1. How many people in each city are expected to consume coffee, given that 25% of the population do?

Explanation - It helps to identify which city has the highest coffee consumer base, assuming that the 25% of population consumes the coffee.

Query-

```
select city_rank, city_name, population * 0.25 as Est_Coffee_Consumers
from cities
order by Est_Coffee_Consumers desc;
```

Output-

city_rank	city_name	Est_Coffee_Consumers
3	Delhi	7750000.00
2	Mumbai	5100000.00
7	Kolkata	3725000.00
1	Bangalore	3075000.00
6	Chennai	2775000.00
4	Hyderabad	2500000.00
5	Ahmedabad	2075000.00
9	Pune	1875000.00
10	Surat	1800000.00
8	Jaipur	1000000.00
11	Lucknow	950000.00
14	Indore	825000.00
12	Kanpur	775000.00
13	Nagpur	725000.00

Insight - Delhi, Mumbai and Kolkata have the highest coffee consumers which means the higher demand.

2. Total revenues by cities for 4th quarter 2023 ?

Explanation- It identifies which cities are already generating high sales.

Query-

```
select C.city_name, sum(S.total) as Total_Revenue
from sales S
inner join customers CU on S.customer_id = CU.customer_id
inner join cities C on CU.city_id = C.city_id
where S.sale_date between "2023-10-01" and "2023-12-31"
group by C.city_name
order by sum(S.total) desc;
```

Output-

city_name	Total_Revenue
Pune	434330
Chennai	302500
Bangalore	270780
Jaipur	248580
Delhi	238490
Kanpur	71890
Mumbai	71340
Surat	52560
Kolkata	51180
Nagpur	45810
Indore	45670
Hyderabad	45060
Ahmedabad	43560
Lucknow	41550

Insight- Pune, Chennai and Bangalore have been the profitable market in the last quarter of 2023.

3. Count of sales for each product?

Explanation- It shows the most profitable coffee products. # 3 Count of sales for the each product?

Query-

```
select P.product_name, count(P.product_id) as Total_Sales_Count
from products P
inner join sales S on P.product_id = S.product_id
group by P.product_name
order by Total_Sales_Count desc;
```

Output-

product_name	Total_Sales_Count
Cold Brew Coffee Pack (6 Bottles)	1326
Ground Espresso Coffee (250g)	1271
Instant Coffee Powder (100g)	1226
Coffee Beans (500g)	1218
Tote Bag with Coffee Design	776
Vanilla Coffee Syrup (250ml)	762
Cold Brew Concentrate (500ml)	312
Organic Green Coffee Beans (500g)	307
Coffee Art Print	296
Flavored Coffee Pods (Pack of 10)	295
Coffee Drip Bags (10 Bags)	289
Insulated Travel Mug	273
Coffee Gift Hamper	270
Customizable Coffee Coaster Set	258
Specialty Coffee Subscription	258
French Press Coffee Set	257

Explanation- It shows the most profitable coffee products.

4. Average sales per customers in each cities?

Explanation-Highlights the cities where the customers spend more(high customer values-average sales per customer)

Query-

```
select C.city_name, sum(S.total) as Total_Revenue, count(distinct CU.customer_id) as Unique_Customers,
round(sum(S.total) / count(distinct CU.customer_id)) as Average_Sales_Per_Customer
from sales S
inner join customers CU on S.customer_id = CU.customer_id
inner join cities C on CU.city_id = C.city_id
group by C.city_name
order by Average_Sales_Per_Customer desc;
```

Output-

city_name	Total_Revenue	Unique_Customers	Average_Sales_Per_Customer
Pune	1258290	52	24198
Chennai	944120	42	22479
Bangalore	860110	39	22054
Jaipur	803450	69	11644
Delhi	750420	68	11036
Mumbai	235000	27	8704
Indore	138590	21	6600
Surat	176540	27	6539
Hyderabad	131520	21	6263
Kolkata	171460	28	6124
Kanpur	213550	35	6101
Ahmedabad	137690	23	5987
Nagpur	140050	24	5835
Lucknow	109400	21	5210

Insight-Pune, Chennai, Bangalore have the highest average sales per customer.

5. Find coffee consumers then the unique customers per city?#coffee consumers are 25% of the population...

Explanation: It helps to identify the gap between market potential and current reach. Cities with larger gap means untapped high potential.

Query-

```
with CoffeeConsumer_CTE as
(select city_id, city_name, round((population * 0.25)/100000)As Coffee_Consumers_Millions
from cities )

select CC.city_name, CC.Coffee_Consumers_Millions, count(distinct(CU.customer_id)) As Unique_Customer, Coffee_Consumers_Millions-count(distinct(CU.customer_id)) As Potential_MarketGap
from CoffeeConsumer_CTE CC
join customers CU on CC.city_id = CU.city_id
group by CC.city_name, CC.Coffee_Consumers_Millions
order by Potential_MarketGap desc;
```

Output-

city_name	Coffee_Consumers_Millions	Unique_Customer	Potential_MarketGap
Mumbai	51	27	24
Delhi	78	68	10
Kolkata	37	28	9
Hyderabad	25	21	4
Ahmedabad	21	23	-2
Bangalore	31	39	-8
Surat	18	27	-9
Lucknow	10	21	-11
Indore	8	21	-13
Chennai	28	42	-14
Nagpur	7	24	-17
Kanpur	8	35	-27
Pune	19	52	-33
Jaipur	10	69	-59

Insight-Mumbai, Delhi and Kolkata aren't the best location to open a new cafe because of the high potential market gap.

6. What are the top 3 selling products by cities?

Explanation: It tells about the specific products sold in each cities.

Query-

```
with BestSellerProducts_CTE as
(select C.city_name, P.product_name, count(S.sale_id) as Total_Orders,
Rank() Over (partition by C.city_name order by count(S.sale_id) desc) As Overall_Rank
from products P
join sales S on P.product_id = S.product_id
join customers CU on S.customer_id = CU.customer_id
join cities C on CU.city_id = C.city_id
group by C.city_name, P.product_name )

select * from BestSellerProducts_CTE
where Overall_Rank <= 3
order by city_name,Total_Orders desc;
```

Output-

city_name	product_name	Total_Orders	Overall_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

Insight- Popular products differ by each city and by aligning products offering per location can increase customers satisfaction and sales.

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

Explanation- It's useful to identify the market engagement.

Query-

```
select C.city_name, count(distinct CU.customer_id) As Unique_Customers,  P.product_name
from cities C
join Customers CU on CU.city_id = C.city_id
join sales S on S.customer_id = CU.customer_id
join products P on P.product_id = S.product_id
where product_name like '%Coffee%'
group by C.city_name, P.product_name
order by Unique_Customers;
```

Output-

city_name	Unique_Customers	product_name
Ahmedabad	1	Coffee-Themed Notebook
Ahmedabad	1	Coffee-Themed T-Shirt
Ahmedabad	1	Mocha Flavored Coffee Mix (200g)
Hyderabad	1	Coffee Plant Kit (DIY)
Hyderabad	1	Coffee Recipe Book
Hyderabad	1	Personalized Coffee Spoon
Indore	1	Coffee-Themed Notebook
Indore	1	Glass Coffee Jar (500ml)
Indore	1	Reusable Coffee Cup (Eco-friendly)
Kanpur	1	Coffee Plant Kit (DIY)
Kanpur	1	Coffee Recipe Book
Kanpur	1	Coffee-Themed Notebook
Kanpur	1	Coffee-Themed T-Shirt
Kolkata	1	Reusable Coffee Cup (Eco-friendly)

Insight- City with more unique coffee customers may have buying habit of consuming coffee- great more launching for brand awareness.

8 CASES Questions- average sales and rent per customer by city?

Explanation- Average sales customer defines how much they spend while average rent per customer defines city rent per customer count. It aims to measure profit potential by comparing what customers spend vs. how much would rent cost per customer?

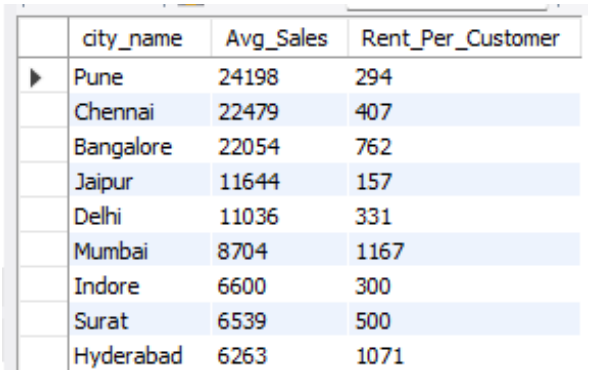
Query-

```
with CTE_AvgSales as (select C.city_name,sum(S.total) As Total_Revenue
, count(distinct S.customer_id) As Unique_Customer,
 round(sum(S.total)/count(distinct(S.customer_id))) As Avg_Sales
from cities C
join customers CU on C.city_id = CU.city_id
join sales S on CU.customer_id = S.customer_id
group by C.city_name),

 CTE_Rent as (select city_name, estimated_rent As Est_Rent
from cities)

select C_As.city_name, C_As.Avg_Sales,
 round(C_R.Est_Rent/C_As.Unique_Customer)As Rent_Per_Customer
 from CTE_AvgSales As C_As
 join CTE_Rent As C_R on C_As.city_name = C_R.city_name
 order by Avg_Sales desc;
```

Output-



city_name	Avg_Sales	Rent_Per_Customer
Pune	24198	294
Chennai	22479	407
Bangalore	22054	762
Jaipur	11644	157
Delhi	11036	331
Mumbai	8704	1167
Indore	6600	300
Surat	6539	500
Hyderabad	6263	1071

Insight- Pune, Jaipur and Delhi have the highest sales per customer and low average rent per customer. This means these locations are the most cost-effective and profitable for opening the new cafe.

9 Monthly sales growth- calculate percent growth or decline in sales over different time period (monthly) by each city ? # YOY Growth, MOM Growth, WOW Growth.....

Explanation- It calculates month-over-month sales growth in each city. It is useful to detect the trends, growing cities are signs of rising demand and future potential market.

Query-

```
with CTE_SG As (select C.city_name, DATE_FORMAT(S.sale_date, '%Y-%m') As Sales_Month, sum(S.total) As Total_Revenue
from sale S
join customers CU on S.customer_id = CU.customer_id
join cities C on CU.city_id = C.city_id
group by C.city_name, Sales_Month),

Sales_Growth As (select city_name, Sales_Month, Total_Revenue As Current_Month_Sales,
Lag(Total_Revenue) over (partition by city_name order by Sales_Month) As Previous_Month_Sales
from CTE_SG )

select city_name, Sales_Month, Current_Month_Sales, Previous_Month_Sales, round((Current_Month_Sales-Previous_Month_Sales)/Previous_Month_Sales*100) As Sales_Growth
from Sales_Growth
where Previous_Month_Sales is not null
and Sales_Month between "2023-10" and "2023-12"
order by Sales_Growth desc;
```

Output-

city_name	Sales_Month	Current_Month_Sales	Previous_Month_Sales	Sales_Growth
Kolkata	2023-10	17450.00	7150.00	144
Kanpur	2023-10	23900.00	10100.00	137
Hyderabad	2023-11	19350.00	9500.00	104
Ahmedabad	2023-11	21250.00	10950.00	94
Surat	2023-10	17250.00	9100.00	90
Indore	2023-10	11300.00	6400.00	77
Pune	2023-10	155950.00	88400.00	76
Indore	2023-11	18850.00	11300.00	67
Chennai	2023-10	124650.00	76500.00	63
Nagpur	2023-10	14350.00	9250.00	55
Delhi	2023-10	85150.00	56200.00	52
Mumbai	2023-10	23350.00	15600.00	50

Insight- Although cities like Kolkata, Kanpur and Hyderabad have the highest sales growth, cities like Pune, Jaipur and Delhi are being targeted because of the recent positive growth trends as well as they have lower average rent per customer and highest per customer.

10 Calculate sales metric per city? -total sales, avg_sales

Explanation- It combines the multiple data points like total sales, estimated rent, total customers, estimated coffee consumers to compare the cities and to provide the holistic view to evaluate the overall profitability potential per city.

Query-

```
WITH CTE_Sales_City AS (
    SELECT
        C.city_name,
        SUM(S.total) AS Total_Revenue,
        COUNT(DISTINCT S.customer_id) AS Total_Customers,
        ROUND(SUM(S.total) / NULLIF(COUNT(DISTINCT CU.customer_id), 0), 2) AS Average_Sales_Per_Customer
    FROM cities C
    JOIN customers CU ON C.city_id = CU.city_id
    JOIN sales S ON CU.customer_id = S.customer_id
    GROUP BY C.city_name
)
SELECT * FROM CTE_Sales_City
ORDER BY Average_Sales_Per_Customer desc;
```

Output-

city_name	Total_Revenue	Total_Customers	Average_Sales_Per_Customer
Pune	1258290	52	24197.88
Chennai	944120	42	22479.05
Bangalore	860110	39	22054.10
Jaipur	803450	69	11644.20
Delhi	750420	68	11035.59
Mumbai	235000	27	8703.70
Indore	138590	21	6599.52
Surat	176540	27	6538.52
Hyderabad	131520	21	6262.86
Kolkata	171460	28	6123.57
Kanpur	213550	35	6101.43
Ahmedabad	137690	23	5986.52
Nagpur	140050	24	5835.42
Lucknow	109400	21	5209.52

Insight- 1.Pune has the highest revenue.

2.High customer spending and low rent per customer which means high profitability.

3.Delhi has the highest consumer based and the strong customer count. Also, the rent per customer is manageable.

4.Jaipur has the highest customer count, very low rent per customer and high average sales per customer.