Restaurant Orders Database Analysis

Using MYSQL

Project Objectives

To analyze the Restaurant Orders database using SQL to provide insights from the data and answer business questions.

Dataset Overview

Restaurant Orders Dataset Includes two tables:

- **Menu_items table Contains:**

  menu_item_id, item_name, category, price

- **Order_details table Contains:**

  order_details_id, order_id, order_date, order_time, item_id

Data Exploration

Menu_items table:

```
USE restaurant_db ;
SELECT * FROM restaurant_db.menu_items
LIMIT 25;
```

menu_item_id	item_name	category	price
101	Hamburger	American	12.95
102	Cheeseburger	American	13.95
103	Hot Dog	American	9.00
104	Veggie Burger	American	10.50
105	Mac & Cheese	American	7.00
106	French Fries	American	7.00
107	Orange Chicken	Asian	16.50
108	Tofu Pad Thai	Asian	14.50
109	Korean Beef Bowl	Asian	17.95
110	Pork Ramen	Asian	17.95
111	California Roll	Asian	11.95
112	Salmon Roll	Asian	14.95
113	Edamame	Asian	5.00
114	Potstickers	Asian	9.00
115	Chicken Tacos	Mexican	11.95
116	Steak Tacos	Mexican	13.95
117	Chicken Burrito	Mexican	12.95
118	Steak Burrito	Mexican	14.95
119	Chicken Torta	Mexican	11.95
120	Steak Torta	Mexican	13.95
121	Cheese Quesadill...	Mexican	10.50
122	Chips & Salsa	Mexican	7.00
123	Chips & Guacam...	Mexican	9.00
124	Spaghetti	Italian	14.50
125	Spaghetti & Meat...	Italian	17.95

Data Exploration

Order_details table:

```
USE restaurant_db ;
SELECT * FROM restaurant_db.order_details
LIMIT 25;
```

order_details_id	order_id	order_date	order_time	item_id
1	1	2023-01-01	11:38:36	109
2	2	2023-01-01	11:57:40	108
3	2	2023-01-01	11:57:40	124
4	2	2023-01-01	11:57:40	117
5	2	2023-01-01	11:57:40	129
6	2	2023-01-01	11:57:40	106
7	3	2023-01-01	12:12:28	117
8	3	2023-01-01	12:12:28	119
9	4	2023-01-01	12:16:31	117
10	5	2023-01-01	12:21:30	117
11	6	2023-01-01	12:29:36	101
12	6	2023-01-01	12:29:36	114
13	7	2023-01-01	12:50:37	123
14	8	2023-01-01	12:51:37	123
15	9	2023-01-01	12:52:01	108
16	9	2023-01-01	12:52:01	126
17	9	2023-01-01	12:52:01	110
18	9	2023-01-01	12:52:01	117
19	9	2023-01-01	12:52:01	117
20	9	2023-01-01	12:52:01	129
21	9	2023-01-01	12:52:01	122
22	9	2023-01-01	12:52:01	130
23	9	2023-01-01	12:52:01	132
24	10	2023-01-01	13:00:15	129
25	10	2023-01-01	13:00:15	105

Answering Key Questions

```sql
-- 1. Find the number of items on the menu.
SELECT COUNT(*) FROM menu_items;
```

	COUNT(*)
▶	32

Answering Key Questions

```
-- 2. What are the least and most expensive items on the menu?
SELECT * FROM menu_items
ORDER BY price;
```

menu_item_id	item_name	category	price
113	Edamame	Asian	5.00
105	Mac & Cheese	American	7.00
106	French Fries	American	7.00
122	Chips & Salsa	Mexican	7.00
103	Hot Dog	American	9.00
114	Potstickers	Asian	9.00
123	Chips & Guacamole	Mexican	9.00
104	Veggie Burger	American	10.50
121	Cheese Quesadillas	Mexican	10.50
111	California Roll	Asian	11.95
115	Chicken Tacos	Mexican	11.95
119	Chicken Torta	Mexican	11.95
101	Hamburger	American	12.95
117	Chicken Burrito	Mexican	12.95
102	Cheeseburger	American	13.95
116	Steak Tacos	Mexican	13.95
120	Steak Torta	Mexican	13.95
108	Tofu Pad Thai	Asian	14.50
124	Spaghetti	Italian	14.50
126	Fettuccine Alfredo	Italian	14.50
112	Salmon Roll	Asian	14.95
118	Steak Burrito	Mexican	14.95
128	Cheese Lasagna	Italian	15.50
129	Mushroom Ravioli	Italian	15.50
107	Orange Chicken	Asian	16.50
132	Eggplant Parmesan	Italian	16.95
109	Korean Beef Bowl	Asian	17.95
110	Pork Ramen	Asian	17.95
125	Spaghetti & Meatb...	Italian	17.95

Answering Key Questions

```sql
-- 3. How Many Italian dishes are on the menu?
SELECT COUNT(*) AS italian_dishes_count FROM menu_items
WHERE category = 'Italian';
```

	italian_dishes_count
▶	9

Answering Key Questions

```sql
-- 4. What are the least and most expensive Italian dishes are on the menu?
SELECT * FROM menu_items
WHERE category = 'Italian'
ORDER BY price;
```

menu_item_id	item_name	category	price
124	Spaghetti	Italian	14.50
126	Fettuccine Alfredo	Italian	14.50
128	Cheese Lasagna	Italian	15.50
129	Mushroom Ravioli	Italian	15.50
132	Eggplant Parmesan	Italian	16.95
125	Spaghetti & Meatba...	Italian	17.95
127	Meat Lasagna	Italian	17.95
131	Chicken Parmesan	Italian	17.95
130	Shrimp Scampi	Italian	19.95
NULL	NULL	NULL	NULL

Answering Key Questions

```sql
-- 5. How many dishes are in each category?
SELECT category, COUNT(*) AS num_dishes FROM menu_items
GROUP BY category;
```

category	num_dishes
American	6
Asian	8
Mexican	9
Italian	9

Answering Key Questions

```sql
-- 6. What is the average dish price within each category?
SELECT category, AVG(price) AS avg_dish_price FROM menu_items
GROUP BY category;
```

category	avg_dish_price
American	10.066667
Asian	13.475000
Mexican	11.800000
Italian	16.750000

Answering Key Questions

```sql
-- 7. What is the date range of the table?
SELECT
    MIN(order_date) AS min_date,
    MAX(order_date) AS max_date,
    DATEDIFF( MAX(order_date), MIN(order_date)) as range_of_days_between
FROM order_details;
```

min_date	max_date	range_of_days_between
2023-01-01	2023-03-31	89

Answering Key Questions

```sql
-- 8. How many orders were made within this date range?
SELECT COUNT(DISTINCT order_id) AS orders_count
FROM order_details;
```

orders_count
5370

Answering Key Questions

```sql
-- 9. How many items were ordered within this date range?
SELECT COUNT(*) AS ordered_items_count
FROM order_details;
```

ordered_items_count
12234

Answering Key Questions

```sql
-- 10. Which orders had the most number of items?
WITH orders_count AS (
    SELECT order_id, count(item_id) AS num_items
    FROM order_details
    GROUP BY order_id
)
SELECT  order_id, num_items as max_items_count
FROM orders_count
WHERE num_items = ( SELECT MAX(num_items) FROM orders_count);
```

order_id	max_items_count
330	14
440	14
443	14
1957	14
2675	14
3473	14
4305	14

Answering Key Questions

```sql
-- 11. How many orders had more than 12 items?
SELECT COUNT(*) AS order_counts
FROM
    (SELECT order_id, COUNT(item_id) AS num_items
    FROM order_details
    GROUP BY order_id
    HAVING num_items > 12) AS num_orders;
```

orders_counts
20

Answering Key Questions

```sql
-- 12. Combine the menu_items and order_details tables into a single table.
SELECT *
FROM order_details o LEFT JOIN menu_items m
    ON o.item_id = m.menu_item_id;
```

order_details_id	order_id	order_date	order_time	item_id	menu_item_id	item_name	category	price
1	1	2023-01-01	11:38:36	109	109	Korean Beef Bowl	Asian	17.95
2	2	2023-01-01	11:57:40	108	108	Tofu Pad Thai	Asian	14.50
3	2	2023-01-01	11:57:40	124	124	Spaghetti	Italian	14.50
4	2	2023-01-01	11:57:40	117	117	Chicken Burrito	Mexican	12.95
5	2	2023-01-01	11:57:40	129	129	Mushroom Ravioli	Italian	15.50
6	2	2023-01-01	11:57:40	106	106	French Fries	American	7.00
7	3	2023-01-01	12:12:28	117	117	Chicken Burrito	Mexican	12.95
8	3	2023-01-01	12:12:28	119	119	Chicken Torta	Mexican	11.95
9	4	2023-01-01	12:16:31	117	117	Chicken Burrito	Mexican	12.95
10	5	2023-01-01	12:21:30	117	117	Chicken Burrito	Mexican	12.95
11	6	2023-01-01	12:29:36	101	101	Hamburger	American	12.95
12	6	2023-01-01	12:29:36	114	114	Potstickers	Asian	9.00
13	7	2023-01-01	12:50:37	123	123	Chips & Guacam...	Mexican	9.00
14	8	2023-01-01	12:51:37	123	123	Chips & Guacam...	Mexican	9.00
15	9	2023-01-01	12:52:01	108	108	Tofu Pad Thai	Asian	14.50
16	9	2023-01-01	12:52:01	126	126	Fettuccine Alfredo	Italian	14.50
17	9	2023-01-01	12:52:01	110	110	Pork Ramen	Asian	17.95
18	9	2023-01-01	12:52:01	117	117	Chicken Burrito	Mexican	12.95
19	9	2023-01-01	12:52:01	117	117	Chicken Burrito	Mexican	12.95
20	9	2023-01-01	12:52:01	129	129	Mushroom Ravioli	Italian	15.50
21	9	2023-01-01	12:52:01	122	122	Chips & Salsa	Mexican	7.00
22	9	2023-01-01	12:52:01	130	130	Shrimp Scampi	Italian	19.95
23	9	2023-01-01	12:52:01	132	132	Eggplant Parmes...	Italian	16.95
24	10	2023-01-01	13:00:15	129	129	Mushroom Ravioli	Italian	15.50
25	10	2023-01-01	13:00:15	105	105	Mac & Cheese	American	7.00
26	11	2023-01-01	13:02:59	101	101	Hamburger	American	12.95
27	11	2023-01-01	13:02:59	102	102	Cheeseburger	American	13.95

Answering Key Questions

```sql
-- 13. What were the least and most ordered items? What categories were they in?
SELECT item_name, category, COUNT(order_details_id) AS num_purchases
FROM order_details o LEFT JOIN menu_items m
    ON o.item_id = m.menu_item_id
GROUP BY item_name, category
ORDER BY num_purchases DESC;
```

item_name	category	num_purchases
Hamburger	American	622
Edamame	Asian	620
Korean Beef Bowl	Asian	588
Cheeseburger	American	583
French Fries	American	571
Tofu Pad Thai	Asian	562
Steak Torta	Mexican	489
Spaghetti & Meatba...	Italian	470
Mac & Cheese	American	463
Chips & Salsa	Mexican	461
Orange Chicken	Asian	456
Chicken Burrito	Mexican	455
Eggplant Parmesan	Italian	420
Chicken Torta	Mexican	379
Spaghetti	Italian	367
Chicken Parmesan	Italian	364
Pork Ramen	Asian	360
Mushroom Ravioli	Italian	359
California Roll	Asian	355
Steak Burrito	Mexican	354
Salmon Roll	Asian	324
Meat Lasagna	Italian	273
Hot Dog	American	257
Fettuccine Alfredo	Italian	249

Answering Key Questions

```sql
-- 14. What were the top 5 orders that spent the most money?
SELECT order_id, SUM(price) as total_spent
FROM order_details o LEFT JOIN menu_items m
    ON o.item_id = m.menu_item_id
GROUP BY order_id
ORDER BY total_spent DESC
LIMIT 5;
```

order_id	total_spent
440	192.15
2075	191.05
1957	190.10
330	189.70
2675	185.10

Answering Key Questions

```sql
-- 15. View the details of the highest spend order.
SELECT category, COUNT(item_id) as num_items
FROM order_details o LEFT JOIN menu_items m
    ON o.item_id = m.menu_item_id
WHERE order_id = 440
GROUP BY category;
```

category	num_items
Mexican	2
American	2
Italian	8
Asian	2

Answering Key Questions

```sql
-- 16. View the details of the top 5 highest spend orders.
SELECT order_id,category, COUNT(item_id) as num_items
FROM order_details o LEFT JOIN menu_items m
    ON o.item_id = m.menu_item_id
WHERE order_id IN (440,2075,1957,330,2675)
GROUP BY order_id,category;
```

order_id	category	num_items
330	Asian	6
330	American	1
330	Italian	3
330	Mexican	4
440	Mexican	2
440	American	2
440	Italian	8
440	Asian	2
1957	Asian	3
1957	American	3
1957	Italian	5
1957	Mexican	3
2075	Asian	3
2075	Mexican	3
2075	American	1
2075	Italian	6
2675	American	3
2675	Asian	3
2675	Italian	4
2675	Mexican	4


THANK
YOU!