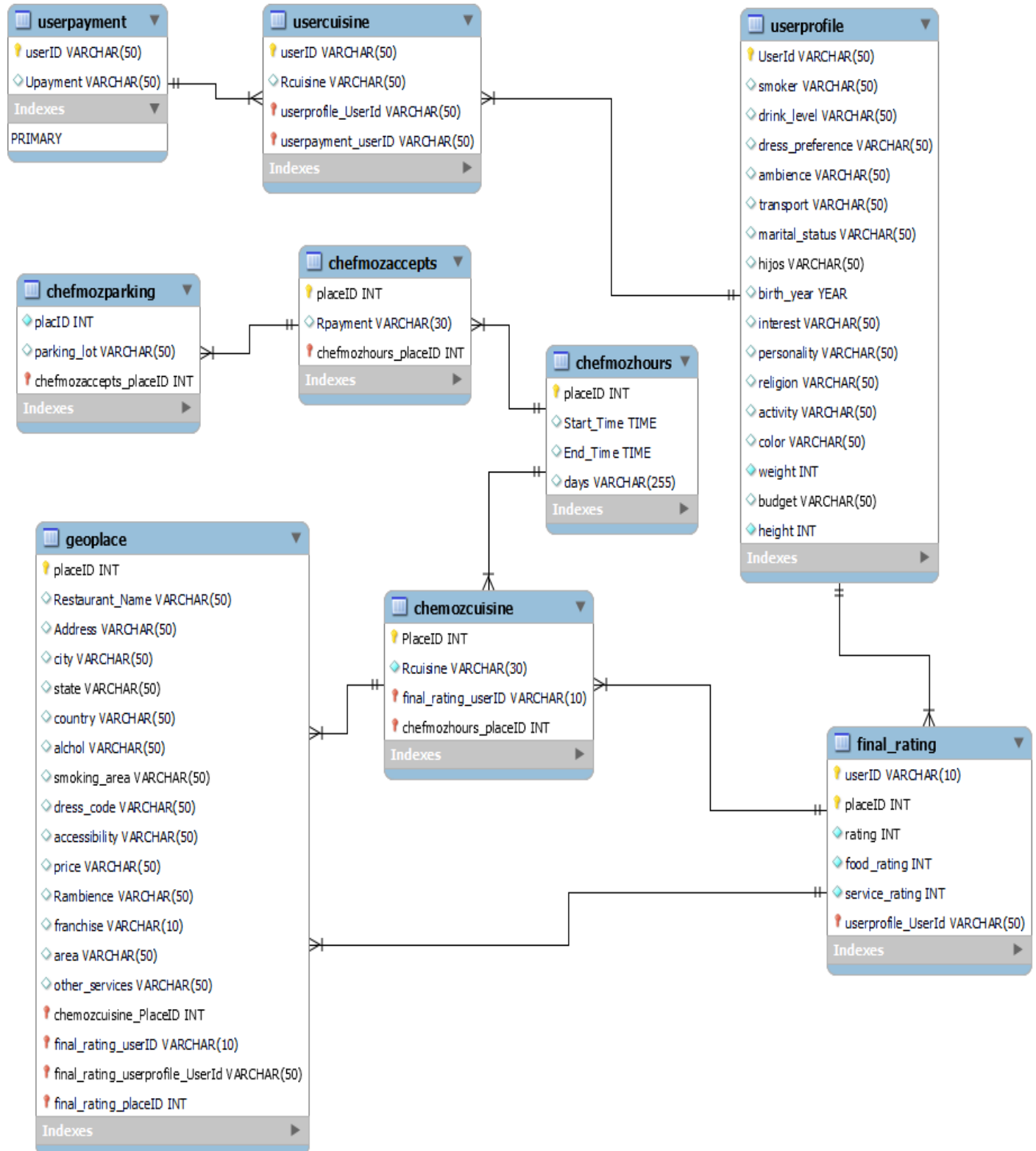
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Introduction

Introduction to SQL Case Study - Restaurant Data Analysis:

This SQL case study explores a dataset related to restaurants, users, and their interactions, providing an opportunity to apply various SQL techniques for data analysis. The dataset comprises tables that include information about user profiles, restaurant ratings, operational hours, and restaurant details. Through SQL queries, we can uncover insights such as popular restaurants, user preferences, busiest days of the week, and more. This case study demonstrates the power of SQL for extracting valuable information and making data-driven decisions in the context of the restaurant industry.

Enhanced Entity-Relationship (EER) diagram



Tables

Userprofile : This table contains user-related information, such as user IDs, smoking preferences, drinking habits, dress codes, and more.

final_rating: This table stores ratings provided by users for different restaurants, including restaurant IDs, user IDs, and ratings for food and service.

geoplace: It includes detailed information about restaurants, including restaurant names, addresses, locations, operating hours, and various attributes like dress code, accessibility, and more.

chefmozhours: This table provides information about the operating hours of restaurants, including their place IDs, start times, end times, and the days they are open.

chefmozaccepts: This table lists the accepted payment methods by restaurants, containing place IDs and payment information.

chemozcuisine: It contains information about the cuisines offered by restaurants, including place IDs and cuisine types.

chefmozparking: This table details the parking facilities available at restaurants, including place IDs and parking information.

/* Q1) Finding Top 10 Restaurant name their respective State & Total Customers visiting that Restaurant Based on Rating. */

```

SELECT
    g.Restaurant_Name AS favorite_restaurant,
    g.state,
    count(f.userid) as total_customers
FROM
    userprofile AS u
JOIN
    final_rating AS f ON u.UserId = f.userID
JOIN
    geoplace AS g ON f.placeID = g.placeID
WHERE
    f.rating = (
        SELECT MAX(rating)
        FROM final_rating AS fr
        WHERE fr.userID = f.userID
    )
GROUP BY f.userid
ORDER BY
    count(f.userid)
    DESC limit 10;

```

	favorite_restaurant	state	total_customers
►	Restaurante Marisco Sam	SLP	14
	Mariscos El Pescador	SLP	13
	Restaurante El Cielo Potosino	SLP	12
	Restaurante El Chivero S.A. de C.V.	SLP	12
	shi ro ie	Not specified	12
	la parroquia	san luis potosi	11
	VIPS	San Luis Potosi	11
	Preambulo Wifi Zone Cafe	SLP	11
	La Posada del Virrey	San Luis Potosi	11
	Restaurante la Gran Via	SLP	10


```
/* Q2) Find the faviourite cuisines of customers in Restaurants? */
```

```
SELECT
    rcuisine,
    count(userID) As total_Customers
FROM
    usercuisine
GROUP BY
    rcuisine
ORDER BY
    total_customers
DESC
LIMIT 10;
```

	rcuisine	total_Customers
►	Mexican	97
	American	11
	Pizzeria	9
	Cafeteria	9
	Family	8
	Cafe-Coffee_Shop	8
	Italian	7
	Japanese	7
	Chinese	6
	Latin_American	6

```
/* Q3) Find the Top 5 City with most number of restaurants? */
```

```
SELECT
    city,
    COUNT(DISTINCT placeID) AS RestaurantCount
FROM
    geoplace
WHERE
    city IS NOT NULL
GROUP BY
    city
ORDER BY
    RestaurantCount DESC
LIMIT 5;
```

	city	RestaurantCount
►	San Luis Potosi	69
	Not Given	18
	Cuernavaca	15
	victoria	10
	Jiutepec	4

```

/* Q4) List restaurant with maximum wearing dress code */
WITH DressCodeCounts AS (
    SELECT
        g.Restaurant_Name,
        g.dress_code,
        COUNT(DISTINCT u.UserId) AS UserCount
    FROM
        userprofile AS u
    JOIN
        final_rating AS f ON u.UserId = f.UserId
    JOIN
        geoplace AS g ON f.placeID = g.placeID
    WHERE
        g.dress_code IS NOT NULL
    GROUP BY
        g.Restaurant_Name, g.dress_code)
SELECT
    d.Restaurant_Name,
    d.dress_code,
    MAX(UserCount) AS MaxUserCount
FROM
    DressCodeCounts AS d
WHERE
    d.UserCount = (SELECT MAX(UserCount) FROM DressCodeCounts WHERE dress_code = d.dress_code)
GROUP BY d.Restaurant Name, d.dress code;

```

	Restaurant_Name	dress_code	MaxUserCount
▶	Gorditas Doa Gloria	casual	23
	Restaurant Las Mananitas	formal	8
	Tortas Locas Hipocampo	informal	35

/* Q 5) calculate average rating service, food rating of top 20 restaurants along with restaurant name (here rating are 0,1,2 only)*/

```

SELECT
    (ge.Restaurant_Name) AS Restaurant_Name,
    avg(fr.rating) as avg_rating
FROM
    Geoplace ge
JOIN
    final_rating fr
ON
    ge.placeID=fr.placeID
GROUP BY
    Restaurant_Name
ORDER BY
    avg_rating
DESC limit 20;

```

	Restaurant_Name	avg_rating
▶	Restaurant Las Mananitas	2.0000
	emilianos	2.0000
	Michiko Restaurant Japones	2.0000
	cafe punta del cielo	1.8333
	Log Yin	1.7500
	Giovannis	1.7500
	Restaurante la Parroquia Potosina	1.7500
	la Cochinita Pibil Restaurante Yucateco	1.7143
	Mariscos El Pescador	1.6923
	El Rincon de San Francisco	1.6667
	tacos los volcanes	1.6667
	Restaurant Bar Hacienda los Martinez	1.6667
	Rincon del Bife	1.6667
	Kiku Cuernavaca	1.6000
	Mariscos Tia Licha	1.6000
	Preambulo Wifi Zone Cafe	1.5833
	Sanborns Casa Piedra	1.5556
	La Virreina	1.5333
	El Oceano Dorado	1.5000
	Restaurante Guerra	1.5000

⦿ /* Q6) Identify the restaurants that have the same cuisine as "Mexican" and also offer "alcohol" service. */

```
SELECT
    ge.restaurant_Name
FROM
    geoplace ge
JOIN
    chemozcuisine ch ON ge.placeID=ch.placeID
WHERE ch.Rcuisine = 'Mexican'
AND ge.alchol <> 'No_Alcohol_Served';
```

	restaurant_Name
•	El Rincón 1/2n de San Francisco
	el pueblito
	El Oceano Dorado
	Gordas de morales
	vips
	El cotorreo
	Restaurant Orizatlan
	La Virreina

/* Q7) Find the most common method of payment used in each restaurant */

```

SELECT
    up.Upayment,ge.restaurant_Name,
    count(up.userid) as Total_customer
FROM
    userpayment up
JOIN
    final_rating fr ON    up.userId=fr.userid
JOIN
    geoplac ge ON fr.placeID=ge.placeID
GROUP BY
    up.Upayment,ge.restaurant_Name
ORDER BY
    Total_customer
DESC LIMIT 20;

```

	Upayment	restaurant_Name	Total_customer
►	cash	Tortas Locas Hipocampo	35
	cash	puesto de tacos	30
	cash	Cafeteria y Restaurant El Pacifico	26
	cash	La Cantina Restaurante	25
	cash	Vips	23
	cash	Gorditas Doa Gloria	23
	cash	Restaurant la Chalita	22
	cash	Restaurante Marisco Sam	21
	cash	Restaurante El Cielo Potosino	21
	cash	Restaurant Oriental Express	19
	cash	La Posada del Virrey	18
	cash	Restaurante Tiberius	17
	cash	crudalia	17
	cash	Koye Sushi	16
	cash	El Rincon de San Francisco	15
	cash	Restaurante El Chivero S.A. de ...	15
	cash	Cafe Chaires	15
	cash	Luna Cafe	15
	cash	El Herradero Restaurante and Bar	14
	cash	Unicols Pizza	14

/* Q8)Find the restaurants that open earlier on sunday and closed late on sunday. */

```
SELECT
    ge.restaurant_Name,
    MIN(Start_Time) as Restaurant_Opening_Time,
    MAX(End_Time) as Restaurant_Closing_Time
FROM
    chefmozhours ch
JOIN geoplace ge ON ch.placeID=ge.placeID
where days LIKE '%Sun%';
```

	restaurant_Name	Restaurant_Opening_Time	Restaurant_Closing_Time
▶	Paniroles	01:00:00	12:00:00

```
/* Q9) Find the marital_status,profession,budget of customers visiting top 20 resturants. */
```

```

SELECT
    ge.restaurant_Name,
    up.userID,
    up.marital_status,
    up.activity,up.budget,
    count(up.userID) as Total_customer
FROM
    userprofile up
JOIN
    final_rating fr ON up.userID = fr.userId
JOIN
    geoplace ge ON fr.placeID= ge.placeID
GROUP BY ge.restaurant_Name
ORDER BY total_customer DESC
LIMIT 20;

```

restaurant_Name	userID	marital_status	activity	budget	Total_customer
Tortas Locas Hipocampo	U1001	single	student	medium	35
puesto de tacos	U1001	single	student	medium	31
Cafeteria y Restaurant El Pacifico	U1004	single	professional	medium	27
La Cantina Restaurante	U1002	single	student	low	25
Vips	U1012	single	student	medium	24
Gorditas Doa Gloria	U1009	single	student	medium	23
Restaurant la Chalita	U1007	single	student	low	22
Restaurante Marisco Sam	U1004	single	professional	medium	21
Restaurante El Cielo Potosino	U1002	single	student	low	21
Restaurant Oriental Express	U1005	single	student	medium	19
La Posada del Virrey	U1002	single	student	low	18
Restaurante Tiberius	U1007	single	student	low	17
crudalia	U1002	single	student	low	17
Restaurante El Chivero S.A. de ...	U1003	single	student	low	16
Luna Cafe	U1002	single	student	low	16
Koye Sushi	U1003	single	student	low	16
El Rincon de San Francisco	U1001	single	student	medium	15
Cafe Chaires	U1006	single	student	medium	15
El Herradero Restaurante and Bar	U1005	single	student	medium	15
La Virreina	U1004	single	professional	medium	14


```
/* Q10) Explore the Relationship Between Customer Visits and Purchase Price: */
```

```
SELECT
    ge.price,
    count(up.userID) as total_customer
FROM
    geoplace ge
JOIN
    final_rating fr ON ge.placeID=fr.placeID
JOIN
    userprofile up ON fr.userID=up.userID
GROUP BY
    ge.price
ORDER BY
    total_customer DESC
LIMIT 20;
```

	price	total_customer
▶	medium	560
	low	343
	high	222


```
/* Q11) Find Top 10 cuisine based on food_rating? (here rating are 0,1,2 only) */
```

```
SELECT
    ch.Rcuisine ,
    avg(fr.food_rating) as Average_rating
FROM
    chemozcuisine ch
JOIN
    final_rating fr ON ch.placeID=fr.placeID
GROUP BY
    ch.Rcuisine
ORDER BY
    Average_rating
DESC LIMIT 10;
```

	Rcuisine	Average_rating
➤	Armenian	2.0000
	Mediterranean	1.7500
	Family	1.5714
	International	1.5676
	Japanese	1.4483
	Bakery	1.4000
	Vietnamese	1.3333
	Cafe-Coffee_Shop	1.3333
	Mexican	1.2815
	Chinese	1.1951

/* Q12) Find the top 3 users who have rated the most restaurants and list the number of restaurants they've rated.*/

```
WITH rankedUser AS (  
    SELECT  
        userID,  
        COUNT(*) AS num_ratings,  
        RANK() OVER(ORDER BY COUNT(*) DESC) AS user_rank  
    FROM  
        final_rating fr  
    GROUP BY  
        userID  
)  
SELECT  
    userID,  
    num_ratings  
FROM rankedUser  
WHERE  
    user_rank <=3;
```

	userID	num_ratings
▶	U1106	18
	U1061	18
	U1134	16

⊖ /* Q13) Determine the users who have a rating pattern where their food ratings are consistently higher than their service ratings. */

```
SELECT f.userID as userID,  
       AVG(f.food_rating) AS AVG_food_rating,  
       AVG(f.service_rating) AS AVG_service_rating  
FROM  
       final_rating AS f  
GROUP BY  
       f.userID  
HAVING  
       AVG(f.food_rating) > AVG(f.service_rating);
```

userID	AVG_food_rating	AVG_service_rating
U1077	1.8	1.6
U1103	1.5	1.375
U1107	2	1.6667
U1044	1.6	1.4
U1070	1.3333	0.6667
U1123	1.75	1
U1021	2	1.3333
U1026	1.4	1
U1083	1.6667	1.5556
U1108	1.6	1.2
U1093	1.875	1.5
U1066	1.6	1.2
U1100	1.5	1.1667
U1133	1.4444	1
U1063	1.4	1.2
U1020	1.75	1
U1053	1.5385	1.2308
U1106	1.1111	0.8889
U1126	1	0.9
U1124	0.9	0.8
U1076	1.6	1.4
U1094	0.75	0.125
U1075	1.3333	0.9167
U1007	1.1111	0.6667

U1024	1.3333	0.8
U1005	1.4444	1
U1004	1.875	1.75
U1037	1	0.8182
U1036	1.8333	1.75
U1114	0.2727	0.1818
U1069	0.2222	0
U1113	1.375	0.5
U1104	1.3333	1.1667
U1079	1.75	1.25
U1045	1.4	1.3
U1009	1.2727	1.0909
U1016	2	1.6923
U1095	1.8	1.7
U1099	1.1818	1.0909
U1008	1.2222	0.8889
U1040	1.5	1.25
U1110	2	1.75
U1042	2	1.2
U1013	1.5	0.7
U1054	1.7273	1.2727
U1111	0.9091	0.6364
U1032	1	0.3
U1048	1.5714	1.2857
U1085	1.6	1.5

U1102	2	0.8
U1098	1.5	1.0833
U1046	1.4444	1.3333
U1138	2	1.3333
U1033	1	0.9091
U1003	1.6923	1.4615
U1029	0.9	0.7
U1061	1.8333	1.6667
U1041	1.8333	1.5
U1059	1.3	1.2
U1057	0.5455	0.4545
U1097	1.2308	0.9231
U1131	1.6667	1.1667
U1058	1.5	1.2
U1002	1.4	1
U1096	1.7273	1.5455
U1010	1.125	0.875
U1028	1.1429	1
U1050	1	0.1429
U1087	1.875	0.875
U1130	0.5	0.25
U1043	1.2	1
U1011	1.3333	0.6667

/* Q14) Find the % share of Top 10 restaurant in terms of visiting customers. */

```
WITH RestaurantUserCount AS (
    SELECT
        g.restaurant_Name,
        COUNT( DISTINCT(f.userID)) as usercount
    FROM
        final_rating f
    JOIN
        geoplace g ON f.placeID=g.placeID
    GROUP BY restaurant_Name
)
SELECT r.restaurant_Name,
       (r.UserCount / SUM(r.UserCount) OVER()) *100 AS PercentageShare
FROM RestaurantUserCount AS r
ORDER BY Percentageshare DESC
LIMIT 10;
```

	Restaurant_Name	CustomerCount	PercentageShare
►	Tortas Locas Hipocampo	36	3.1142
	puesto de tacos	32	2.7682
	Cafeteria y Restaurant El Pacifico	28	2.4221
	Gorditas Doa Gloria	25	2.1626
	La Cantina Restaurante	25	2.1626
	Restaurant la Chalita	24	2.0761
	vips	24	2.0761
	Restaurante Marisco Sam	22	1.9031
	Restaurante El Cielo Potosino	21	1.8166
	Restaurant Oriental Express	20	1.7301

/* Q15) Determine the busiest day of the week for each restaurant based on the number of user visits.*/

```
WITH RestaurantVisits AS (  
    SELECT  
        f.placeID,  
        h.days,  
        COUNT(DISTINCT f.userID) AS UserVisits,  
        RANK() OVER (PARTITION BY f.placeID ORDER BY COUNT(DISTINCT f.userID) DESC) AS VisitRank  
    FROM  
        final_rating AS f  
    JOIN  
        chefmozhours AS h ON f.placeID = h.placeID  
    GROUP BY  
        f.placeID, h.days)  
SELECT  
    rv.placeID,  
    g.Restaurant_Name,  
    rv.days AS Busiest_Day,  
    rv.UserVisits AS UserVisits_Count  
FROM  
    RestaurantVisits AS rv  
JOIN  
    geoplace AS g ON rv.placeID = g.placeID  
WHERE  
    rv.VisitRank = 1  
ORDER BY rv.UserVisits DESC ;
```

placeID	Restaurant_Name	Busiest_Day	UserVisits_Count
135085	Tortas Locas Hipocampo	Mon;Tue;Wed;Thu;Fri;	36
135085	Tortas Locas Hipocampo	Sat;	36
135085	Tortas Locas Hipocampo	Sun;	36
132825	puesto de tacos	Mon;Tue;Wed;Thu;Fri;	32
132825	puesto de tacos	Sat;	32
132825	puesto de tacos	Sun;	32
135032	Cafeteria y Restaurant El Pacifico	Sat;	28
135032	Cafeteria y Restaurant El Pacifico	Sun;	28
135032	Cafeteria y Restaurant El Pacifico	Mon;Tue;Wed;Thu;Fri;	28
135052	La Cantina Restaurante	Mon;Tue;Wed;Thu;Fri;	25
132834	Gorditas Doa Gloria	Mon;Tue;Wed;Thu;Fri;	25
135052	La Cantina Restaurante	Sat;	25
135052	La Cantina Restaurante	Sun;	25
132834	Gorditas Doa Gloria	Sun;	25

132834	Gorditas Doa Gloria	Sat;	25
135038	Restaurant la Chalita	Mon;Tue;Wed;Thu;Fri;	24
135038	Restaurant la Chalita	Sat;	24
135038	Restaurant la Chalita	Sun;	24
135060	Restaurante Marisco Sam	Sun;	22
135060	Restaurante Marisco Sam	Sat;	22
135060	Restaurante Marisco Sam	Mon;Tue;Wed;Thu;Fri;	22
135062	Restaurante El Cielo Potosino	Mon;Tue;Wed;Thu;Fri;	21
135062	Restaurante El Cielo Potosino	Sun;	21
135062	Restaurante El Cielo Potosino	Sat;	21
135042	Restaurant Oriental Express	Sat;	20
135042	Restaurant Oriental Express	Mon;Tue;Wed;Thu;Fri;	20
135042	Restaurant Oriental Express	Sun;	20
135058	Restaurante Tiberius	Sun;	18

```

/* Q16) Most Customer preference based on parking lot */

SELECT cp.parking_lot as Customer_parking,
       count(distinct up.userID) As Total_customers
FROM   chefmozparking AS cp
JOIN   final_rating AS fr ON cp.placID=fr.placeID
JOIN   userprofile AS up ON fr.userID=up.userID
GROUP BY
       cp.parking_lot
ORDER BY
       Total_customers Desc;

```

	Customer_parking	Total_customers
►	none	133
	yes	122
	public	98
	valet parking	29

Recommendations:

Busiest Day Analysis:

The analysis of the busiest day for each restaurant can provide valuable insights into peak customer traffic. Restaurants can optimize staffing, promotions, and operational strategies based on these patterns.

Top Restaurants by Customer Visits:

Identifying the top restaurants based on customer visits allows for strategic marketing and resource allocation. It helps in understanding customer preferences and the popularity of specific establishments.

Dress Code Impact:

Analyzing the dress code preferences of customers in relation to restaurant popularity can guide establishments in refining their dress code policies. This information can be crucial for creating a comfortable environment for customers.

Payment Methods and User Preferences:

Understanding the most popular payment methods among users provides insights into user preferences and can guide restaurants in optimizing their payment infrastructure.

Consistent Operating Hours:

Identifying restaurants with consistent operating hours on weekdays can assist in streamlining scheduling, staffing, and resource allocation. It ensures better operational efficiency.

User Rating Patterns:

Recognizing patterns where users consistently rate food higher than service (or vice versa) can guide restaurants in enhancing their strengths and addressing weaknesses in service areas.

Restaurant-Customer Interaction Analysis:

Calculating the percentage share of the top restaurants in terms of visiting customers allows for a deep understanding of customer preferences. Restaurants can leverage this information for marketing campaigns and customer engagement strategies.

Cuisine and User Preferences:

Analyzing the popularity of different cuisines among users provides insights into culinary trends. This information can guide menu planning and promotional activities.

Parking Facilities:

Understanding the availability and popularity of parking facilities at restaurants is essential for providing a convenient experience to customers who travel by car.

Thank You