Monday Coffee Sales Analysis Using SQL

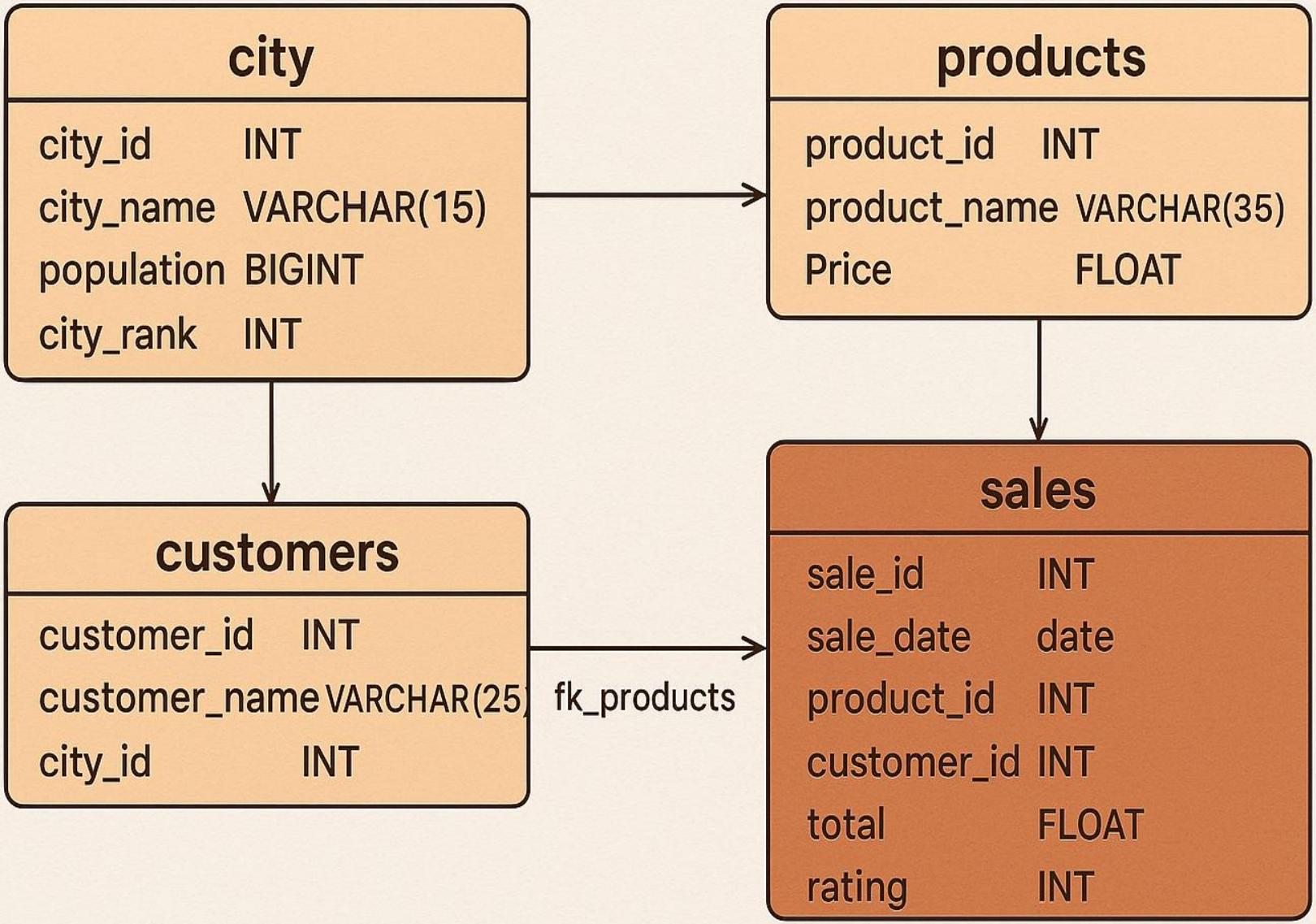
Project by Arnav Bawane

Objective

- The objective of this project is to analyze the sales data of **Monday Coffee**, an online coffee retailer operating since **January 2023**, in order to uncover key consumer insights and market trends. By leveraging SQL-based data analysis, this project aims to:
- Evaluate overall sales performance and customer behavior across different cities.
- Identify high-demand product categories and peak sales patterns.
- Estimate potential consumer bases using demographic and population data.
- Determine the **top three major cities in India** with the strongest potential for opening new **physical coffee shop locations**, based on both consumer demand and historical sales performance.
- The final recommendations will help **Monday Coffee** make data-driven decisions for its **retail expansion strategy**, minimizing risk and maximizing market opportunity.

Monday Coffee

DATABASE SCHEMA



Tables Used

Sales table

sale_id	sale_date	product_id	customer_id	total	rating
2609	9/1/2023	24	1	500	5
2716	9/4/2023	24	1	500	4
3025	9/14/2023	24	1	500	5
3581	10/2/2023	4	1	600	5
4504	11/4/2023	5	1	450	4
5079	11/23/2023	8	1	750	5
5452	12/5/2023	9	1	700	4
6630	1/15/2024	4	1	600	5
7322	2/10/2024	1	1	350	4

Product table

product_id	product_name	price
1	Ground Espresso Coffee (250g)	350
2	Cold Brew Coffee Pack (6 Bottles)	900
3	Instant Coffee Powder (100g)	250
4	Coffee Beans (500g)	600
5	Coffee Drip Bags (10 Bags)	450
6	French Press Coffee Set	1200
7	Specialty Coffee Subscription	1500
8	Flavored Coffee Pods (Pack of 10)	750
9	Organic Green Coffee Beans	700

City table

city_id	city_name	population	estimated_rent	city_rank
1	Bangalore	12300000	29700	1
2	Chennai	11100000	17100	6
3	Pune	7500000	15300	9
4	Jaipur	4000000	10800	8
5	Delhi	31000000	22500	3
6	Mumbai	20400000	31500	2
7	Hyderabad	10000000	22500	4
8	Ahmedabad	8300000	14400	5
9	Kolkata	14900000	16200	7

Customer table

customer_id	customer_name	city_id
1	Aarav Agarwal	1
2	Aarav Pandey	1
3	Aditi Gupta	1
4	Aditi Joshi	1
5	Aditi Reddy	1
6	Aditi Verma	1
7	Aditya Gupta	1
8	Aditya Malhotra	1
9	Aditya Sharma	1

Query - 1

What is the total sales per year?

Query:

```
select extract(year from SALE_DATE) as year,
    sum(total) as total_by_year
from SALES
group by extract(year from SALE_DATE)
order by year;
```

Output:

	YEAR	TOTAL_BY_YEAR
1	2023	3920300
2	2024	2149890

Query - 2

What are the total sales grouped by product category?

Query:

```
select p.product_name,
      sum(s.total) as sales
from PRODUCTS p
join sales s
 on s.PRODUCT_ID = p.PRODUCT_ID
group by p.PRODUCT_NAME
order by sales desc;
```

Output:

	PRODUCT_NAME	SALES
1	Cold Brew Coffee Pack (6 Bottles)	1193400
2	Coffee Beans (500g)	730800
3	Coffee Gift Hamper	486000
4	Ground Espresso Coffee (250g)	444850
5	Tote Bag with Coffee Design	388000
6	Specialty Coffee Subscription	387000
7	French Press Coffee Set	308400
8	Instant Coffee Powder (100g)	306500
9	Vanilla Coffee Syrup (250ml)	243840
10	Flavored Coffee Pods (Pack of 10)	221250
11	Organic Green Coffee Beans (500g)	214900
12	Insulated Travel Mug	177450
13	Cold Brew Concentrate (500ml)	171600
14	Coffee Drip Bags (10 Bags)	130050
15	Coffee Art Print	118400
16	Coffee Plant Kit (DIY)	81900
17	Coffee Bean Storage Canister	71200
18	Customizable Coffee Coaster Set	64500
19	Coffee Recipe Book	52800
20	Coffee-Themed T-Shirt	49200

Query - 3

How many people in each city are estimated to consume coffee, given that 25% of the population does?

Query:

```
SELECT
    city_name,
    ROUND(
    (population * 0.25)/1000000,
    2) as
coffee_consumers_in_millions,
    city_rank
FROM city
ORDER BY 2 DESC;
```

Output:

	CITY_NAME	COFFEE_CONSUMERS_IN_MILLIONS	CITY_RANK
1	Delhi	7.75	3
2	Mumbai	5.1	2
3	Kolkata	3.73	7
4	Bangalore	3.08	1
5	Chennai	2.78	6
6	Hyderabad	2.5	4
7	Ahmedabad	2.08	5
8	Pune	1.88	9
9	Surat	1.8	10
10	Jaipur	1	8
11	Lucknow	0.95	11
12	Indore	0.83	14
13	Kanpur	0.78	12
14	Nagpur	0.73	13

Query - 4

How many units of each coffee product have been sold?

Query:

```
select
    p.product_id ,
    p.product_name,
    count(s.total) as unit_per_product
from PRODUCTS p JOIN SALES s
  on p.PRODUCT_ID = s.PRODUCT_ID
group by
p.PRODUCT_ID,p.PRODUCT_NAME
order by p.PRODUCT_ID asc;
```

Output:

T_ID	PRODUCT_NAME	UNIT_PER_PRODUCT
1	Ground Espresso Coffee (250g)	1271
2	Cold Brew Coffee Pack (6 Bottles)	1326
3	Instant Coffee Powder (100g)	1226
4	Coffee Beans (500g)	1218
5	Coffee Drip Bags (10 Bags)	289
6	French Press Coffee Set	257
7	Specialty Coffee Subscription	258
8	Flavored Coffee Pods (Pack of 10)	295
9	Organic Green Coffee Beans (500g)	307
10	Coffee Gift Hamper	270
11	Cold Brew Concentrate (500ml)	312
12	Caramel Syrup (250ml)	96
13	Mocha Flavored Coffee Mix (200g)	86
14	Vanilla Coffee Syrup (250ml)	762
15	Coffee Mug (Ceramic)	73
16	Stainless Steel Tumbler	75
17	Coffee-Themed T-Shirt	82
18	Reusable Coffee Cup (Eco-friendly)	78
19	Glass Coffee Jar (500ml)	77
20	Coffee Bean Storage Canister	89

Query - 5

What is the total sales per month?

Query:

```
SELECT
    EXTRACT(YEAR FROM s.sale_date) AS year,
    EXTRACT(MONTH FROM s.sale_date) AS month,
    SUM(s.total) AS total_sales
FROM sales s
GROUP BY EXTRACT(YEAR FROM s.sale_date),
EXTRACT(MONTH FROM s.sale_date)
ORDER BY year, month;
```

Output:

	YEAR	MONTH	TOTAL_SALES
1	2023	1	183070
2	2023	2	179930
3	2023	3	211820
4	2023	4	189250
5	2023	5	207960
6	2023	6	182360
7	2023	7	215410
8	2023	8	158900
9	2023	9	428300
10	2023	10	682500
11	2023	11	709200
12	2023	12	571600
13	2024	1	385090
14	2024	2	446850
15	2024	3	512350
16	2024	4	125850
17	2024	5	167150
18	2024	6	116300
19	2024	7	114750
20	2024	8	136800

Query - 6

Which are the top 3 cities based on total sales?

Query:

```
select ci.city_name,
      sum(s.total) as total_sale
from SALES s
join CUSTOMERS c
 on s.CUSTOMER_ID = c.CUSTOMER_ID
 join CITY ci
 on c.CITY_ID = c.CITY_ID
 group by ci.CITY_NAME
ORDER by total_sale desc
fetch FIRST 3 ROWS ONLY;
```

Output:

	CITY_NAME	TOTAL_SALE
1	Kanpur	6070190
2	Ahmedabad	6070190
3	Jaipur	6070190

Query - 7

Who are the top 10 customers based on total spend?

Output:

	CUSTOMER_ID	TOTAL
1	132	38510
2	130	33760
3	128	32940
4	107	32640
5	117	32210
6	133	32120
7	52	31800
8	127	31540
9	65	31490
10	13	31220

Query:

```
select * from
  (select c.customer_id, sum(s.total) as total
  from CUSTOMERS c
  join SALES s
   on c.customer_id = s.customer_id
   GROUP BY c.customer_id
   order by total desc)
where rownum <= 10;
```

Query - 8

Which date had the highest total sales?

Query:

```
select sale_date,
      sum(total) as total_sale
from SALES
group by SALE_DATE
order by total_sale desc
fetch FIRST 1 ROW ONLY;
```

Output

	SALE_DATE	TOTAL_SALE
1	01-DEC-23	56350

Query - 9

What is the total revenue generated from coffee sales across all cities in the last quarter of 2023?

Query:

```
select
    c.city_name,
    sum(s.TOTAL) as revenue
from CITY c join CUSTOMERS cu
  on c.CITY_ID = cu.CITY_ID
join SALES s
  on cu.CUSTOMER_ID = s.CUSTOMER_ID
where EXTRACT(YEAR from s.sale_date) = 2023
  and  TO_CHAR(s.sale_date, 'Q') = '4'
group by c.city_name
order by 2 desc;
```

Output:

	CITY_NAME	REVENUE
1	Pune	434330
2	Chennai	302500
3	Bangalore	270780
4	Jaipur	248580
5	Delhi	238490
6	Kanpur	71890
7	Mumbai	71340
8	Surat	52560
9	Kolkata	51180
10	Nagpur	45810
11	Indore	45670
12	Hyderabad	45060
13	Ahmedabad	43560
14	Lucknow	41550

Query - 10

What is the average sales amount per customer in each city?

Query:

```
select c.city_name,
      round(avg(cs.total_sales),2) as avg_sale
from city  c join customers cu
  on c.city_id = cu.city_id
 join
(SELECT
       customer_id,
       SUM(total) AS total_sales
FROM sales
GROUP BY customer_id) cs
  on cu.customer_id = cs.customer_id
group by c.CITY_NAME
order BY avg_sale desc;
```

Output:

	CITY_NAME	AVG_SALE
1	Pune	24197.88
2	Chennai	22479.05
3	Bangalore	22054.1
4	Jaipur	11644.2
5	Delhi	11035.59
6	Mumbai	8703.7
7	Indore	6599.52
8	Surat	6538.52
9	Hyderabad	6262.86
10	Kolkata	6123.57
11	Kanpur	6101.43
12	Ahmedabad	5986.52
13	Nagpur	5835.42
14	Lucknow	5209.52

Query - 11

How many unique customers are there in each city who have purchased coffee products?

Query

```
select ci.city_name,
      count(distinct(c.customer_id)) as customer
from  city ci
join customers c
on c.city_id = ci.city_id
join sales s
on s.customer_id = c.customer_id
where s.PRODUCT_ID in
(1,2,3,4,5,6,7,8,9,10,11,12,13,14)
group by ci.city_name
order BY 2 DESC;
```

Output

	CITY_NAME	CUSTOMER
1	Jaipur	69
2	Delhi	68
3	Pune	52
4	Chennai	42
5	Bangalore	39
6	Kanpur	35
7	Kolkata	28
8	Surat	27
9	Mumbai	27
10	Nagpur	24
11	Ahmedabad	23
12	Lucknow	21
13	Hyderabad	21
14	Indore	21

Query – 12

What is the percentage contribution of each city to total sales?

Query

```
select ci.city_name,
      round(sum(s.total)*100/(select sum(total)
from sales),2) as sales_percentage
from city ci
JOIN customers c
  ON c.city_id = ci.city_id
JOIN sales s
  ON s.customer_id = c.customer_id
group by ci.city_name
order by sales_percentage desc;
```

Output

	CITY_NAME	SALES_PERCENTAGE
1	Pune	20.73
2	Chennai	15.55
3	Bangalore	14.17
4	Jaipur	13.24
5	Delhi	12.36
6	Mumbai	3.87
7	Kanpur	3.52
8	Surat	2.91
9	Kolkata	2.82
10	Nagpur	2.31
11	Indore	2.28
12	Ahmedabad	2.27
13	Hyderabad	2.17
14	Lucknow	1.8

Query – 13

Provide a list of cities along with their population, total customers, and estimated coffee consumers (25%).

```
WITH city_table
AS
 (
select city_name,
    round((population*0.25)/1000000,2) as coffe_consumers
from CITY
       ),
customer
as
   (
    select c.city_name,
        count(distinct(cu.customer_id))as cu_id
    from CITY c join CUSTOMERS cu
    on cu.CITY_ID = c.CITY_ID
    group by c.CITY_NAME
   order by 2 desc
)
select city_table.city_name,
     city_table.coffe_consumers,
    customer.cu_id
from city_table JOIN customer
on city_table.city_name = customer.city_name;
```

Query **Output**

	CITY_NAME	COFFE_CONSUMERS	CU_ID
1	Jaipur	1	69
2	Delhi	7.75	68
3	Pune	1.88	52
4	Chennai	2.78	42
5	Bangalore	3.08	39
6	Kanpur	0.78	35
7	Kolkata	3.73	28
8	Surat	1.8	27
9	Mumbai	5.1	27
10	Nagpur	0.73	24
11	Ahmedabad	2.08	23
12	Lucknow	0.95	21
13	Hyderabad	2.5	21
14	Indore	0.83	21

Query – 14

What are the top 3 selling products in each city based on sales volume?

```
select * FROM
(select  c.city_name,
      p.PRODUCT_NAME,
      count(sale_id) as total_order,
      DENSE_RANK()OVER(PARTITION by
c.city_name ORDER by count(sale_id)desc)
as rank
from CITY c JOIN CUSTOMERS
on c.CITY_ID = CUSTOMERS.CITY_ID
join SALES s
on  CUSTOMERS.CUSTOMER_ID =
s.CUSTOMER_ID
join PRODUCTS p
on s.PRODUCT_ID = p.PRODUCT_ID
group by c.city_name,p.PRODUCT_NAME)
where rank <= 3;
```

← **Query** **Output**

CITY_NAME	PRODUCT_NAME	TOTAL_ORDER	RANK
Ahmedabad	Cold Brew Coffee Pack (6 Bottles)	40	1
Ahmedabad	Coffee Beans (500g)	35	2
Ahmedabad	Instant Coffee Powder (100g)	26	3
Bangalore	Cold Brew Coffee Pack (6 Bottles)	197	1
Bangalore	Ground Espresso Coffee (250g)	167	2
Bangalore	Instant Coffee Powder (100g)	150	3
Chennai	Cold Brew Coffee Pack (6 Bottles)	192	1
Chennai	Coffee Beans (500g)	181	2
Chennai	Instant Coffee Powder (100g)	172	3
Delhi	Ground Espresso Coffee (250g)	183	1
Delhi	Instant Coffee Powder (100g)	170	2
Delhi	Coffee Beans (500g)	161	3
Hyderabad	Instant Coffee Powder (100g)	36	1
Hyderabad	Cold Brew Coffee Pack (6 Bottles)	28	2
Hyderabad	Ground Espresso Coffee (250g)	27	3
Indore	Instant Coffee Powder (100g)	33	1
Indore	Ground Espresso Coffee (250g)	26	2
Indore	Cold Brew Coffee Pack (6 Bottles)	26	2
Indore	Coffee Beans (500g)	23	3
Jaipur	Cold Brew Coffee Pack (6 Bottles)	178	1

Query – 15

Who is the customer that spent the most in every city?

```
SELECT city_name, customer_name, total_sales
FROM (
   SELECT ci.city_name,
          c.customer_name,
          SUM(s.total) AS total_sales,
          ROW_NUMBER() OVER (
             PARTITION BY ci.city_name
             ORDER BY SUM(s.total) DESC
          ) AS rn
   FROM city ci
   JOIN customers c
     ON c.city_id = ci.city_id
   JOIN sales s
     ON s.customer_id = c.customer_id
   GROUP BY ci.city_name, c.customer_name
)
WHERE rn = 1;
```

	CITY_NAME	CUSTOMER_NAME	TOTAL_SALES
1	Ahmedabad	Vihaan Nair	9860
2	Bangalore	Ananya Malhotra	31220
3	Chennai	Aditi Rao	31800
4	Delhi	Aditi Singh	19120
5	Hyderabad	Vihaan Agarwal	10670
6	Indore	Shaurya Sinha	11460
7	Jaipur	Mira Gupta	27750
8	Kanpur	Kiara Singh	11340
9	Kolkata	Shaurya Sharma	9770
10	Lucknow	Navya Desai	11400
11	Mumbai	Mira Reddy	16890
12	Nagpur	Aryan Reddy	9540
13	Pune	Veer Kapoor	38510
14	Surat	Vihaan Kumar	14850

Query – 16

What is the average sales per product category per month?

Query

```
select p.product_name,
     to_char(s.sale_date, 'yyyy-mm') as month,
      avg(s.total) as avg_sales
from sales s
join PRODUCTS p
  on s.PRODUCT_ID = p.PRODUCT_ID
group by p.PRODUCT_NAME,to_char(s.sale_date,
'yyyy-mm')
order by avg_sales desc;
```

Output

	PRODUCT_NAME	MONTH	AVG_SALES
1	Coffee Gift Hamper	2023-11	1800
2	Coffee Gift Hamper	2023-06	1800
3	Coffee Gift Hamper	2023-08	1800
4	Coffee Gift Hamper	2023-07	1800
5	Coffee Gift Hamper	2023-05	1800
6	Coffee Gift Hamper	2023-12	1800
7	Coffee Gift Hamper	2023-03	1800
8	Coffee Gift Hamper	2023-04	1800
9	Coffee Gift Hamper	2023-10	1800
10	Coffee Gift Hamper	2023-01	1800
11	Coffee Gift Hamper	2023-02	1800
12	Specialty Coffee Subscription	2023-12	1500
13	Specialty Coffee Subscription	2023-01	1500
14	Specialty Coffee Subscription	2023-03	1500
15	Specialty Coffee Subscription	2023-04	1500
16	Specialty Coffee Subscription	2023-07	1500
17	Specialty Coffee Subscription	2023-06	1500
18	Specialty Coffee Subscription	2023-11	1500
19	Specialty Coffee Subscription	2023-02	1500
20	Specialty Coffee Subscription	2023-05	1500

Recommendation for New Shop Opening

- City 1: Pune
- 1.sales contribution by city is high 20%
- 2.Highest total revenue. 3.Average sales per customer is also high.

- City 2: Delhi
- 1.Highest estimated coffee consumers at 7.7 million.
- 2.Highest total number of customers, which is 68.

- City 3: Jaipur
- 1.Highest number of customers, which is 69.
- 2. comes in top 3 city by sales
- 3.Average sales per customer is better at 11.6k

Conclusion

Pune shows the strongest revenue potential with high sales contribution and customer value.

Delhi offers the largest market size and strong customer base.

Jaipur demonstrates high customer engagement and competitive sales performance.

✅ Based on the analysis, **Pune emerges as the most promising location** for opening the new shop, with Delhi and Jaipur as strong future expansion opportunities.