Pizza Sales Case Study:

Real-World Data Analysis with SQL

Presented by:
PRANAVI MANDAPE

Project Overview

This project involves analyzing real-world pizza sales data using SQL. I solved a curated set of basic to advanced-level questions by writing optimized SQL queries. The analysis covers key business metrics such as total revenue, order patterns by time, top-selling pizzas, size preferences, and revenue contributions by category. The project demonstrates practical data handling through joins, aggregations, window functions and time-based grouping to uncover actionable insights from the dataset.

Dataset Overview

The dataset used for this project is based on pizza sales data containing detailed information on orders, pizzas, pizza types, and their prices.

Files Included:

- **orders.csv**

- Contains order IDs and timestamps

- **order_details.csv**

- Contains order wise pizza quantities

- **pizzas.csv**

- Contains pizza IDs, types and prices

- **pizza_types.csv**

- Describes each pizza by category, names and ingredients

Database Structure:

The schema includes 4 main tables:

Orders, order_details, pizzas and pizza_types allowing normalizes and efficient querying.

Business Insights Unlocked Through SQL

Basic Analysis:

- Count total orders placed
- Total revenue generated from pizza sales
- Identification of the highest-priced pizza
- Most frequently ordered pizza size
- Top 5 most ordered pizza types (by quantity)

Intermediate Analysis:

- Total quantity ordered by pizza category (via joins)
- Order volume distribution across hours of the day
- Category-wise pizza distribution
- Daily average of pizzas ordered (grouped by date)
- Top 3 pizza types based on revenue

Advanced Analysis:

- Percentage revenue contribution of each pizza type
- Cumulative revenue growth over time
- Top 3 revenue-generating pizzas within each category

SQL Query Solutions

```sql
-- Retrieve the total number of orders placed

SELECT
    COUNT(order_id) AS total_orders
FROM
    orders;
```

Result Grid

	total_orders
▶	21350

```sql
-- Calculate the total revenue generated from pizza sales

SELECT
    ROUND(SUM(order_details.quantity * pizzas.price),
            2) AS total_revenue
FROM
    order_details
        JOIN
    pizzas ON pizzas.pizza_id = order_details.pizza_id;
```

Result Grid

	total_revenue
▶	817860.05

```sql
-- Identify the highest-priced pizza

SELECT
    pizza_types.name, pizzas.price
FROM
    pizza_types
        JOIN
    pizzas ON pizza_types.pizza_type_id = pizzas.pizza_type_id
ORDER BY pizzas.price DESC
LIMIT 1;
```

Result Grid | Filter Ro

name	price
The Greek Pizza	35.95

```sql
-- Identify the most common pizza size ordered

SELECT
    pizzas.size,
    COUNT(order_details.order_details_id) AS order_count
FROM
    pizzas
        JOIN
    order_details ON pizzas.pizza_id = order_details.pizza_id
GROUP BY pizzas.size
ORDER BY order_count DESC
LIMIT 1;
```

Result Grid

size	order_count
L	18526

```
st the top 5 most ordered pizza types along with their quantities

T
izza_types.name, SUM(order_details.quantity) AS quantity

izza_types
   JOIN
izzas ON pizza_types.pizza_type_id = pizzas.pizza_type_id
   JOIN
rder_details ON order_details.pizza_id = pizzas.pizza_id
 BY pizza_types.name
 BY quantity DESC
 5;
```

name	quantity
The Classic Deluxe Pizza	2453
The Barbecue Chicken Pizza	2432
The Hawaiian Pizza	2422
The Pepperoni Pizza	2418
The Thai Chicken Pizza	2371

```sql
-- Join the necessary tables to find
-- the total quantity of each pizza category ordered

SELECT
    pizza_types.category,
    SUM(order_details.quantity) AS quantity
FROM
    pizza_types
        JOIN
    pizzas ON pizza_types.pizza_type_id = pizzas.pizza_type_id
        JOIN
    order_details ON order_details.pizza_id = pizzas.pizza_id
GROUP BY pizza_types.category
ORDER BY quantity;
```

category	quantity
Chicken	11050
Veggie	11649
Supreme	11987
Classic	14888

```sql
-- Determine the distribution of orders
-- by hour of the day

SELECT
    HOUR(order_time) AS hour, COUNT(order_id) AS order_count
FROM
    orders
GROUP BY HOUR(order_time);
```

hour	order_count
11	1231
12	2520
13	2455
14	1472
15	1468
16	1920
17	2336
18	2399
19	2009
20	1642
21	1198

```sql
-- find the category-wise distribution of pizzas

select category,count(pizza_type_id) from pizza_types
group by category;
```

category	count(pizza_type_id)
Chicken	6
Classic	8
Supreme	9
Veggie	9

```sql
-- Group the orders by date and calculate the average
-- number of pizzas ordered per day

SELECT
    ROUND(AVG(quantity), 0) AS order_perday
FROM
    (SELECT
        orders.order_date, SUM(order_details.quantity) AS quantity
    FROM
        orders
    JOIN order_details ON orders.order_id = order_details.order_id
    GROUP BY orders.order_date) AS order_quantity;
```

	order_perday
▶	138

```sql
-- Determine the top 3 most ordered pizza types based on revenue

SELECT
    pizza_types.name,
    SUM(order_details.quantity * pizzas.price) AS revenue
FROM
    pizza_types
        JOIN
    pizzas ON pizzas.pizza_type_id = pizza_types.pizza_type_id
        JOIN
    order_details ON order_details.pizza_id = pizzas.pizza_id
GROUP BY pizza_types.name
ORDER BY revenue DESC
LIMIT 3;
```

name	revenue
The Thai Chicken Pizza	43434.25
The Barbecue Chicken Pizza	42768
The California Chicken Pizza	41409.5

```sql
-- Calculate the percentage contribution of each pizza type to total revenue

SELECT
    pizza_types.category,
    ROUND(SUM(order_details.quantity * pizzas.price) / (SELECT
                    SUM(order_details.quantity * pizzas.price)
                FROM
                    order_details
                        JOIN
                    pizzas ON pizzas.pizza_id = order_details.pizza_id) * 100,
            2) AS revenue_percentage
FROM
    pizza_types
        JOIN
    pizzas ON pizza_types.pizza_type_id = pizzas.pizza_type_id
        JOIN
    order_details ON order_details.pizza_id = pizzas.pizza_id
GROUP BY pizza_types.category
ORDER BY revenue_percentage DESC;
```

category	revenue_percentage
Classic	26.91
Supreme	25.46
Chicken	23.96
Veggie	23.68

```sql
-- Analyze the cumulative revenue generated over time

select order_date,
sum(revenue) over (order by order_date) as cummulative_revenue
from
(select orders.order_date,
round(sum(order_details.quantity * pizzas.price),2) as revenue
from order_details
JOIN pizzas
ON pizzas.pizza_id = order_details.pizza_id
join orders
on orders.order_id=order_details.order_id
group by orders.order_date) as sales;
```

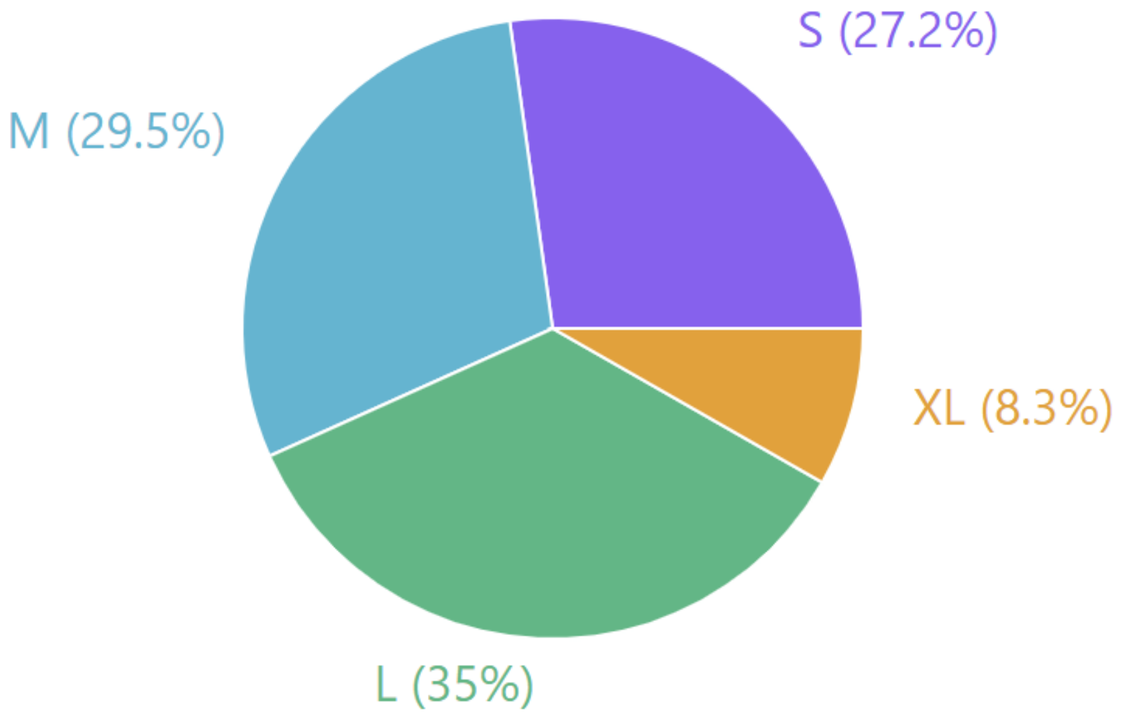
order_date	cummulative_revenue
2015-01-01 00:00:00	2713.85
2015-01-02 00:00:00	5445.75
2015-01-03 00:00:00	8108.15
2015-01-04 00:00:00	9863.6
2015-01-05 00:00:00	11929.55
2015-01-06 00:00:00	14358.5
2015-01-07 00:00:00	16560.7
2015-01-08 00:00:00	19399.05
2015-01-09 00:00:00	21526.399999999998
2015-01-10 00:00:00	23990.35
2015-01-11 00:00:00	25862.649999999998
2015-01-12 00:00:00	27781.699999999997
2015-01-13 00:00:00	29831.299999999996
2015-01-14 00:00:00	32358.699999999997
2015-01-15 00:00:00	34343.5
2015-01-16 00:00:00	36937.65
2015-01-17 00:00:00	39001.75
2015-01-18 00:00:00	40978.6
2015-01-19 00:00:00	43365.75
2015-01-20 00:00:00	45763.65
2015-01-21 00:00:00	47804.200000000004

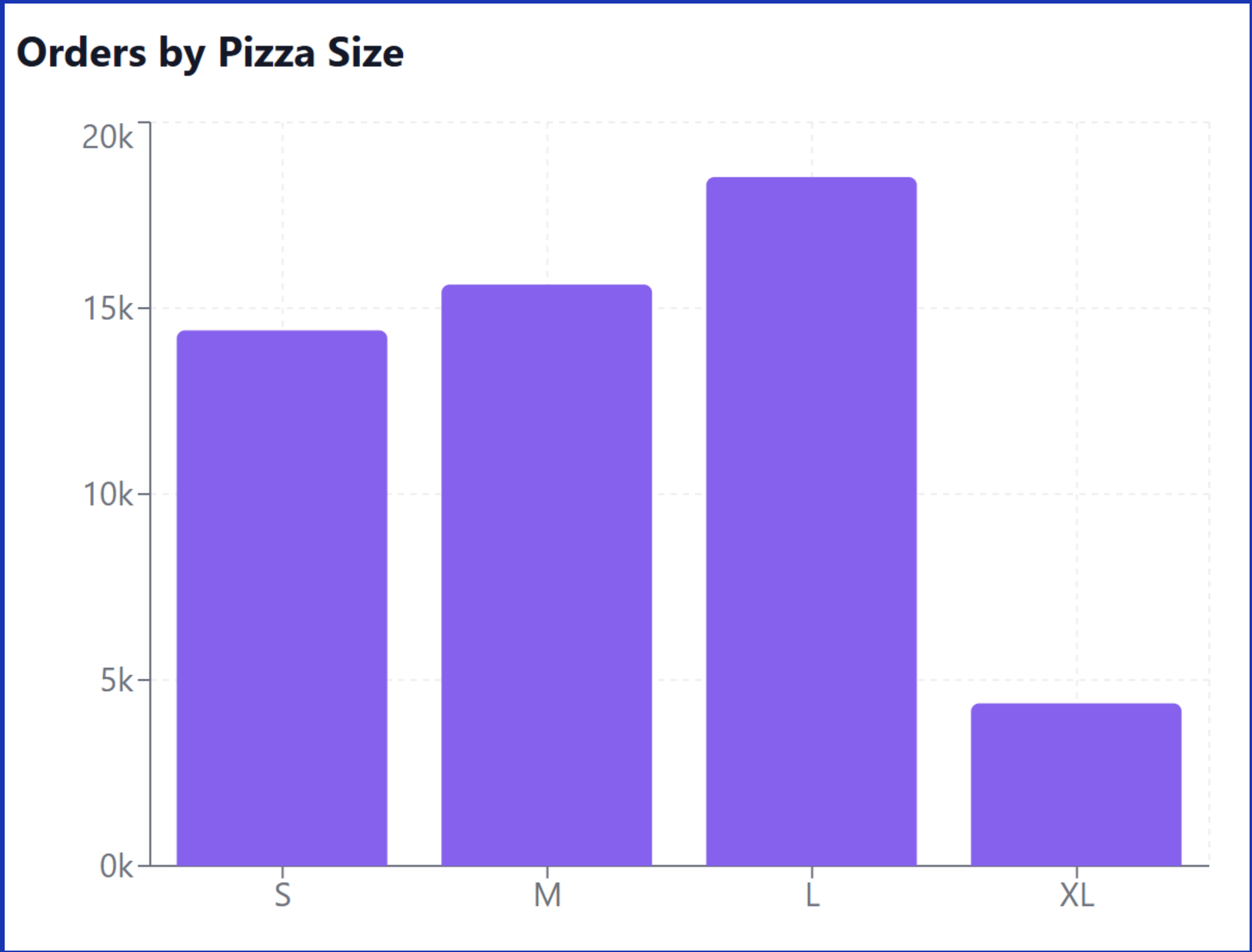
```sql
-- Determine the top 3 most ordered pizza types
--  based on revenue for each pizza category

select name,revenue from
(SELECT
    category,
    name,
    revenue,
    RANK() OVER (PARTITION BY category ORDER BY revenue DESC) AS rn
FROM (
    SELECT
        pizza_types.category,
        pizza_types.name,
        SUM(order_details.quantity * pizzas.price) AS revenue
    FROM
        pizza_types
    JOIN
        pizzas ON pizza_types.pizza_type_id = pizzas.pizza_type_id
    JOIN
        order_details ON order_details.pizza_id = pizzas.pizza_id
    GROUP BY
        pizza_types.category, pizza_types.name
) AS a) AS b
where rn<=3;
```

name	revenue
The Thai Chicken Pizza	43434.25
The Barbecue Chicken Pizza	42768
The California Chicken Pizza	41409.5
The Classic Deluxe Pizza	38180.5
The Hawaiian Pizza	32273.25
The Pepperoni Pizza	30161.75
The Spicy Italian Pizza	34831.25
The Italian Supreme Pizza	33476.75
The Sicilian Pizza	30940.5
The Four Cheese Pizza	32265.70000000065
The Mexicana Pizza	26780.75
The Five Cheese Pizza	26066.5

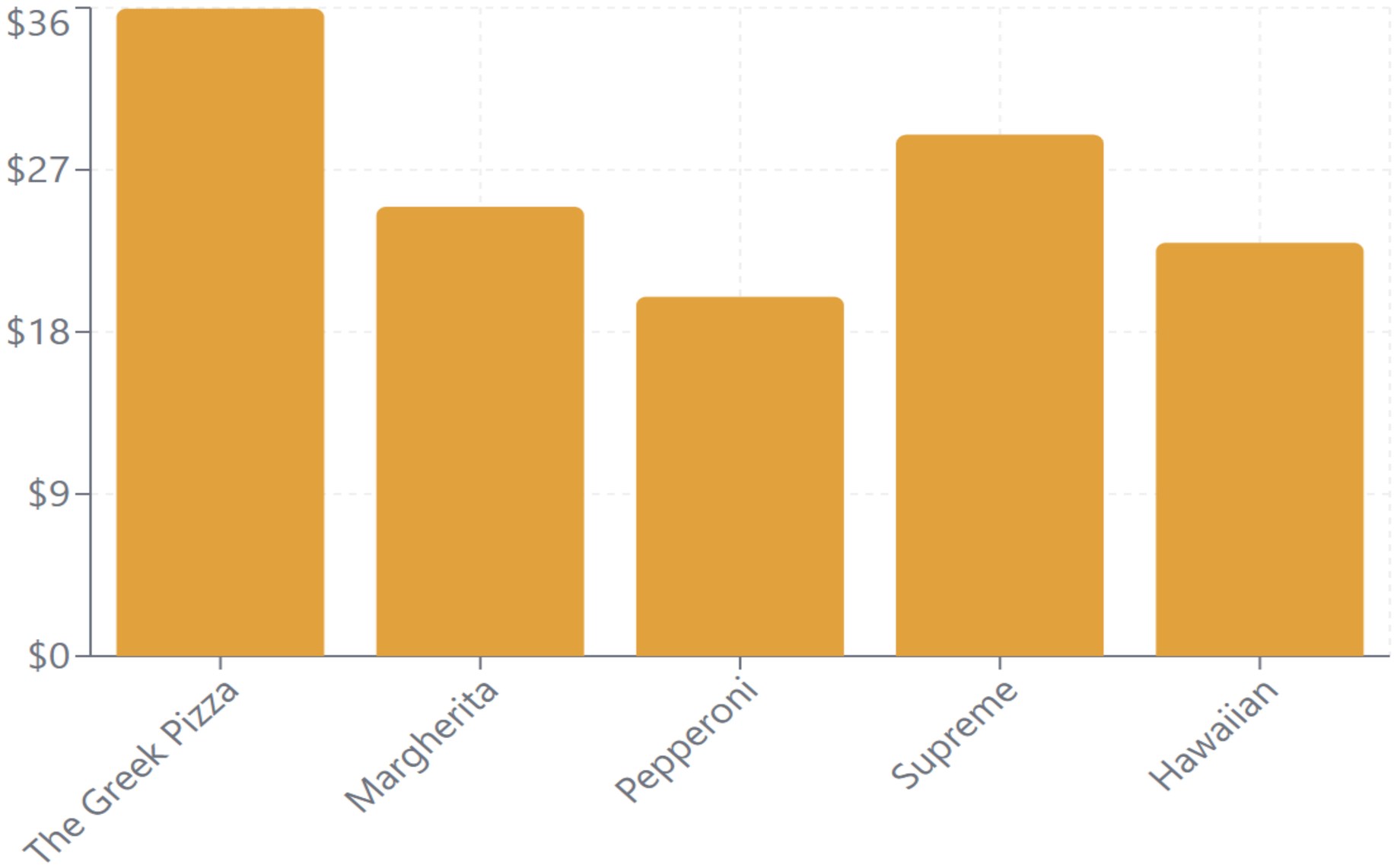
Visualizing the Insights

Pizza Size Distribution




Orders by Pizza Size
20k
15k
10k
5k
0k
S
M
L
XL

Pizza Pricing



Business Insights

Average Order Value

$38.31

Size L Dominance

35%

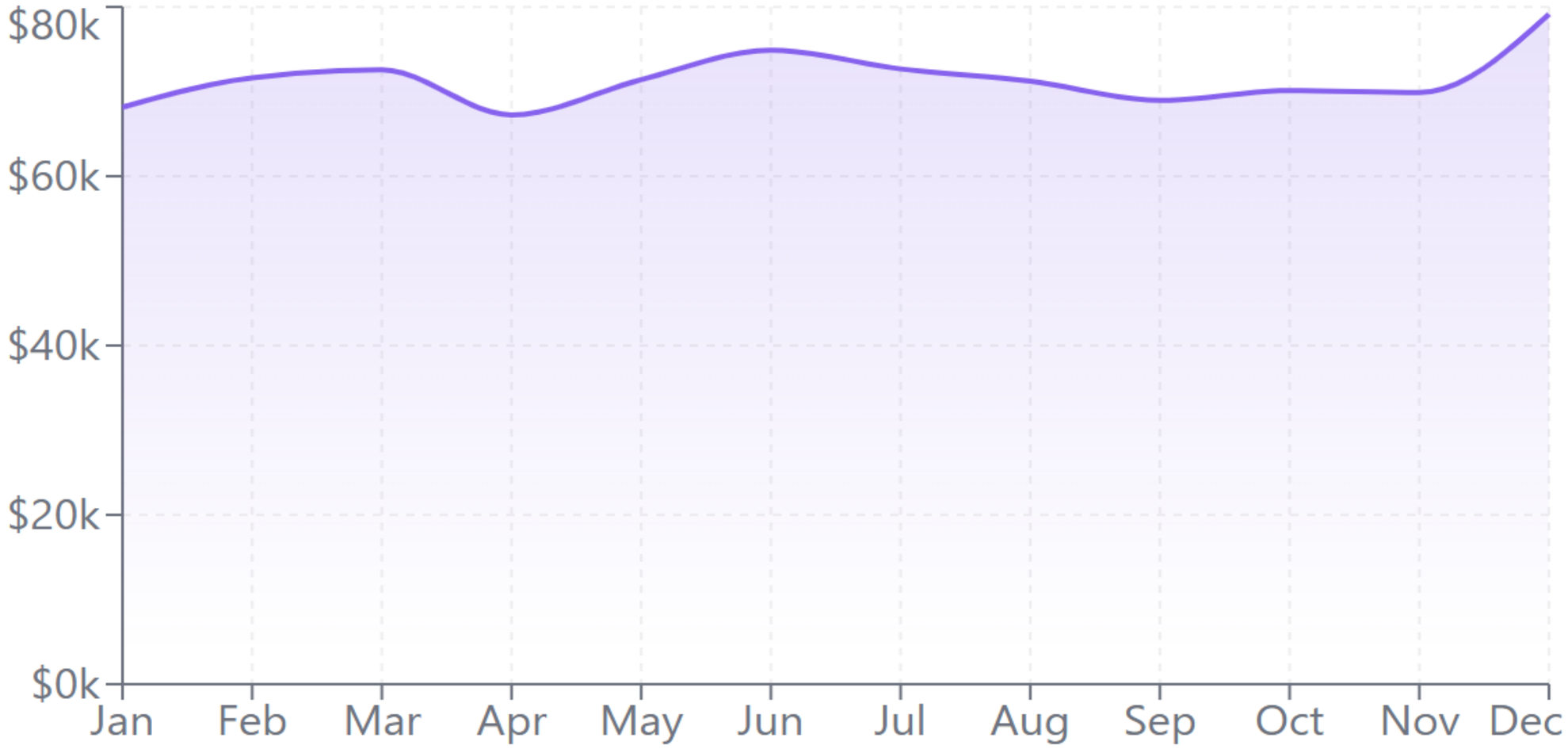
of all orders

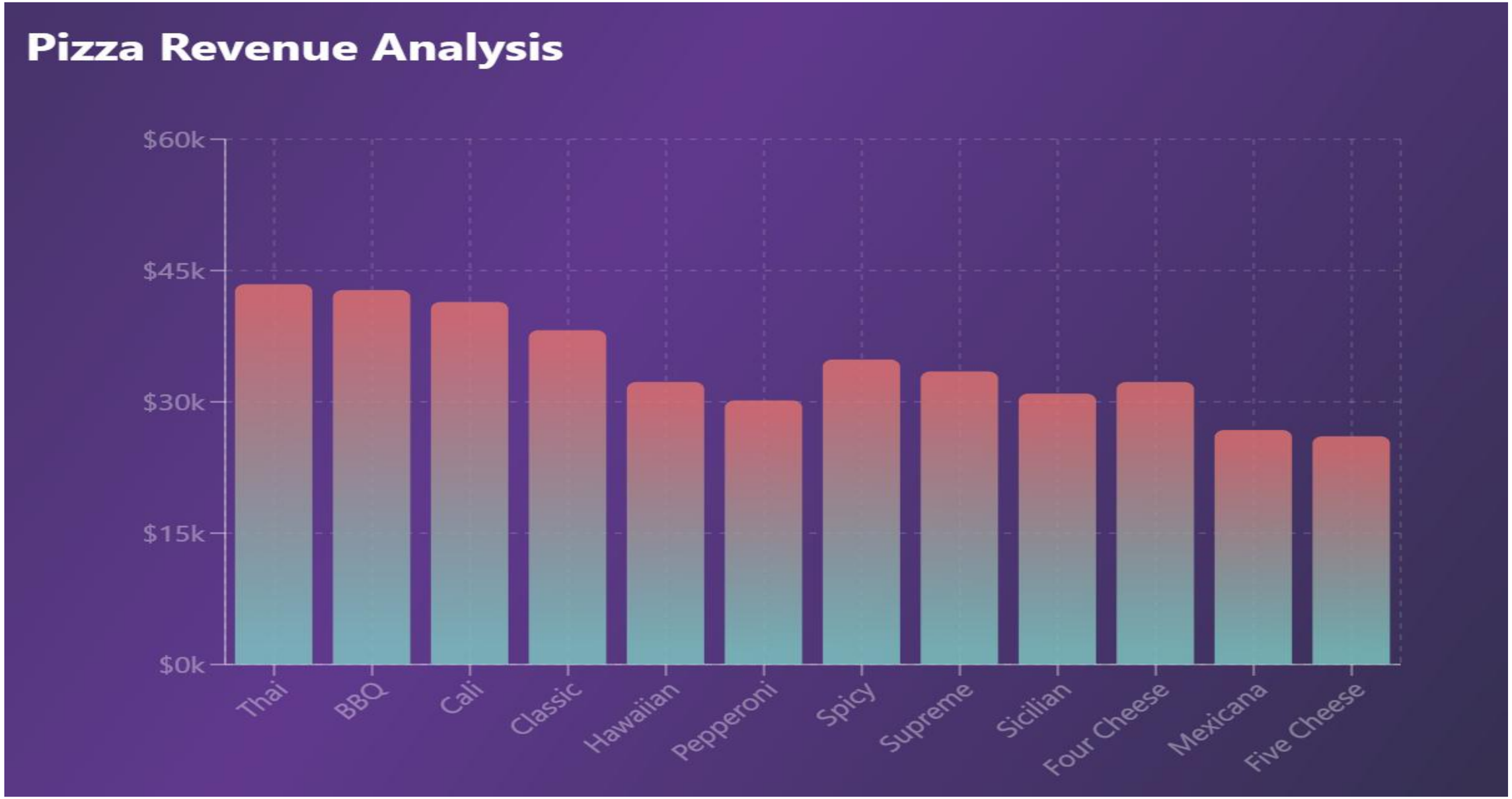
Premium Category

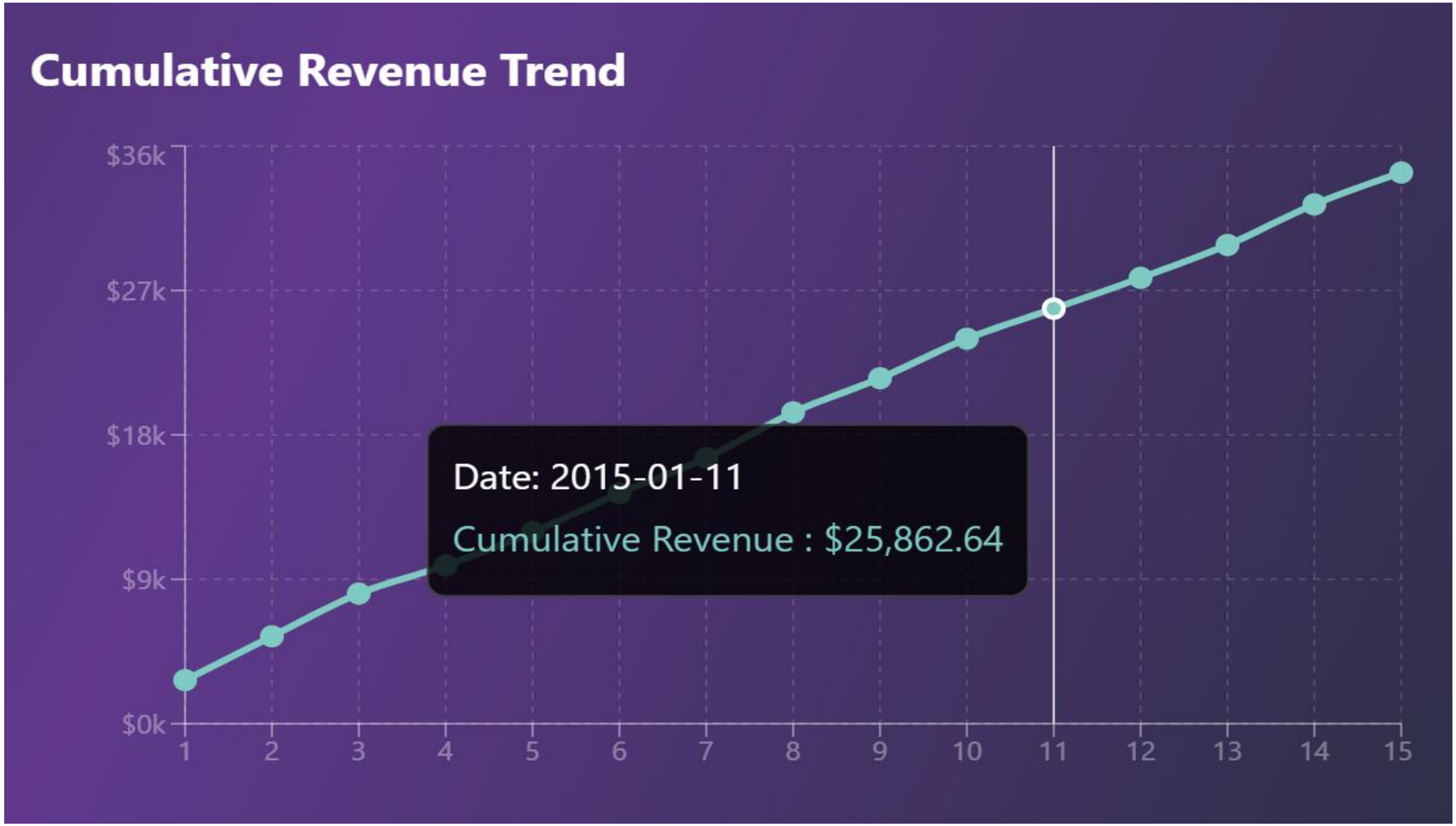
$35.95

highest price point

Monthly Revenue Trend




Pizza Revenue Analysis
$60k
$45k
$30k
$15k
$0k
Thai
BBQ
Cali
Classic
Hawaiian
Pepperoni
Spicy
Supreme
Sicilian
Four Cheese
Mexicana
Five Cheese


Cumulative Revenue Trend
$36k
$27k
$18k
$9k
$0k
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
Date: 2015-01-11
Cumulative Revenue : $25,862.64

Thank you for viewing my project!

www.linkedin.com/in/pranavi-mandape-101651228