MySQL Case Study

# Restaurant Orders Analysis

## Objective

This project analyzes a quarter's worth of order data from a fictitious restaurant specializing in international cuisine. The dataset provides details such as the date and time of each order, items ordered, their prices, and associated categories. The goal of this analysis is to uncover insights into the restaurant's operations, including identifying the most and least popular menu items, determining the most common types of cuisine, and analyzing price trends within a specific category. This will help the restaurant optimize its menu, improve pricing strategies, and better align with customer preferences.

## MySQL Queries

### Que1. View the menu_items table and write a query to find the number of items on the menu

```
SELECT DISTINCT COUNT(menu_item_id) AS Number_of_items FROM menu_items;
```

| | Number_of_items |
|---|---|
| ▶ | 32 |

## Que2. What are the least and most expensive items on the menu?

```
-- Most Expensive
SELECT item_name, price
FROM menu_items
ORDER BY price DESC
LIMIT 1;
```

| | item_name | price |
|---|---|---|
| ▶ | Shrimp Scampi | 19.95 |

```
  -- Least Expensive
SELECT item_name, price
FROM menu_items
ORDER BY price
LIMIT 1;
```

| | item_name | price |
|---|---|---|
| ▶ | Edamame | 5.00 |

## Que3. How many Italian dishes are on the menu? What are the least and most expensive Italian dishes on the menu?

```
SELECT
   category,
   COUNT(item_name) AS no_of_italian_dishes, -- Total count of Italian dishes
   (SELECT item_name
    FROM menu_items
    WHERE category = 'Italian'
    ORDER BY price ASC
    LIMIT 1) AS least_expensive_dish, -- Least expensive dish name
   (SELECT price
    FROM menu_items
    WHERE category = 'Italian'
    ORDER BY price ASC
    LIMIT 1) AS least_expensive_price, -- Least expensive dish price
   (SELECT item_name
    FROM menu_items
    WHERE category = 'Italian'
    ORDER BY price DESC
    LIMIT 1) AS most_expensive_dish, -- Most expensive dish name
   (SELECT price
    FROM menu_items
    WHERE category = 'Italian'
    ORDER BY price DESC
```

```
    LIMIT 1) AS most_expensive_price -- Most expensive dish price
FROM
    menu_items
WHERE
    category = 'Italian';
```

| category | no_of_italian_dishes | least_expensive_dish | least_expensive_price | most_expensive_dish | most_expensive_price |
|---|---|---|---|---|---|
| Italian | 9 | Spaghetti | 14.50 | Shrimp Scampi | 19.95 |

## Que4. How many dishes are in each category? What is the average dish price within each category?

```
SELECT
    category,
    COUNT(item_name) AS total_dishes,
    AVG(price) AS average_price
FROM
    menu_items
GROUP BY
    category;
```

| category | total_dishes | average_price |
|---|---|---|
| American | 6 | 10.066667 |
| Asian | 8 | 13.475000 |
| Mexican | 9 | 11.800000 |
| Italian | 9 | 16.750000 |

## Que5. View the order_details table. What is the date range of the table?

```
SELECT
    MIN(order_date) AS starting_date,
    MAX(order_date) AS ending_date
FROM
    order_details;
```

| | starting_date | ending_date |
|---|---|---|
| ▶ | 2023-01-01 | 2023-03-31 |

## Que6. How many orders were made within this date range? How many items were ordered within this date range?

```
SELECT COUNT(DISTINCT order_id) AS total_orders, COUNT(*) AS total_items
FROM order_details
WHERE order_date BETWEEN '2023-01-01' AND '2023-03-31';
```

| | total_orders | total_items |
|---|---|---|
| ▶ | 5370 | 12234 |

## Que7. Which orders had the most number of items?

```
SELECT DISTINCT order_id, count(*) AS total_items
FROM order_details
GROUP BY order_id
ORDER BY total_items DESC;
```

| order_id | total_items |
|---|---|
| 330 | 14 |
| 440 | 14 |
| 443 | 14 |
| 1957 | 14 |
| 2675 | 14 |
| 3473 | 14 |
| 4305 | 14 |
| 4482 | 14 |
| 740 | 13 |
| 1274 | 13 |
| 1569 | 13 |
| 1685 | 13 |
| 1734 | 13 |

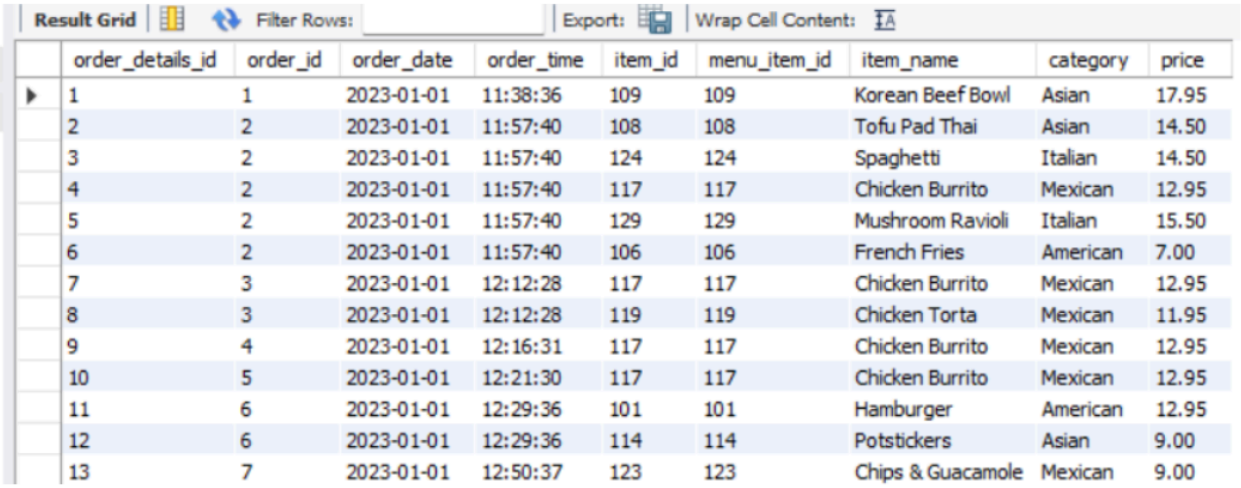
## Que8. How many orders had more than 12 items?

```
SELECT COUNT(order_id) AS total_orders
FROM (
    SELECT order_id, COUNT(*) AS total_items
    FROM order_details
    GROUP BY order_id
    HAVING total_items > 12
) AS subquery;
```

| total_orders |
|---|
| 23 |

## Que9. Combine the menu_items and order_details tables into a single table

```
SELECT *
FROM order_details od LEFT JOIN menu_items mi
ON od.item_id = mi.menu_item_id;
```



Result Grid | Filter Rows: | Export: | Wrap Cell Content:

| 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 & Guacamole | Mexican | 9.00 |

## Que10:What were the least and most ordered items? What categories were they in?

```
SELECT item_name, category, COUNT(order_details_id) AS num_purchases -- Most ordered
items
FROM order_details od LEFT JOIN menu_items mi
ON od.item_id = mi.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 & Meatballs | 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 |
| Shrimp Scampi | Italian | 239 |

```
SELECT item_name, category, COUNT(order_details_id) AS num_purchases -- Least ordered items
FROM order_details od LEFT JOIN menu_items mi
ON od.item_id = mi.menu_item_id
GROUP BY item_name, category
ORDER BY num_purchases;
```

| item_name | category | num_purchases |
|---|---|---|
| Chicken Tacos | Mexican | 123 |
| NULL | NULL | 137 |
| Potstickers | Asian | 205 |
| Cheese Lasagna | Italian | 207 |
| Steak Tacos | Mexican | 214 |
| Cheese Quesadillas | Mexican | 233 |
| Chips & Guacamole | Mexican | 237 |
| Veggie Burger | American | 238 |
| Shrimp Scampi | Italian | 239 |
| Fettuccine Alfredo | Italian | 249 |
| Hot Dog | American | 257 |
| Meat Lasagna | Italian | 273 |
| Salmon Roll | Asian | 324 |
| Steak Burrito | Mexican | 354 |
| California Roll | Asian | 355 |
| Mushroom Ravioli | Italian | 359 |
| Pork Ramen | Asian | 360 |
| Chicken Parmesan | Italian | 364 |
| Spaghetti | Italian | 367 |
| Chicken Torta | Mexican | 379 |
| Eggplant Parmesan | Italian | 420 |
| Chicken Burrito | Mexican | 455 |
| Orange Chicken | Asian | 456 |
| Chips & Salsa | Mexican | 461 |

## Que11. What were the top 5 orders that spent the most money?

```
SELECT order_id, SUM(price) AS total_spend
FROM order_details od LEFT JOIN menu_items mi
```

```
ON od.item_id = mi.menu_item_id
GROUP BY order_id
ORDER BY total_spend DESC
LIMIT 5;
```

| order_id | total_spend |
|---|---|
| 440 | 192.15 |
| 2075 | 191.05 |
| 1957 | 190.10 |
| 330 | 189.70 |
| 2675 | 185.10 |

## Que12. View the details of the highest spend order. Which specific items were purchased?

```
SELECT *
FROM order_details od LEFT JOIN menu_items mi
ON od.item_id = mi.menu_item_id
WHERE order_id = 440;
```

| order_details_id | order_id | order_date | order_time | item_id | menu_item_id | item_name | category | price |
|---|---|---|---|---|---|---|---|---|
| 1003 | 440 | 2023-01-08 | 12:16:34 | 116 | 116 | Steak Tacos | Mexican | 13.95 |
| 1004 | 440 | 2023-01-08 | 12:16:34 | 103 | 103 | Hot Dog | American | 9.00 |
| 1005 | 440 | 2023-01-08 | 12:16:34 | 124 | 124 | Spaghetti | Italian | 14.50 |
| 1006 | 440 | 2023-01-08 | 12:16:34 | 125 | 125 | Spaghetti & Meatballs | Italian | 17.95 |
| 1007 | 440 | 2023-01-08 | 12:16:34 | 125 | 125 | Spaghetti & Meatballs | Italian | 17.95 |
| 1008 | 440 | 2023-01-08 | 12:16:34 | 126 | 126 | Fettuccine Alfredo | Italian | 14.50 |
| 1009 | 440 | 2023-01-08 | 12:16:34 | 126 | 126 | Fettuccine Alfredo | Italian | 14.50 |
| 1010 | 440 | 2023-01-08 | 12:16:34 | 109 | 109 | Korean Beef Bowl | Asian | 17.95 |
| 1011 | 440 | 2023-01-08 | 12:16:34 | 127 | 127 | Meat Lasagna | Italian | 17.95 |
| 1012 | 440 | 2023-01-08 | 12:16:34 | 113 | 113 | Edamame | Asian | 5.00 |
| 1013 | 440 | 2023-01-08 | 12:16:34 | 122 | 122 | Chips & Salsa | Mexican | 7.00 |
| 1014 | 440 | 2023-01-08 | 12:16:34 | 131 | 131 | Chicken Parmesan | Italian | 17.95 |
| 1015 | 440 | 2023-01-08 | 12:16:34 | 106 | 106 | French Fries | American | 7.00 |
| 1016 | 440 | 2023-01-08 | 12:16:34 | 132 | 132 | Eggplant Parmesan | Italian | 16.95 |

## Que14. View the details of the top 5 highest spend orders. Which specific items were purchased?

```
SELECT order_id, category, COUNT(item_id) AS num_items
FROM order_details od LEFT JOIN menu_items mi
ON od.item_id = mi.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 |

## Que15. How much was the most expensive order in the dataset?

```
SELECT order_id, SUM(price) AS expensive_order_price
FROM order_details od LEFT JOIN menu_items mi
ON od.item_id = mi.menu_item_id
GROUP BY order_id
ORDER BY expensive_order_price DESC
LIMIT 1;
```

| order_id | expensive_order_price |
|---|---|
| 440 | 192.15 |