Restaurant Order Analysis

A PostgreSQL analysis of Taste of the World Cafe's menu items and orders.

Questions to Answer

1. Which menu items do customers purchase the most?
2. Which menu items do customers purchase the least?
3. Which menu items do the top customers like most?

Create Tables and Insert Data

```sql
CREATE TABLE order_details (
  order_details_id SMALLINT NOT NULL,
  order_id SMALLINT NOT NULL,
  order_date DATE,
  order_time TIME,
  item_id SMALLINT,
  PRIMARY KEY (order_details_id)
);
```

```sql
CREATE TABLE menu_items (
  menu_item_id SMALLINT NOT NULL,
  item_name VARCHAR(45),
  category VARCHAR(45),
  price DECIMAL(5,2),
  PRIMARY KEY (menu_item_id)
);
```

```sql
INSERT INTO order_details VALUES (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),
```

```sql
INSERT INTO menu_items VALUES (101, 'Hamburger', 'American', 12.95),
(102, 'Cheeseburger', 'American', 13.95),
(103, 'Hot Dog', 'American', 9),
(104, 'Veggie Burger', 'American', 10.5),
(105, 'Mac & Cheese', 'American', 7),
(106, 'French Fries', 'American', 7),
(107, 'Orange Chicken', 'Asian', 16.5),
(108, 'Tofu Pad Thai', 'Asian', 14.5),
(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),
```

Explore the menu_items Table

The provided .csv file contains the following columns:
- **menu_item_id**
- **item_name**
- **category**
- **price**

Write queries to complete the following tasks:
- Find the number of items on the menu
- Find the least and most expensive items on the menu
- Find the number of Italian dishes on the menu
- Find the least and most expensive Italian dishes
- Find the number of dishes are in each category
- Calculate the average price within each category

```sql
-- 1. View menu_items table
SELECT *
FROM menu_items

-- 2. How many items are on the menu?
SELECT COUNT(*)
FROM menu_items

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

SELECT *
FROM menu_items
ORDER BY price DESC

-- 4. How many Italian dishes are on the menu?
SELECT COUNT(*)
FROM menu_items
WHERE category = 'Italian'
```

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

SELECT *
FROM menu_items
WHERE category = 'Italian'
ORDER BY price  DESC

-- 6. How many dishes are in each category?
SELECT category, COUNT(menu_item_id) AS num_dishes
FROM menu_items
GROUP BY category

-- 7. What is the average dish price within each category?
SELECT category, AVG(price) AS avg_price
FROM menu_items
GROUP BY category
```

Insights
- Menu items: 32
- Least expensive item: Edamame ($5)
- Most expensive item: Shrimp Scampi ($19.95)
- Number of Italian dishes: 9
- Least expensive Italian item: Fettuccine Alfredo ($14.50)
- Most expensive Italian item: Shrimp Scampi ($19.95)
- Number of dishes in each category:
  - American (6)
  - Asian (8)
  - Italian (9)
  - Mexican (9)
- Average price within each category:
  - American ($10.07)
  - Asian ($13.48)
  - Italian ($16.75)
  - Mexican ($11.80)

Explore the order_details Table

The provided .csv file contains the following columns:

order_details_id
order_id
order_date
order_time
item_id

Write queries to complete the following tasks:
- Find the date range of the table
- Find the number of orders that were made
- Find the number of items that were ordered
- Find the orders that had the most number of items

```
-- 8. View the order_details table
SELECT *
FROM order_details

-- 9. What is the date range of the table?
SELECT MIN(order_date), MAX(order_date)
FROM order_details

-- 10. How many orders were made within this date range?
SELECT COUNT(DISTINCT order_id)
FROM order_details

-- 11. How many items were ordered within this date range?
SELECT COUNT(*)
FROM order_details

-- 12. Which orders had the most number of items?
SELECT order_id, COUNT(item_id) AS num_items
FROM order_details
GROUP BY order_id
ORDER BY num_items DESC
```

Insights
- Date range: Jan 1 to Mar 31, 2023
- Number of orders made: 5370
- Number of items ordered: 12234
- No more than 14 items were purchased in one order.

Analyze Customer Behavior
Write queries to complete the following tasks:
- Combine menu_items and order_details using an inner join
- Find the least and most ordered items
- Find the categories that are the least and most ordered items are in
- Find the five orders that spent the most money
- While viewing the most expensive order, note the categories of the items that were ordered.
- View the item categories of the top five most expensive orders

```sql
-- 13. Combine the menu_items and order_details tables into a single table.
SELECT *
FROM order_details AS od
INNER JOIN menu_items mi
    ON od.item_id = mi.menu_item_id

-- 14a. What were the least and most ordered items?
SELECT item_name, COUNT(order_details_id) AS num_purchases
FROM order_details AS od
INNER JOIN menu_items mi
    ON od.item_id = mi.menu_item_id
GROUP BY item_name
ORDER BY num_purchases

SELECT item_name, COUNT(order_details_id) AS num_purchases
FROM order_details AS od
INNER JOIN menu_items mi
    ON od.item_id = mi.menu_item_id
GROUP BY item_name
ORDER BY num_purchases DESC

-- 14b. What categories were they in?
SELECT item_name, category, COUNT(order_details_id) AS num_purchases
FROM order_details AS od
INNER JOIN menu_items mi
    ON od.item_id = mi.menu_item_id
GROUP BY item_name, category
ORDER BY num_purchases

SELECT item_name, category, COUNT(order_details_id) AS num_purchases
FROM order_details AS od
INNER JOIN menu_items mi
    ON od.item_id = mi.menu_item_id
GROUP BY item_name, category
ORDER BY num_purchases DESC

-- 15. What were the top 5 orders that spent the most money?
SELECT order_id, SUM(price) AS total_spend
FROM order_details AS od
INNER JOIN menu_items mi
    ON od.item_id = mi.menu_item_id
GROUP BY order_id
ORDER BY total_spend DESC
LIMIT 5
```

```
-- 16. View the item categories of the most expensive order.
SELECT category, COUNT(item_id) AS num_items
FROM order_details AS od
INNER JOIN menu_items mi
    ON od.item_id = mi.menu_item_id
WHERE order_id = 440
GROUP BY category

-- 17. View the item categories of the top five most expensive orders.
SELECT category, COUNT(item_id) AS num_items
FROM order_details AS od
INNER JOIN menu_items mi
    ON od.item_id = mi.menu_item_id
WHERE order_id IN (440, 2075, 1957, 330, 2675)
GROUP BY category
```

Insights
- Least ordered menu items and categories:
  - Chicken Tacos (Mexican)
  - Potstickers (Asian)
  - Cheese Lasagna (Italian)
- Most ordered menu items and categories:
  - Hamburgers (American)
  - Edamame (Asian)
  - Korean Beef Bowl (Asian)
- Totals of the top five most expensive orders range from $185.10 to $192.15.
- Categories of the items that were purchased in the the most expensive order:
  - American (2)
  - Asian (2)
  - Italian (8)
  - Mexican (2)
- Categories of items that were purchased in the top five most expensive orders:
  - American (10)
  - Asian (17)
  - Italian (26)
  - Mexican (16)

Summary and Conclusion

Which menu items do customers purchase the most?
- Hamburgers (American)
- Edamame (Asian)
- Korean Beef Bowl (Asian)

Which menu items do customers purchase the least?
- Chicken Tacos (Mexican)
- Potstickers (Asian)
- Cheese Lasagna (Italian)

Which menu items do the top customers like most?
- Italian dishes (26 items purchased)
- Asian (17), Mexican (16), and American (10)

Hamburgers, Edamame, and Korean Beef Bowls are the most popular menu items at Taste of the World Cafe. Italian dishes are more popular among customers who pay for more expensive meals. Despite not having one of the best selling dishes, it is worth keeping the existing Italian items on the menu.