**Objective:** Optimize Restaurant Performance and Customer Satisfaction through Data-Driven Insights

**Objective Explanation:** This project aims to leverage comprehensive data analysis of restaurant operations to enhance performance and elevate customer satisfaction across various locations. By analyzing key metrics such as cuisine popularity, revenue generation, service quality, reservation trends, pricing strategies, and more, the objective is to identify opportunities for improvement and strategic decision-making.

**Key Focus Areas:**

1. **Cuisine Optimization:** Identify and promote cuisines with high revenue potential and customer demand.
2. **Service Excellence:** Enhance service quality based on location-specific insights to exceed customer expectations.
3. **Marketing Efficiency:** Optimize marketing budgets and strategies to maximize ROI, focusing on high-impact locations.
4. **Operational Efficiency:** Improve operational efficiencies such as parking availability, weekend reservations, and average meal prices to enhance customer experience and profitability.
5. **Data-Driven Decision Making:** Enable informed decision-making through continuous analysis and reporting, ensuring alignment with business goals and customer preferences.

**Expected Outcomes:**

* Improved revenue generation through targeted cuisine and pricing strategies.
* Enhanced customer satisfaction and loyalty by addressing service quality and operational challenges.
* Optimized marketing efforts leading to increased visibility and customer engagement.
* Sustainable growth and competitive advantage in the restaurant industry.

By setting this objective, the project aims to transform restaurant operations into a data-driven model that not only meets but exceeds customer expectations, driving sustainable growth and profitability across all locations.

#------featured engineering-----------

ALTER TABLE restaurant

ADD COLUMN revenue\_in\_million DECIMAL(10, 2);

SET SQL\_SAFE\_UPDATES = 0;

UPDATE restaurant

SET revenue\_in\_million = revenue / 1000000.0;

select \* from restaurant;

1)#.............find the occurance of cuisine------------

#--French 1420

#American 1401

#Italian 1399

#Mexican 1381

#Indian 1359

#Japanese 1329

2)SELECT

cuisine,

COUNT(\*) AS cuisine\_count

FROM

restaurant

GROUP BY

cuisine

ORDER BY

cuisine\_count DESC;

3)#------find the location mostly used french cuisin.........

#Rural 493

#Downtown 477

#Suburban 450

SELECT

location,

COUNT(\*) AS french\_cuisine\_count

FROM

restaurant

WHERE

cuisine = 'french'

GROUP BY

location

ORDER BY

french\_cuisine\_count DESC;

4)#which cuisine is highest and lowest in each location

#Italian Rural 460

#American Rural 439

#Mexican Rural 437

#Indian Rural 426

#Indian Suburban 487

#American Suburban 473

#Mexican Suburban 465

#Italian Suburban 464

#French Suburban 450

#Japanese Suburban 421

select Cuisine,location,count(\*) as restaurant\_count

from restaurant

group by Cuisine,location

order by location,restaurant\_count desc;

5)#-------which cuisine generate more revenue and least---

#Japanese 1247034112.26

#French 1165098106.04

#Italian 968317290.39

#American 791128674.67

#Indian 675267576.01

#Mexican 590185954.12

6)SELECT

cuisine,

SUM(revenue) AS total\_revenue

FROM

restaurant

GROUP BY

cuisine

ORDER BY

total\_revenue DESC;

7)#-----in which location mostly japanese cuisine?

#Rural 479

#Downtown 429

#Suburban 421

SELECT

location,

COUNT(\*) AS japanese\_cuisine\_count

FROM

restaurant

WHERE

cuisine = 'Japanese'

GROUP BY

location

ORDER BY

japanese\_cuisine\_count DESC;

8)#---find out the prices if cuisine

#Japanese 76.00

#French 66.00

#Italian 55.99

#American 45.98

#Indian 41.00

#Mexican 35.99

SELECT

cuisine,

MAX(average\_meal\_price) AS highest\_average\_price

FROM

restaurant

GROUP BY

cuisine

ORDER BY

highest\_average\_price DESC;

9)#-------find total no of restaurants in each location

#Downtown 2795

#Suburban 2760

#Rural 2734

SELECT

location,

COUNT(\*) AS total\_restaurants

FROM

restaurant

GROUP BY

location

ORDER BY

total\_restaurants DESC;

10)#find out which cuisine have max price and its rating

#from this we can optimize rating is not based on price or ambience\_score

SELECT

cuisine,

MAX(rating) AS highest\_rating,

average\_meal\_price,

Ambience\_Score,Chef\_Experience\_Years

FROM

restaurant

WHERE

rating = (SELECT MAX(rating) FROM restaurant)

GROUP BY

cuisine, average\_meal\_price, Ambience\_Score,Chef\_Experience\_Years;

11)#find out the location where marketing capacity is high and low

#in down towm marketing budget is more and here revnue is also high

#least marketing budget is at rural and here the revenue is low

SELECT

location,

MAX(marketing\_budget) AS highest\_marketing\_budget

FROM

restaurant

GROUP BY

location

ORDER BY

highest\_marketing\_budget DESC;

select \* from restaurant;

#french having highest social media followers and french is most occuring cuisine

12)SELECT

cuisine,

MAX(social\_media\_followers) AS max\_social\_media\_followers

FROM

restaurant

GROUP BY

cuisine

ORDER BY

max\_social\_media\_followers DESC;

13)#which hotel having highest service quality score and which location

#----in down town and rural the service quality is maximum restaurants are higher than suburban

SELECT

location,

COUNT(\*) AS count\_of\_restaurant,

MAX(service\_quality\_score)

FROM

restaurant

WHERE

service\_quality\_score = (SELECT MAX(service\_quality\_score) FROM restaurant)

GROUP BY

location;

14)#--------maximum weekend reservation is high at downtown and minimum is at rural

SELECT

location,

MAX(weekend\_reservations) AS max\_weekend\_reservations

FROM

restaurant

GROUP BY

location

ORDER BY

max\_weekend\_reservations DESC;

15)#parking is high at down town and noof restaurant is high at down town and parking depend upon revenue

#location count\_of\_restaurant count\_with \_parking

#Downtown 2795 1413

#Suburban 2760 1369

#Rural 2734 1365

SELECT

location,

COUNT(\*) AS count\_of\_restaurants,

SUM(CASE WHEN parking\_availability = 'Yes' THEN 1 ELSE 0 END) AS count\_with\_parking

FROM

restaurant

GROUP BY

location

ORDER BY

count\_with\_parking DESC;

16)a#------average meal price depend on location

#location average\_meal\_price

#Suburban 47.374467

#Downtown 47.656708

#Rural 48.609689

SELECT

location,

AVG(average\_meal\_price) AS avg\_meal\_price

FROM

restaurant

GROUP BY

location

ORDER BY

avg\_meal\_price;

select \* from restaurant;

1. **Occurrence of Cuisines**:
   * French: 1420
   * American: 1401
   * Italian: 1399
   * Mexican: 1381
   * Indian: 1359
   * Japanese: 1329
2. **Count of Restaurants in Each Location with French Cuisine**:
   * Rural: 493
   * Downtown: 477
   * Suburban: 450
3. **Highest and Lowest Cuisine Counts in Each Location**:
   * See the detailed breakdown for Italian, American, Mexican, Indian, French, and Japanese across Rural and Suburban areas.
4. **Cuisine-wise Total Revenue**:
   * Japanese: $1,247,034,112.26
   * French: $1,165,098,106.04
   * Italian: $968,317,290.39
   * American: $791,128,674.67
   * Indian: $675,267,576.01
   * Mexican: $590,185,954.12
5. **Locations with Most Japanese Cuisine**:
   * Rural: 479
   * Downtown: 429
   * Suburban: 421
6. **Cuisine with Highest Average Meal Price**:
   * Japanese: $76.00
   * French: $66.00
   * Italian: $55.99
   * American: $45.98
   * Indian: $41.00
   * Mexican: $35.99
7. **Total Restaurants in Each Location**:
   * Downtown: 2795
   * Suburban: 2760
   * Rural: 2734
8. **Cuisine with Maximum Price and Rating**:
   * See the detailed query output for cuisine, highest rating, average meal price, ambience score, and chef experience years.
9. **Locations with High and Low Marketing Budgets**:
   * Downtown has the highest marketing budget.
   * Rural areas have the lowest marketing budgets.
10. **French Cuisine with Highest Social Media Followers**:
    * French cuisine has the highest social media followers.
11. **Restaurant with Highest Service Quality Score**:
    * Downtown and Rural areas have restaurants with the highest service quality scores.
12. **Locations with Highest Weekend Reservations**:
    * Downtown has the highest weekend reservations.
    * Rural areas have the lowest weekend reservations.
13. **Parking Availability by Location**:
    * Downtown has the highest count of restaurants with parking availability.
14. **Average Meal Price by Location**:
    * Suburban locations have a slightly lower average meal price compared to Downtown and Rural areas.