Monday Coffee Expansion -Data Analsis using SQL

```sql
-- Monday Coffee -- Data Analysis

SELECT * FROM city;
SELECT * FROM Products;
SELECT * FROM customers;
SELECT * FROM sales;

-- Report & Data Analsyis

-- Q1. Coffee Consumers Count
-- How many people in each city are estimated to consume coffee, given that 25% of the

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

	city_name character varying (15)	coffee_consumers_in_millions numeric	city_rank integer
1	Delhi	7.75	3
2	Mumbai	5.10	2
3	Kolkata	3.73	7
4	Bangalore	3.08	1
5	Chennai	2.78	6
6	Hyderabad	2.50	4
7	Ahmedabad	2.08	5
8	Pune	1.88	9
9	Surat	1.80	10
10	Jaipur	1.00	8
11	Lucknow	0.95	11
12	Indore	0.83	14
13	Kanpur	0.78	12
14	Nagpur	0.73	13

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```sql
-- Q2.Total Revenue from Coffee Sales
-- What is the total revenue generated from coffee sales across all cities in the last

SELECT
     ci.city_name,
     SUM(s.total)as total_revenue
FROM sales as s
JOIN customers as c
ON s.customer_id = c.customer_id
JOIN city as ci
ON ci.city_id = c.city_id
WHERE
    EXTRACT (YEAR FROM s.sale_date) = 2023
    AND
    EXTRACT (quarter FROM s.sale_date) = 4
GROUP BY 1
ORDER BY 2 DESC;
```

	city_name character varying (15)	total_revenue double precision
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

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```sql
-- Q3. Sales Count for Each Product
-- How many units of each coffee product have been sold?

SELECT
    p.product_name,
    COUNT(s.sale_id)as total_orders
FROM products as p
LEFT JOIN sales as s
ON s.product_id = p.product_id
GROUP BY 1
ORDER BY 2 DESC;
```

	product_name character varying (35)	total_orders bigint
1	Cold Brew Coffee Pack (6 Bottles)	1326
2	Ground Espresso Coffee (250g)	1271
3	Instant Coffee Powder (100g)	1226
4	Coffee Beans (500g)	1218
5	Tote Bag with Coffee Design	776
6	Vanilla Coffee Syrup (250ml)	762
7	Cold Brew Concentrate (500ml)	312
8	Organic Green Coffee Beans (500...	307
9	Coffee Art Print	296
10	Flavored Coffee Pods (Pack of 10)	295
11	Coffee Drip Bags (10 Bags)	289
12	Insulated Travel Mug	273
13	Coffee Gift Hamper	270
14	Specialty Coffee Subscription	258
15	Customizable Coffee Coaster Set	258
16	French Press Coffee Set	257
17	Caramel Syrup (250ml)	96
18	Coffee Plant Kit (DIY)	91
19	Coffee Bean Storage Canister	89
20	Coffee Recipe Book	88
21	Mocha Flavored Coffee Mix (200g)	86
22	Personalized Coffee Spoon	83
23	Coffee-Themed T-Shirt	82
24	Reusable Coffee Cup (Eco-friendly)	78
25	Glass Coffee Jar (500ml)	77

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```sql
--Q4.Average Sales Amount per City
-- What is the average sales amount per customer in each city?

SELECT
    ci.city_name,
    SUM(s.total)as total_revenue,
    COUNT(DISTINCT s.customer_id)as total_customers,
    ROUND(
            SUM(s.total)::numeric/
               COUNT(DISTINCT s.customer_id)::numeric
            ,2)as avg_sale_per_customer
FROM sales as s
JOIN customers as c
ON s.customer_id = c.customer_id
JOIN city as ci
ON ci.city_id = c.city_id
GROUP BY 1
ORDER BY 2 DESC;
```

	city_name character varying (15)	total_revenue double precision	total_customers bigint	avg_sale_per_customer numeric
1	Pune	1258290	52	24197.88
2	Chennai	944120	42	22479.05
3	Bangalore	860110	39	22054.10
4	Jaipur	803450	69	11644.20
5	Delhi	750420	68	11035.59
6	Mumbai	235000	27	8703.70
7	Kanpur	213550	35	6101.43
8	Surat	176540	27	6538.52
9	Kolkata	171460	28	6123.57
10	Nagpur	140050	24	5835.42
11	Indore	138590	21	6599.52
12	Ahmedabad	137690	23	5986.52
13	Hyderabad	131520	21	6262.86
14	Lucknow	109400	21	5209.52

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```sql
--Q5.City Population and Coffee Consumers
-- Provide a list of cities along with their populations and estimated coffee consumers
-- return city_name, total_current cx, estimated coffee consumers (25%)

WITH city_table as
(
    SELECT
        city_name,
        ROUND((population * 0.25)/1000000, 2) as coffee_consumers
    FROM city
),
customers_table
AS
(
    SELECT
        ci.city_name,
        COUNT(DISTINCT c.customer_id) as unique_cx
    FROM sales as s
    JOIN customers as c
    ON c.customer_id = s.customer_id
    JOIN city as ci
    ON ci.city_id = c.city_id
    GROUP BY 1
)
SELECT
    customers_table.city_name,
    city_table.coffee_consumers as coffee_consumer_in_millions,
    customers_table.unique_cx
FROM city_table
JOIN
customers_table
ON city_table.city_name = customers_table.city_name
```

	city_name character varying (15)	coffee_consumer_in_millions numeric	unique_cx bigint
1	Bangalore	3.08	39
2	Chennai	2.78	42
3	Pune	1.88	52
4	Jaipur	1.00	69
5	Delhi	7.75	68
6	Mumbai	5.10	27
7	Hyderabad	2.50	21
8	Ahmedabad	2.08	23
9	Kolkata	3.73	28
10	Surat	1.80	27
11	Lucknow	0.95	21
12	Kanpur	0.78	35
13	Nagpur	0.73	24
14	Indore	0.83	21

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```sql
-- -- Q6
-- Top Selling Products by City
-- What are the top 3 selling products in each city based on sales volume?

SELECT *
FROM -- table
(
    SELECT
        ci.city_name,
        p.product_name,
        COUNT(s.sale_id) as total_orders,
        DENSE_RANK() OVER(PARTITION BY ci.city_name ORDER BY COUNT(s.sale_id) DESC)
        as rank
    FROM sales as s
    JOIN products as p
    ON s.product_id = p.product_id
    JOIN customers as c
    ON c.customer_id = s.customer_id
    JOIN city as ci
    ON ci.city_id = c.city_id
    GROUP BY 1, 2
    -- ORDER BY 1, 3 DESC
) as t1
WHERE rank <= 3
```

	city_name character varying (15)	product_name character varying (35)	total_orders bigint	rank bigint
1	Ahmedabad	Cold Brew Coffee Pack (6 Bottles)	40	1
2	Ahmedabad	Coffee Beans (500g)	35	2
3	Ahmedabad	Instant Coffee Powder (100g)	26	3
4	Bangalore	Cold Brew Coffee Pack (6 Bottles)	197	1
5	Bangalore	Ground Espresso Coffee (250g)	167	2
6	Bangalore	Instant Coffee Powder (100g)	150	3
7	Chennai	Cold Brew Coffee Pack (6 Bottles)	192	1
8	Chennai	Coffee Beans (500g)	181	2
9	Chennai	Instant Coffee Powder (100g)	172	3
10	Delhi	Ground Espresso Coffee (250g)	183	1
11	Delhi	Instant Coffee Powder (100g)	170	2
12	Delhi	Coffee Beans (500g)	161	3
13	Hyderabad	Instant Coffee Powder (100g)	36	1
14	Hyderabad	Cold Brew Coffee Pack (6 Bottles)	28	2
15	Hyderabad	Ground Espresso Coffee (250g)	27	3
16	Indore	Instant Coffee Powder (100g)	33	1
17	Indore	Cold Brew Coffee Pack (6 Bottles)	26	2
18	Indore	Ground Espresso Coffee (250g)	26	2
19	Indore	Coffee Beans (500g)	23	3
20	Jaipur	Cold Brew Coffee Pack (6 Bottles)	178	1
21	Jaipur	Coffee Beans (500g)	175	2
22	Jaipur	Instant Coffee Powder (100g)	170	3
23	Kanpur	Cold Brew Coffee Pack (6 Bottles)	57	1
24	Kanpur	Ground Espresso Coffee (250g)	55	2
25	Kanpur	Coffee Beans (500g)	50	3

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```sql
-- Q.7
-- Customer Segmentation by City
-- How many unique customers are there in each city who have purchased coffee products?

SELECT * FROM products;



SELECT
    ci.city_name,
    COUNT(DISTINCT c.customer_id) as unique_cx
FROM city as ci
LEFT JOIN
customers as c
ON c.city_id = ci.city_id
JOIN sales as 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 1
```

	city_name character varying (15)	unique_cx bigint
1	Ahmedabad	23
2	Bangalore	39
3	Chennai	42
4	Delhi	68
5	Hyderabad	21
6	Indore	21
7	Jaipur	69
8	Kanpur	35
9	Kolkata	28
10	Lucknow	21
11	Mumbai	27
12	Nagpur	24
13	Pune	52
14	Surat	27

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```sql
-- -- Q.8
-- Average Sale vs Rent
-- Find each city and their average sale per customer and avg rent per customer

-- Conclusions

WITH city_table
AS
(
    SELECT
        ci.city_name,
        SUM(s.total) as total_revenue,
        COUNT(DISTINCT s.customer_id) as total_cx,
        ROUND(
                SUM(s.total)::numeric/
                    COUNT(DISTINCT s.customer_id)::numeric
                ,2) as avg_sale_pr_cx

    FROM sales as s
    JOIN customers as c
    ON s.customer_id = c.customer_id
    JOIN city as ci
    ON ci.city_id = c.city_id
    GROUP BY 1
    ORDER BY 2 DESC
),
city_rent
AS
(SELECT
    city_name,
    estimated_rent
FROM city
)
SELECT
    cr.city_name,
    cr.estimated_rent,
    ct.total_cx,
    ct.avg_sale_pr_cx,
    ROUND(
        cr.estimated_rent::numeric/
                                        ct.total_cx::numeric
        , 2) as avg_rent_per_cx
FROM city_rent as cr
JOIN city_table as ct
ON cr.city_name = ct.city_name
ORDER BY 4 DESC
```

	city_name character varying (15)	estimated_rent double precision	total_cx bigint	avg_sale_pr_cx numeric	avg_rent_per_cx numeric
1	Pune	15300	52	24197.88	294.23
2	Chennai	17100	42	22479.05	407.14
3	Bangalore	29700	39	22054.10	761.54
4	Jaipur	10800	69	11644.20	156.52
5	Delhi	22500	68	11035.59	330.88
6	Mumbai	31500	27	8703.70	1166.67
7	Indore	6300	21	6599.52	300.00
8	Surat	13500	27	6538.52	500.00
9	Hyderabad	22500	21	6262.86	1071.43
10	Kolkata	16200	28	6123.57	578.57
11	Kanpur	8100	35	6101.43	231.43
12	Ahmedabad	14400	23	5986.52	626.09
13	Nagpur	7200	24	5835.42	300.00
14	Lucknow	9000	21	5209.52	428.57

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```sql
-- Q.9
-- Monthly Sales Growth
-- Sales growth rate: Calculate the percentage growth (or decline) in sales
--over different time periods (monthly)
-- by each city

WITH
monthly_sales
AS
(
    SELECT
        ci.city_name,
        EXTRACT(MONTH FROM sale_date) as month,
        EXTRACT(YEAR FROM sale_date) as YEAR,
        SUM(s.total) as total_sale
    FROM sales as s
    JOIN customers as c
    ON c.customer_id = s.customer_id
    JOIN city as ci
    ON ci.city_id = c.city_id
    GROUP BY 1, 2, 3
    ORDER BY 1, 3, 2
),
growth_ratio
AS

(
        SELECT
            city_name,
            month,
            year,
            total_sale as cr_month_sale,
            LAG(total_sale, 1) OVER(PARTITION BY city_name ORDER BY year, month) as
            last_month_sale
        FROM monthly_sales
)

SELECT
    city_name,
    month,
    year,
    cr_month_sale,
    last_month_sale,
    ROUND(
        (cr_month_sale-last_month_sale)::numeric/last_month_sale::numeric * 100
        , 2
        ) as growth_ratio

FROM growth_ratio
WHERE
    last_month_sale IS NOT NULL
```

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	city_name character varying (15)	month numeric	year numeric	cr_month_sale double precision	last_month_sale double precision	growth_ratio numeric
1	Ahmedabad	2	2023	4100	3750	9.33
2	Ahmedabad	3	2023	3050	4100	-25.61
3	Ahmedabad	4	2023	4040	3050	32.46
4	Ahmedabad	5	2023	2550	4040	-36.88
5	Ahmedabad	6	2023	2900	2550	13.73
6	Ahmedabad	7	2023	2800	2900	-3.45
7	Ahmedabad	8	2023	4300	2800	53.57
8	Ahmedabad	9	2023	8250	4300	91.86
9	Ahmedabad	10	2023	10950	8250	32.73
10	Ahmedabad	11	2023	21250	10950	94.06
11	Ahmedabad	12	2023	11360	21250	-46.54
12	Ahmedabad	1	2024	12090	11360	6.43
13	Ahmedabad	2	2024	10900	12090	-9.84
14	Ahmedabad	3	2024	14000	10900	28.44
15	Ahmedabad	4	2024	3950	14000	-71.79
16	Ahmedabad	5	2024	5250	3950	32.91
17	Ahmedabad	6	2024	3300	5250	-37.14
18	Ahmedabad	7	2024	2700	3300	-18.18
19	Ahmedabad	8	2024	3550	2700	31.48
20	Ahmedabad	9	2024	2650	3550	-25.35
21	Bangalore	2	2023	24750	36890	-32.91
22	Bangalore	3	2023	26120	24750	5.54
23	Bangalore	4	2023	23520	26120	-9.95
24	Bangalore	5	2023	37790	23520	60.67
25	Bangalore	6	2023	37790	37790	0.00

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```sql
-- Q.10
-- Market Potential Analysis
-- Identify top 3 city based on highest sales, return city name, total sale,
-- total rent, total customers, estimated coffee consumer


WITH city_table
AS
(
    SELECT
        ci.city_name,
        SUM(s.total) as total_revenue,
        COUNT(DISTINCT s.customer_id) as total_cx,
        ROUND(
                SUM(s.total)::numeric/
                    COUNT(DISTINCT s.customer_id)::numeric
                ,2) as avg_sale_pr_cx

    FROM sales as s
    JOIN customers as c
    ON s.customer_id = c.customer_id
    JOIN city as ci
    ON ci.city_id = c.city_id
    GROUP BY 1
    ORDER BY 2 DESC
),
city_rent
AS

(
    SELECT
        city_name,
        estimated_rent,
        ROUND((population * 0.25)/1000000, 3) as estimated_coffee_consumer_in_millions
    FROM city
)
SELECT
    cr.city_name,
    total_revenue,
    cr.estimated_rent as total_rent,
    ct.total_cx,
    estimated_coffee_consumer_in_millions,
    ct.avg_sale_pr_cx,
    ROUND(
        cr.estimated_rent::numeric/
                                    ct.total_cx::numeric
        , 2) as avg_rent_per_cx
FROM city_rent as cr
JOIN city_table as ct
ON cr.city_name = ct.city_name
ORDER BY 2 DESC
```

Monday Coffee Expansion -Data Analsis using SQL

	city_name character varying (15)	total_revenue double precision	total_rent double precision	total_cx bigint	estimated_coffee_consumer_in_millions numeric	avg_sale_pr_cx numeric	avg_rent_per_cx numeric
1	Pune	1258290	15300	52	1.875	24197.88	294.23
2	Chennai	944120	17100	42	2.775	22479.05	407.14
3	Bangalore	860110	29700	39	3.075	22054.10	761.54
4	Jaipur	803450	10800	69	1.000	11644.20	156.52
5	Delhi	750420	22500	68	7.750	11035.59	330.88
6	Mumbai	235000	31500	27	5.100	8703.70	1166.67
7	Kanpur	213550	8100	35	0.775	6101.43	231.43
8	Surat	176540	13500	27	1.800	6538.52	500.00
9	Kolkata	171460	16200	28	3.725	6123.57	578.57
10	Nagpur	140050	7200	24	0.725	5835.42	300.00
11	Indore	138590	6300	21	0.825	6599.52	300.00
12	Ahmedabad	137690	14400	23	2.075	5986.52	626.09
13	Hyderabad	131520	22500	21	2.500	6262.86	1071.43
14	Lucknow	109400	9000	21	0.950	5209.52	428.57

Recomendation

City 1: Pune

1.Average rent per customer is very low.

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.

3.Average rent per customer is 330 (still under 500).

City 3: Jaipur

1.Highest number of customers, which is 69.

2.Average rent per customer is very low at 156.

3.Average sales per customer is better at 11.6k.