PIZZA TOWN

PIZZA SALE DATA ANALYSIS USING SQL

ABOUT

This project focuses on analyzing pizza sales data to uncover meaningful insights using SQL. The dataset includes information on orders, customers, pizza details, and sales transactions.

The analysis explores several key areas, such as determining the most popular pizza types and sizes, identifying peak sales periods, understanding revenue trends, and analyzing customer preferences.

To achieve this, various SQL techniques were applied, including data cleaning, aggregations, joins, and window functions. The goal of the project is to provide a comprehensive understanding of sales performance, support better inventory management decisions, and enhance marketing strategies for the pizza business.

DATASET

ORDER ID

order_id	order_date	order_time
1	2015-01-01	11:38:36
2	2015-01-01	11:57:40
3	2015-01-01	12:12:28
4	2015-01-01	12:16:31
5	2015-01-01	12:21:30
6	2015-01-01	12:29:36
7	2015-01-01	12:50:37
8	2015-01-01	12:51:37
9	2015-01-01	12:52:01
10	2015-01-01	13:00:15

PIZZA ID

pizza_id	pizza_type_id	size	price
bbq_ckn_s	bbq_ckn	S	12.75
bbq_ckn_m	bbq_ckn	M	16.75
bbq_ckn_l	bbq_ckn	L	20.75
cali_ckn_s	cali_ckn	S	12.75
cali_ckn_m	cali_ckn	M	16.75
cali_ckn_l	cali_ckn	L	20.75
ckn_alfredo_s	ckn_alfredo	S	12.75
ckn_alfredo_m	ckn_alfredo	M	16.75
ckn_alfredo_l	ckn_alfredo	L	20.75
ckn_pesto_s	ckn_pesto	S	12.75
ckn_pesto_m	ckn_pesto	M	16.75

ORDER DETAILS

order_details_id	order_id	pizza_id	quantity
1	1	hawaiian_m	1
2	2	classic_dlx_m	1
3	2	five_cheese_l	1
4	2	ital_supr_l	1
5	2	mexicana_m	1
6	2	thai_ckn_l	1
7	3	ital_supr_m	1
8	3	prsc_argla_l	1
9	4	ital_supr_m	1
10	5	ital_supr_m	1

PIZZA TYPES

pizza_type_id	name	category	ingredients
bbq_ckn	The Barbecue Chicken Pizza	Chicken	Barbecued Chicken, Red Peppers, Green Peppe...
cali_ckn	The California Chicken Pizza	Chicken	Chicken, Artichoke, Spinach, Garlic, Jalapeno P...
ckn_alfredo	The Chicken Alfredo Pizza	Chicken	Chicken, Red Onions, Red Peppers, Mushrooms...
ckn_pesto	The Chicken Pesto Pizza	Chicken	Chicken, Tomatoes, Red Peppers, Spinach, Garl...
southw_ckn	The Southwest Chicken Pizza	Chicken	Chicken, Tomatoes, Red Peppers, Red Onions, ...
thai_ckn	The Thai Chicken Pizza	Chicken	Chicken, Pineapple, Tomatoes, Red Peppers, T...
big_meat	The Big Meat Pizza	Classic	Bacon, Pepperoni, Italian Sausage, Chorizo Sau...
classic_dlx	The Classic Deluxe Pizza	Classic	Pepperoni, Mushrooms, Red Onions, Red Peppe...
hawaiian	The Hawaiian Pizza	Classic	Sliced Ham, Pineapple, Mozzarella Cheese
ital_cpclo	The Italian Capocollo Pizza	Classic	Capocollo, Red Peppers, Tomatoes, Goat Chee...
napolitana	The Napolitana Pizza	Classic	Tomatoes, Anchovies, Green Olives, Red Onion...
pep_msh_pep	The Pepperoni, Mushroom, ...	Classic	Pepperoni, Mushrooms, Green Peppers

Questions

Basic:

1. Retrieve the total number of orders placed.
2. Calculate the total revenue generated from pizza sales.
3. Identify the highest-priced pizza.
4. Identify the most common pizza size ordered.
5. List the top 5 most ordered pizza types along with their quantities,

Intermediate:

1. Join the necessary tables to find the total quantity of each pizza category ordered.
2. Determine the distribution of orders by hour of the day.
3. Find the category-wise distribution of pizzas.
4. Group the orders by date and calculate the average number of pizzas ordered per day.
5. Determine the top 3 most ordered pizza types based on revenue.

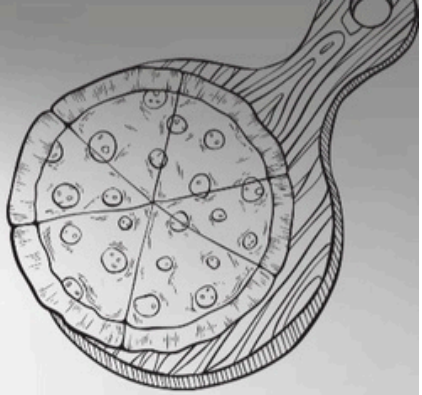
Advanced:

1. Calculate the percentage contribution of each pizza type to total revenue.
2. Analyze the cumulative revenue generated over time.
3. Determine the top 3 most ordered pizza types based on revenue for each pizza category.

```sql
-- 1. RETRIEVE THE TOTAL NUMBER OF ORDERS PLACED
SELECT COUNT(ORDER_ID) AS TOTAL_ORDERS FROM ORDERS;
/* HERE WE USED ONE FUNCTION  COUNT */
```

TOTAL_ORDERS
21350

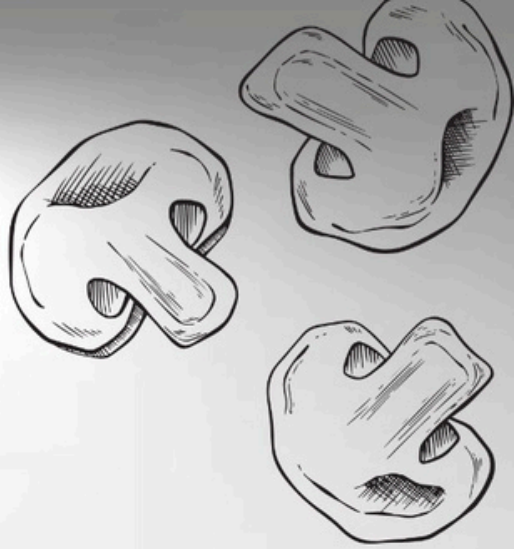
WE PLACED 21,350 NO OF ORDERS



```sql
-- 2. CALCULATE THE TOTAL REVENUE GENERATED FROM THE PIZZAS SALES.
SELECT ROUND(SUM(ORDER_DETAILS.QUANTITY * PIZZAS.PRICE),2)FROM ORDER_DETAILS
JOIN PIZZAS
ON
ORDER_DETAILS.PIZZA_ID = PIZZAS.PIZZA_ID;
/* HERE WE USED TWO FUNCTION [SUM] AND [ROUND]*/
```

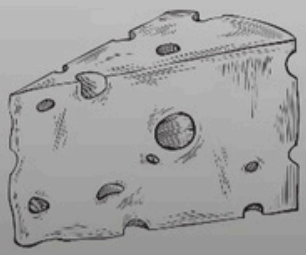
	ROUND(SUM(ORDER_DETAILS.QUANTITY * PIZZAS.PRICE),2)
▶	817860.05

TOTAL REVENUE GENERATED IS 8,17, 860 /- RS



```sql
-- 3. IDENTIFY THE HIGHEST PRICE OF THE PIZZA
SELECT MAX(PRICE) ,PIZZA_ID FROM PIZZAS
GROUP BY PIZZA_ID
ORDER BY MAX(PRICE) DESC
LIMIT 1;
/* HERE WE USED [GROUP BY , ORDER BY ]STATEMENT WITH MAX AGGREGATE FUNCTION */
```

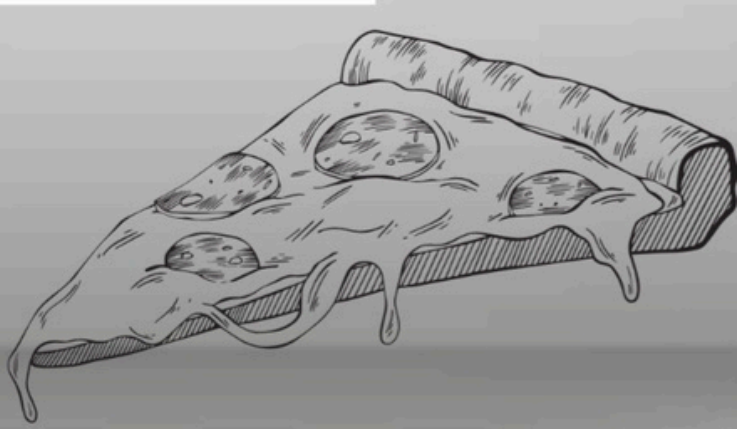
	MAX(PRICE)	PIZZA_ID
▶	35.95	the_greek_xxl



OUR HIGHEST PRICED PIZZA IS
“ THE GREEK PIZZA”

```sql
-- 4. IDENTIY THE MOST COMMON PIZZA SIZE ORDER
SELECT PIZZAS.SIZE , COUNT(ORDER_DETAILS.ORDER_DETAILS_ID) AS ORDER_COUNT FROM ORDER_DETAILS
JOIN PIZZAS
ON ORDER_DETAILS.PIZZA_ID= PIZZAS.PIZZA_ID
GROUP BY PIZZAS.SIZE
ORDER BY ORDER_COUNT  DESC
LIMIT 4 ;
```

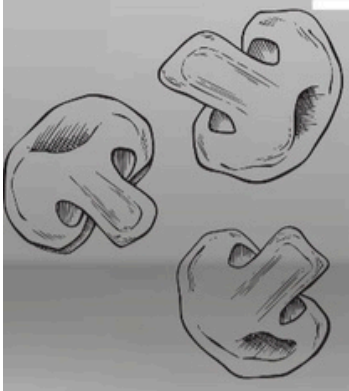
	SIZE	ORDER_COUNT
▶	L	18526
	M	15385
	S	14137
	XL	544



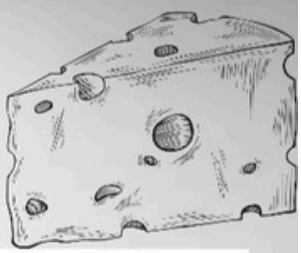
THE MOST ORDERED PIZZA IS OF “LARGE SIZE”

```sql
-- 5. LIST THE TOP MOST 5 ORDERED PIZZAS AND TYPES ALONG WITH THEIR QUANTITY .
SELECT PIZZA_TYPES.NAME, 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.NAME
ORDER BY QUANTITY DESC LIMIT 5;
/* HERE WE JOIN THREE TABLES WHICH ARE INTERCONNECTED WITH EACHOTHER */
```

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

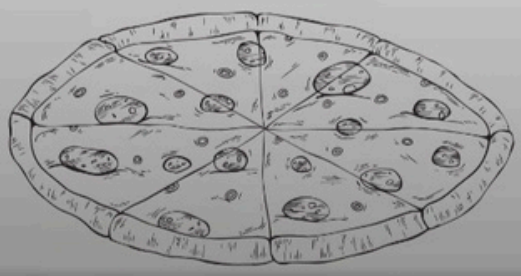


HERE IS THE TOP 5 MOST ORDERED PIZZA



```sql
-- 1. JOIN THE NECESSARY TABLE TO FIND THE TOTAL QUANTITY OF EACH PIZZA  CATEGORY ORDERED
SELECT PIZZA_TYPES.CATEGORY , SUM(ORDER_DETAILS.QUANTITY) AS QUANTITY FROM PIZZAS
JOIN PIZZA_TYPES
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 DESC ;
/* HERE WE FIND THE CATEGORY OF PIZZAS*/
```

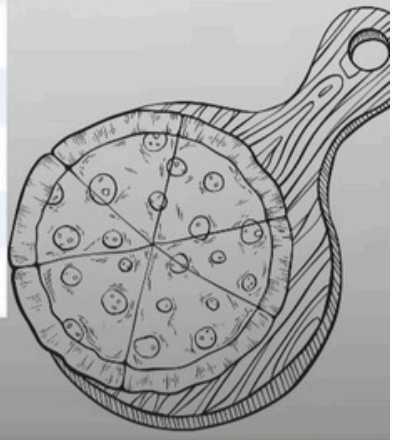
	CATEGORY	QUANTITY
▶	Classic	14888
	Supreme	11987
	Veggie	11649
	Chicken	11050



HERE IS THE TOTAL QUANTITY OF EACH PIZZA CATEGORY

```sql
-- 2. DETERMINE THE DISTRIBUTION OF ORDERS BY HOUR  OF THE DAY
SELECT hour(ORDER_TIME) TIME , COUNT(ORDER_ID) FROM ORDERS
GROUP BY hour(ORDER_TIME)
ORDER BY TIME  ;
/* HERE WE USED DATE_TIME FUNCTION HOUR*/
```

	TIME	COUNT(ORDER_ID)
▶	9	1
	10	8
	11	1231
	12	2520
	13	2455
	14	1472
	15	1468
	16	1920
	17	2336



FROM 12PM TO 1PM WE GET MAXIMUM NO OF ORDERS

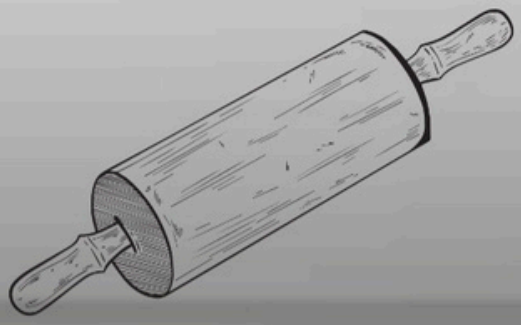
```
-- 3. JOIN THE RELEVENT TABLES TO FIND THE CATEGORY-WISE DISTRIBUTION OF PIZZAS .
SELECT CATEGORY  , COUNT(NAME) FROM PIZZA_TYPES
GROUP BY CATEGORY;
```

	CATEGORY	COUNT(NAME)
▶	Chicken	6
	Classic	8
	Supreme	9
	Veggie	9

HERE IS THE CATEGORY WISE DISTRIBUTION OF PIZZAS

```sql
-- 4. GROUP THE ORDER BY DATE AND CALCULATE THE AVERAGE NUMBER OF PIZZAS ORDERED PER DAY.
SELECT ROUND(AVG(QUANTITY),2 ) AS AVERAGE_PIZZAS_ORDER FROM
(SELECT DATE(ORDERS.ORDER_DATE) AS DATE , SUM(ORDER_DETAILS.QUANTITY)  AS QUANTITY
FROM ORDERS
JOIN ORDER_DETAILS
ON
ORDER_DETAILS.ORDER_ID=ORDERS.ORDER_ID
GROUP BY ORDERS.ORDER_DATE) AS ORDER_QUANTITY;
/* HERE 1ST WE MAKE SUBQUERY THERE WE FIND THE SUM OF QUANTITY IN DATE [DAY]
 AND THEN CALCULATE THE AVERAGE OF THE QUANTITY.*/
```

	AVERAGE_PIZZAS_ORDER
▶	138.47

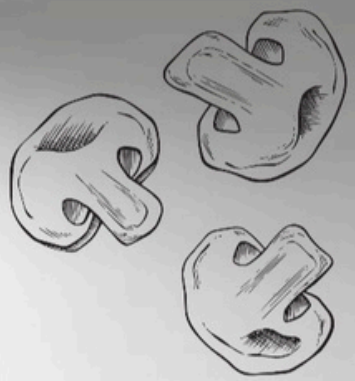


138.47 IS THE AVERAGE NO OF PIZZAS ORDERED PER DAY

```sql
-- 5. DETERMINE THE TOP 3 MOST ORDERED PIZZAS TYPES BASED ON REVENUE.
SELECT PIZZA_TYPES.NAME , SUM(ORDER_DETAILS.QUANTITY * PIZZAS.PRICE ) AS REVENUE
FROM PIZZAS
JOIN PIZZA_TYPES
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

THESE 3 PIZZAS GENERATE HIGHEST REVENUE



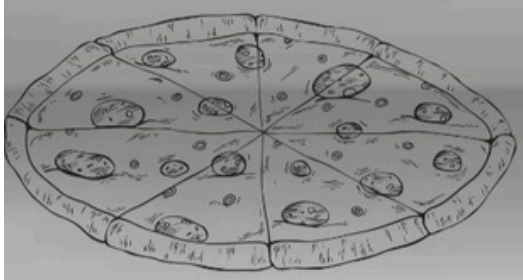
```sql
-- 1. CALCULATE THE PERCENTAGE OF CONTRIBUTION OF EACH PIZZA TYPE TO TOTAL REVENUE .
SELECT PIZZA_TYPES.CATEGORY ,
ROUND( SUM(ORDER_DETAILS.QUANTITY*PIZZAS.PRICE  ) /
(SELECT ROUND(SUM(ORDER_DETAILS.QUANTITY * PIZZAS.PRICE),2)
FROM ORDER_DETAILS
JOIN PIZZAS
ON
ORDER_DETAILS.PIZZA_ID = PIZZAS.PIZZA_ID)*100 ,3 )AS REVENUE
 FROM PIZZAS
 JOIN PIZZA_TYPES
 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 DESC;
```

CATEGORY	REVENUE
Classic	26.906
Supreme	25.456
Chicken	23.955
Veggie	23.683

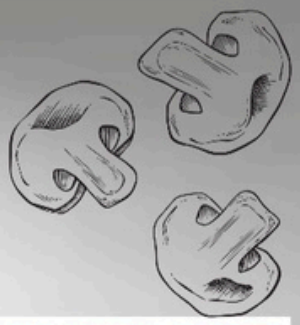
- **CLASSIC GENERATE REVENUE OF 26.90%**
- **VEGGIE GENERATE REVENUE OF 23.68%**
- **SUPREME GENERATE REVENUE OF 25.45%**
- **CHICKEN GENERATE REVENUE OF 23.95%**

```sql
-- 2.ANALYZE THE CUMULATIVE REVENUE GENERATED OVER TIME.
SELECT ORDER_DATE , SUM(REVENUE)
OVER (ORDER BY ORDER_DATE )AS CUM_REVENUE
FROM
(SELECT ORDERS.ORDER_DATE  , SUM(ORDER_DETAILS.QUANTITY *PIZZAS.PRICE) AS REVENUE
FROM ORDER_DETAILS
JOIN PIZZAS
ON
ORDER_DETAILS.PIZZA_ID = PIZZAS.PIZZA_ID
JOIN ORDERS
ON
ORDERS.ORDER_ID = ORDER_DETAILS.ORDER_ID
GROUP BY ORDERS.ORDER_DATE
ORDER BY ORDERS.ORDER_DATE  ) AS SALES;
```

ORDER_DATE	CUM_REVENUE
2015-01-01	2713.8500000000004
2015-01-02	5445.75
2015-01-03	8108.15
2015-01-04	9863.6
2015-01-05	11929.55



HERE IS THE CUMULATIVE REVENUE GENERATED OVER A DAY



```sql
 -- 3. DETERMINE THE TOP 3 MOST ORDERED PIZZA TYPE  BASED ON REVENUE FOR EACH PIZZAS 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

HERE WE HAVE TOP 3 BEST SELLING PIZZAS OF EACH CATEGORY WHICH GENERATE THE HIGHEST REVENUE

CONCLUSION

BY UTILIZING THE INSIGHTS FROM THE ANALYSIS , THE PIZZA STORE CAN IMPROVE ITS SALES AND CUSTOMER SATISFACTION , WHICH WILL ULTIMATELY BOOST ITS REVENUE .