**Business Request 1: Monthly Circulation Drop Check**

**Find top 3 months where any city had the sharpest MoM decline in net\_circulation**

WITH city\_monthly AS (

SELECT

c.city AS city\_name,

ps.month AS month\_date, -- actual DATE column

DATE\_FORMAT(ps.month, '%Y-%m') AS month\_yr, -- YYYY-MM format

MONTHNAME(ps.month) AS month\_name, -- Full month name (e.g., January)

SUM(ps.net\_circulation) AS net\_circulation

FROM fact\_print\_sales ps

JOIN dim\_city c ON ps.city\_id = c.city\_id

GROUP BY c.city, ps.month

),

city\_mom AS (

SELECT

city\_name,

month\_date,

month\_yr,

month\_name,

net\_circulation,

LAG(net\_circulation) OVER (PARTITION BY city\_name ORDER BY month\_date) AS prev\_net

FROM city\_monthly

)

SELECT

city\_name,

month\_yr,

month\_name,

net\_circulation,

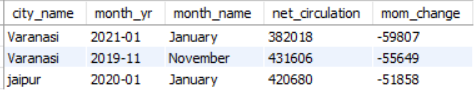
(net\_circulation - prev\_net) AS mom\_change

FROM city\_mom

WHERE prev\_net IS NOT NULL

ORDER BY mom\_change ASC

LIMIT 3;



**Business Request – 2: Yearly Revenue Concentration by Category Identify ad categories that contributed > 50% of total yearly ad revenue.**

WITH yearly\_revenue AS (

SELECT

YEAR(ar.quarter\_start\_date) AS year,

dac.category\_group AS category\_name,

SUM(ar.Ad\_Revenue\_INR) AS category\_revenue

FROM fact\_ad\_revenue ar

JOIN dim\_ad\_category dac ON ar.ad\_category = dac.ad\_category\_id

GROUP BY YEAR(ar.quarter\_start\_date), dac.category\_group

),

year\_totals AS (

SELECT year, SUM(category\_revenue) AS total\_revenue\_year

FROM yearly\_revenue

GROUP BY year

)

SELECT

yr.year,

yr.category\_name,

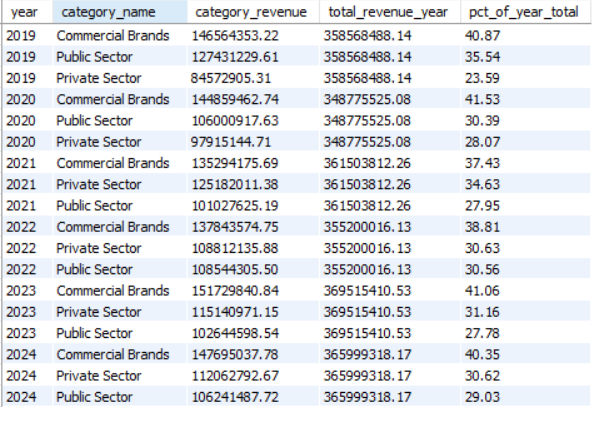
yr.category\_revenue,

yt.total\_revenue\_year,

ROUND(yr.category\_revenue / yt.total\_revenue\_year \* 100, 2) AS pct\_of\_year\_total

FROM yearly\_revenue yr

JOIN year\_totals yt ON yr.year = yt.year

ORDER BY yr.year, pct\_of\_year\_total DESC; 

WITH yearly\_revenue AS (

SELECT

YEAR(ar.quarter\_start\_date) AS year,

dac.category\_group AS category\_name,

SUM(ar.Ad\_Revenue\_INR) AS category\_revenue

FROM fact\_ad\_revenue ar

JOIN dim\_ad\_category dac ON ar.ad\_category = dac.ad\_category\_id

GROUP BY YEAR(ar.quarter\_start\_date), dac.category\_group

),

year\_totals AS (

SELECT year, SUM(category\_revenue) AS total\_revenue\_year

FROM yearly\_revenue

GROUP BY year

),

ranked AS (

SELECT

yr.year,

yr.category\_name,

yr.category\_revenue,

yt.total\_revenue\_year,

ROUND(yr.category\_revenue / yt.total\_revenue\_year \* 100, 2) AS pct\_of\_year\_total,

RANK() OVER (PARTITION BY yr.year ORDER BY yr.category\_revenue DESC) AS rnk

FROM yearly\_revenue yr

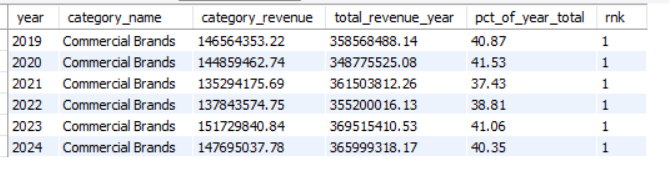
JOIN year\_totals yt ON yr.year = yt.year

)

SELECT \*

FROM ranked

WHERE rnk = 1

ORDER BY year; **Business Request – 3: 2024 Print Efficiency Leaderboard For 2024, rank cities by print efficiency = net\_circulation / copies\_printed. Return top 5.** WITH city\_2024 AS (

SELECT

c.city AS city\_name,

SUM(ps.`Copies Sold` + ps.copies\_returned) AS copies\_printed\_2024,

SUM(ps.Net\_Circulation) AS net\_circulation\_2024

FROM fact\_print\_sales ps

JOIN dim\_city c ON ps.City\_ID = c.city\_id

WHERE YEAR(ps.Month) = 2024

GROUP BY c.city

)

SELECT

city\_name,

copies\_printed\_2024,

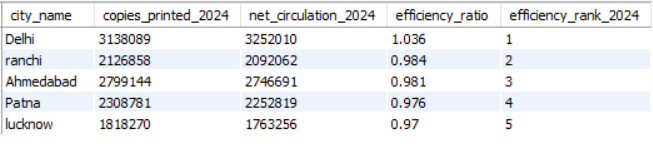
net\_circulation\_2024,

ROUND(net\_circulation\_2024 / NULLIF(copies\_printed\_2024, 0), 3) AS efficiency\_ratio,

RANK() OVER (ORDER BY net\_circulation\_2024 / NULLIF(copies\_printed\_2024, 0) DESC) AS efficiency\_rank\_2024

FROM city\_2024

ORDER BY efficiency\_rank\_2024

LIMIT 5;****

Business Request – 4 : Internet Readiness Growth (2021)

-- For each city, compute the change in internet penetration from Q1-2021 to Q4-2021

-- and identify the city with the highest improvement.

WITH readiness\_2021 AS (

SELECT

city\_id,

MAX(CASE WHEN quarter = '2021-Q1' THEN internet\_penetration END) AS internet\_rate\_q1\_2021,

MAX(CASE WHEN quarter = '2021-Q4' THEN internet\_penetration END) AS internet\_rate\_q4\_2021

FROM fact\_city\_readiness

WHERE quarter LIKE '2021-%'

GROUP BY city\_id

),

delta\_2021 AS (

SELECT

city\_id,

internet\_rate\_q1\_2021,

internet\_rate\_q4\_2021,

round((internet\_rate\_q4\_2021 - internet\_rate\_q1\_2021),2) AS delta\_internet\_rate

FROM readiness\_2021

)

SELECT

dim.city AS city\_name,

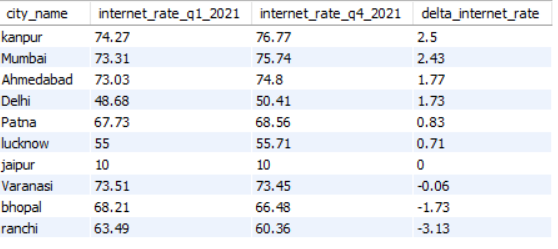
d.internet\_rate\_q1\_2021,

d.internet\_rate\_q4\_2021,

d.delta\_internet\_rate

FROM delta\_2021 d

JOIN dim\_city dim ON d.city\_id = dim.city\_id

ORDER BY d.delta\_internet\_rate DESC; 

**Business Request – 5: Consistent Multi-Year Decline (2019→2024) Find cities where both net\_circulation and ad\_revenue decreased every year from 2019 through 2024 (strictly decreasing sequences).**

WITH yearly\_print AS (

SELECT

City\_ID,

YEAR(Month) AS year,

SUM(Net\_Circulation) AS yearly\_net\_circulation

FROM fact\_print\_sales

WHERE YEAR(Month) BETWEEN 2019 AND 2024

GROUP BY City\_ID, YEAR(Month)

),

yearly\_ad AS (

SELECT

fps.City\_ID,

YEAR(far.quarter\_start\_date) AS year,

SUM(far.Ad\_Revenue\_INR) AS yearly\_ad\_revenue

FROM fact\_ad\_revenue far

JOIN fact\_print\_sales fps ON far.edition\_id = fps.edition\_ID

WHERE YEAR(far.quarter\_start\_date) BETWEEN 2019 AND 2024

GROUP BY fps.City\_ID, YEAR(far.quarter\_start\_date)

),

combined AS (

SELECT

p.City\_ID,

p.year,

yearly\_net\_circulation,

yearly\_ad\_revenue,

LAG(yearly\_net\_circulation) OVER (PARTITION BY p.City\_ID ORDER BY p.year) AS prev\_circulation,

LAG(yearly\_ad\_revenue) OVER (PARTITION BY p.City\_ID ORDER BY p.year) AS prev\_ad

FROM yearly\_print p

JOIN yearly\_ad a ON p.City\_ID = a.City\_ID AND p.year = a.year

)

SELECT

dim.city AS city\_name,

c.year,

c.yearly\_net\_circulation,

c.yearly\_ad\_revenue,

CASE

WHEN prev\_circulation IS NULL THEN 'Yes'

WHEN c.yearly\_net\_circulation < prev\_circulation THEN 'Yes'

ELSE 'No'

END AS is\_declining\_print,

CASE

WHEN prev\_ad IS NULL THEN 'Yes'

WHEN c.yearly\_ad\_revenue < prev\_ad THEN 'Yes'

ELSE 'No'

END AS is\_declining\_ad\_revenue,

CASE

WHEN (prev\_circulation IS NULL OR c.yearly\_net\_circulation < prev\_circulation)

AND (prev\_ad IS NULL OR c.yearly\_ad\_revenue < prev\_ad)

THEN 'Yes'

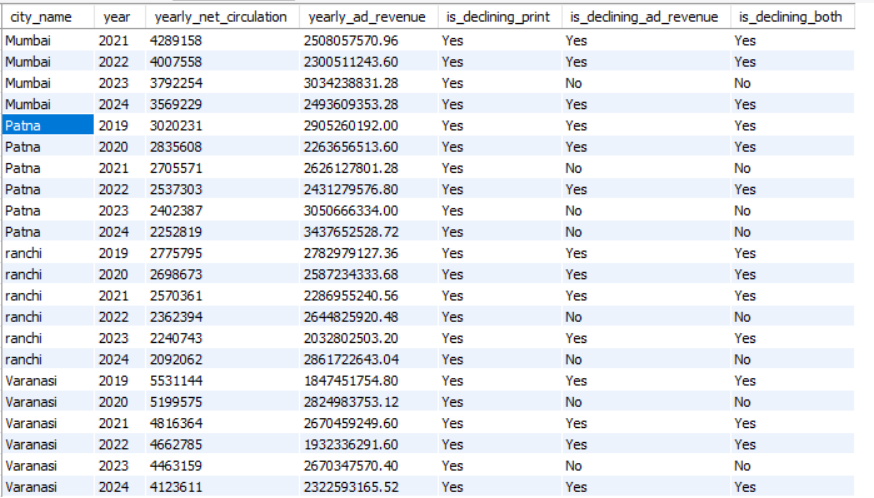
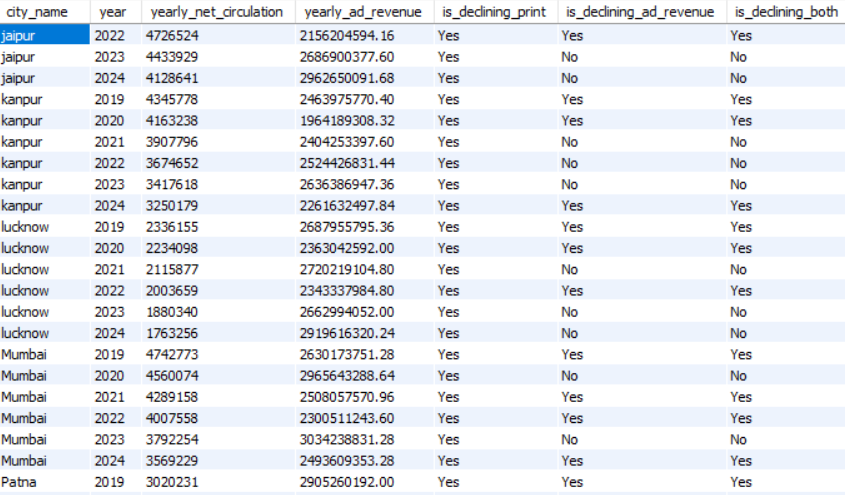
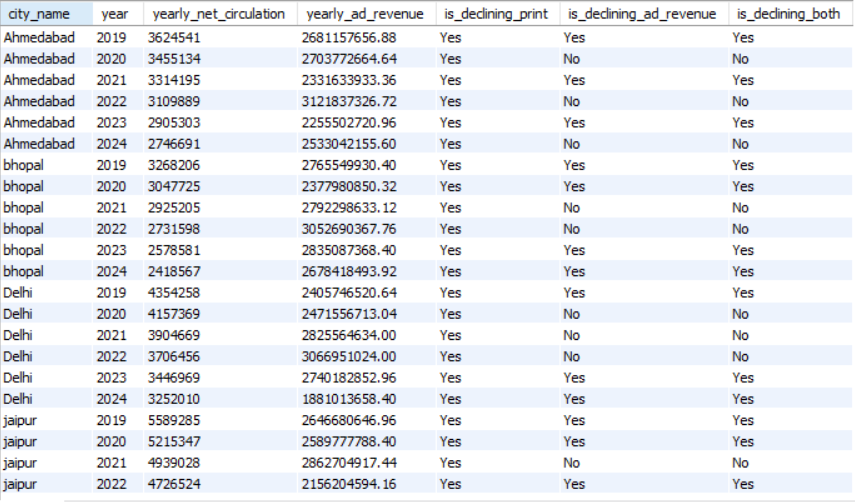
ELSE 'No'

END AS is\_declining\_both

FROM combined c

JOIN dim\_city dim ON c.City\_ID = dim.city\_id

ORDER BY dim.city, c.year;



**Business Request – 6 : 2021 Readiness vs Pilot Engagement Outlier In 2021, identify the city with the highest digital readiness score but among the bottom 3 in digital pilot engagement.**

WITH readiness\_2021 AS (

SELECT

city\_id,

ROUND((AVG(smartphone\_penetration) + AVG(internet\_penetration) + AVG(literacy\_rate)) / 3, 2) AS readiness\_score\_2021

FROM fact\_city\_readiness

WHERE quarter LIKE '%2021%'

GROUP BY city\_id

),

engagement\_2021 AS (

SELECT

city\_id,

SUM(users\_reached) AS engagement\_metric\_2021

FROM fact\_digital\_pilot

WHERE launch\_month LIKE '2021%'

GROUP BY city\_id

),

ranked AS (

SELECT

r.city\_id,

r.readiness\_score\_2021,

e.engagement\_metric\_2021,

RANK() OVER (ORDER BY r.readiness\_score\_2021 DESC) AS readiness\_rank\_desc,

RANK() OVER (ORDER BY e.engagement\_metric\_2021 ASC) AS engagement\_rank\_asc

FROM readiness\_2021 r

JOIN engagement\_2021 e ON r.city\_id = e.city\_id

)

SELECT

dim.city AS city\_name,

ranked.readiness\_score\_2021,

ranked.engagement\_metric\_2021,

ranked.readiness\_rank\_desc,

ranked.engagement\_rank\_asc,

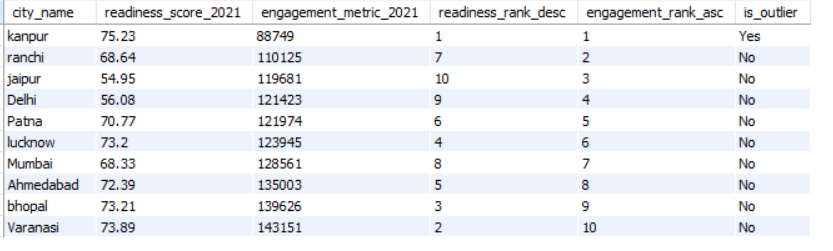
CASE

WHEN ranked.readiness\_rank\_desc = 1 AND ranked.engagement\_rank\_asc <= 3 THEN 'Yes'

ELSE 'No'

END AS is\_outlier

FROM ranked

JOIN dim\_city dim ON ranked.city\_id = dim.city\_id;****