

## SQL QUERIES AND OUTPUTS

### AD HOC ANALYSIS

```
-- Provide a list of products with a base price  
-- greater than 500 and that are featured in pro  
-- of 'BOGOF' (Buy One Get One Free).
```

```
SELECT  
    DISTINCT p.product_name,  
    f.base_price  
FROM  
    dim_products p  
    JOIN fact_events f  
    ON p.product_code = f.product_code  
WHERE  
    f.base_price > 500  
    AND f.promo_type = 'BOGOF'  
ORDER BY  
    f.base_price;
```

product_name	base_price
Atliq_waterproof_Immersion_Rod	1020
Atliq_Double_Bedsheet_set	1190

```
-- Generate a report that provides an overview  
-- of the number of stores in each city.
```

```
SELECT  
    city,  
    COUNT(store_id) AS store_count  
FROM  
    dim_stores  
GROUP BY  
    city  
ORDER BY  
    store_count DESC;
```

city	store_count
Bengaluru	10
Chennai	8
Hyderabad	7
Coimbatore	5
Visakhapatnam	5
Madurai	4
Mysuru	4
Mangalore	3
Trivandrum	2
Vijayawada	2

```
SELECT  
    campaign_name,  
    ROUND(SUM(total_revenue_before_mil), 2)  
    AS total_revenue_before_mil,  
    ROUND(SUM(total_revenue_after_mil), 2)  
    AS total_revenue_after_mil  
FROM  
    summary  
GROUP BY  
    campaign_name;
```

campaign_name	Revenue after	Revenue Before
Diwali	162.52M	83M
Sankranti	94.99M	58M
<b>Total</b>	<b>257.51M</b>	<b>141M</b>

```
-- Produce a report that calculates the Incremental Sold Quantity (ISU%)
-- for each category during the Diwali campaign.
-- Additionally, provide rankings for the categories based on their ISU%.
WITH isu_cte AS (
    SELECT
        category, ROUND(
            (SUM(total_qty_after) - SUM(total_qty_before)) / SUM(total_qty_before) * 100,
            2) AS `ISU%`, RANK() OVER ( ORDER BY
            (SUM(total_qty_after) - SUM(total_qty_before)) / SUM(total_qty_before) DESC
            ) AS rank_order
    FROM summary
    WHERE campaign_name = 'Diwali'
    GROUP BY category)
SELECT
    *
FROM
    isu_cte
```

category	ISU%	rank_order
Home Appliances	244.23	1
Combo1	202.36	2
Home Care	79.63	3
Personal Care	31.06	4
Grocery & Staples	18.05	5

```
-- Create a report featuring the Top 5 products, ranked by
-- Incremental Revenue Percentage (IR%) across all campaigns.
SELECT
    product_name,
    category,
    ROUND(
        (
            SUM(incremental_revenue_mil) / SUM(total_revenue_before_mil)
        ) * 100,
        2
    ) AS `IR%`,
    RANK() OVER (ORDER BY
        SUM(incremental_revenue_mil) / SUM(total_revenue_before_mil) DESC) AS rank_order
FROM
    summary
GROUP BY
    product_name,
    category
ORDER BY
    `IR%` DESC
LIMIT
    5;
```

product_name	category	IR%	rank_order
Atiq_Home_Essential_8_Product_Combo	Combo1	136.05	1
Atiq_waterproof_Immersion_Rod	Home Appliances	83.43	2
Atiq_High_Glo_15W_LED_Bulb	Home Appliances	80.90	3
Atiq_Double_Bedsheet_set	Home Care	80.04	4
Atiq_Curtains	Home Care	79.43	5

```
-- Top 10 stores in terms of IR generated from promotions
SELECT
    store_id,
    city,
    ROUND(SUM(incremental_revenue_mil), 2) AS total_incremental_revenue_mil
FROM
    summary
GROUP BY
    store_id,
    city
ORDER BY
    total_incremental_revenue_mil DESC
LIMIT 10;
```

City	INC rev
<b>Bengaluru</b>	<b>13.99M</b>
STBLR-0	3.76M
STBLR-7	3.66M
STBLR-6	3.56M
STBLR-3	3.01M
<b>Chennai</b>	<b>10.80M</b>
STCHE-4	3.79M
STCHE-7	3.60M
STCHE-3	3.41M
<b>Mysuru</b>	<b>7.46M</b>
STMYS-1	3.89M
STMYS-3	3.57M
<b>Madurai</b>	<b>3.01M</b>
STMDU-0	3.01M
<b>Total</b>	<b>35.26M</b>

```
-- Bottom 10 stores in terms of ISU during the promotional period
SELECT
    store_id,
    city,
    ROUND(SUM(total_qty_after) - SUM(total_qty_before), 2) AS total_incremental_quantity
FROM
    summary
GROUP BY
    store_id,
    city
ORDER BY
    total_incremental_quantity
LIMIT
    10;
```

City	Incremental sold qty
<b>Coimbatore</b>	<b>2927</b>
STCBE-4	2927
<b>Visakhapatnam</b>	<b>4678</b>
STVSK-3	2209
STVSK-4	2469
<b>Trivandrum</b>	<b>5337</b>
STTRV-1	2604
STTRV-0	2733
<b>Vijayawada</b>	<b>5809</b>
STVID-1	2763
STVID-0	3046
<b>Mangalore</b>	<b>7400</b>
STMLR-0	1952
STMLR-2	2664
STMLR-1	2784
<b>Total</b>	<b>26151</b>

```
-- VARIANCE OF PERFORMANCE BY CITY. LIST OUT COMMON CHARACTERS AMONG TOP
-- PERFORMING STORES
SELECT
    store_id,
    city,
    ROUND(SUM(total_qty_before)) AS quantity_before,
    ROUND(SUM(total_qty_after)) AS quantity_after,
    ROUND(SUM(incremental_revenue_mil)) AS revenue_difference_millions,
    ROUND(
        (
            SUM(total_revenue_after_mil) - SUM(total_revenue_before_mil)
        ) / SUM(total_revenue_before_mil) * 100,
        2
    ) AS `IR%`
FROM
    summary
GROUP BY
    store_id,
    city
ORDER BY
    revenue_difference_millions DESC;
```

City	Total qty before	Total qty after	Incremental revenue	IR%
▣ <b>Bengaluru</b>	<b>19948</b>	<b>45644</b>	<b>13.99M</b>	<b>103.45%</b>
STBLR-6	5028	11601	3.56M	104.46%
STBLR-7	5007	11866	3.66M	109.13%
STBLR-3	4975	10752	3.01M	89.64%
STBLR-0	4938	11425	3.76M	110.48%
▣ <b>Chennai</b>	<b>14940</b>	<b>34044</b>	<b>10.80M</b>	<b>107.61%</b>
STCHE-4	5094	11547	3.79M	106.69%
STCHE-7	4986	11546	3.60M	110.51%
STCHE-3	4860	10951	3.41M	105.67%
▣ <b>Mysuru</b>	<b>9460</b>	<b>21606</b>	<b>7.46M</b>	<b>110.35%</b>
STMYS-1	4911	11773	3.89M	109.94%
STMYS-3	4549	9833	3.57M	110.79%
▣ <b>Madurai</b>	<b>3586</b>	<b>8310</b>	<b>3.01M</b>	<b>112.35%</b>
STMDU-0	3586	8310	3.01M	112.35%
<b>Total</b>	<b>47934</b>	<b>109604</b>	<b>35.26M</b>	<b>106.85%</b>

```
-- TOP 2 PROMOTION TYPES THAT RESULTED IN HIGHEST IR
SELECT
    f.promo_type,
    ROUND(
        SUM(s.total_revenue_after_mil) - SUM(s.total_revenue_before_mil)
    ) AS incremental_rev_in_mil
FROM
    summary s
JOIN fact_events f ON s.campaign_id = f.campaign_id
AND s.product_code = f.product_code
AND s.store_id = f.store_id
GROUP BY
    f.promo_type
ORDER BY
    incremental_rev_in_mil DESC
LIMIT 2;
```

	promo_type	incremental_rev_in_mil
▶	500 Cashback	91
	BOGOF	22

```
-- BOTTOM 2 PROMOTION TYPES IN TERMS OF ISU
SELECT
    f.promo_type,
    ROUND(SUM(s.total_qty_after) - SUM(s.total_qty_before)) AS incremental_sold_qty
FROM
    summary s
JOIN fact_events f ON s.campaign_id = f.campaign_id
AND s.product_code = f.product_code
AND s.store_id = f.store_id
GROUP BY
    f.promo_type
ORDER BY
    incremental_sold_qty ASC
LIMIT
    2;
```

	promo_type	incremental_sold_qty
▶	25% OFF	-5717
	50% OFF	6931

```

-- HIGHLIGHT ANY SIGNIFICANT DIFFERENCE IN PERFORMANCE OF DISCOUNT-BASED
-- PROMOTIONS Vs BOGOF/CASHBACK PROMOTIONS
SELECT
CASE
    WHEN f.promo_type IN ('25% OFF', '33% OFF', '50% OFF') THEN 'Discount-Based'
    WHEN f.promo_type IN ('BOGOF', '500 Cashback') THEN 'BOGOF/Cashback'
END AS promo_group,
ROUND(SUM(s.total_revenue_after_mil), 2) AS total_rev_after_mil,
ROUND(SUM(s.incremental_revenue_mil), 2) AS incremental_rev_mil,
ROUND(SUM(total_qty_after) - SUM(total_qty_before), 2) AS ISU
FROM
    summary s
JOIN fact_events f ON s.store_id = f.store_id
AND s.product_code = f.product_code
AND s.campaign_id = f.campaign_id
GROUP BY
    promo_group
ORDER BY
    incremental_rev_mil DESC;

```

promo_group	total_rev_after_mil	incremental_rev_mil	ISU
BOGOF/Cashback	205.68	112.82	197954
Discount-Based	41.82	-4.56	28469

```

--WHICH PROMOTIONS STRIKE THE BEST BALANCE BETWEEN ISU AND
-- HEALTHY MARGINS
SELECT
f.promo_type,
ROUND(
    SUM(s.total_qty_after) - SUM(s.total_qty_before),
    2
) AS ISU,
ROUND(SUM(s.incremental_revenue_mil), 2) AS incremental_rev_mil,
ROUND(
    (
        SUM(s.total_revenue_after_mil) - SUM(s.total_revenue_before_mil)
    ) / SUM(s.total_revenue_before_mil) * 100,
    2
) AS `IR%`
FROM
    summary s
JOIN fact_events f ON s.campaign_id = f.campaign_id
AND f.product_code = s.product_code
AND f.store_id = s.store_id
GROUP BY
    f.promo_type
ORDER BY
    ISU DESC;

```

promo_type	ISU	incremental_rev_mil	IR%
BOGOF	157073	21.75	84.11
500 Cashback	40881	91.07	136.14
33% OFF	27255	-1.55	-4.35
50% OFF	6931	-0.17	-45.33
25% OFF	-5717	-2.84	-37.76

```

-- WHICH ARE THE PRODUCT CATEGORIES THAT SAW THE
-- MOST LIFT IN SALES POST PROMOTIONS
SELECT
p.category,
SUM(s.total_qty_after) AS total_qty_after_promotion,
SUM(s.total_qty_before) AS total_qty_before_promotion,
SUM(s.total_qty_after) - SUM(s.total_qty_before) AS incremental_sold_quantity,
ROUND(
    (SUM(s.total_qty_after) - SUM(s.total_qty_before)) / SUM(s.total_qty_before) * 100,
    1
) AS `ISU%`
FROM
    summary s
JOIN dim_products p ON p.product_code = s.product_code
GROUP BY
    p.category
order by
    total_qty_after_promotion DESC;

```

category	total_qty_after_promotion	total_qty_before_promotion	incremental_sold_quantity	ISU%
Grocery & Staples	246344	126970	119374	94.0
Combo1	63180	22299	40881	183.3
Home Appliances	53613	14713	38900	264.4
Home Care	40832	19764	21068	106.6
Personal Care	31504	25304	6200	24.5

```

-- ARE THERE ANY SPECIFIC PRODUCTS THAT RESPOND
-- EXCEPTIONALLY WELL OR POORLY TO PROMOTIONS
WITH ranked_products AS (
SELECT
    p.product_name,
    SUM(s.incremental_revenue_mil) AS incremental_revenue_mil,
    ROUND((SUM(s.total_revenue_after_mil) - SUM(s.total_revenue_before_mil))
    ) / SUM(s.total_revenue_before_mil) * 100, 1) AS `IR%`,
    ROW_NUMBER() OVER(
        order by
            SUM(s.incremental_revenue_mil) DESC) AS top,
    row_number () OVER (
        order by
            SUM(s.incremental_revenue_mil) ASC) AS bottom
FROM summary s
JOIN dim_products p ON s.product_code = p.product_code
GROUP BY p.product_name, p.category)
SELECT
    product_name, incremental_revenue_mil,
    `IR%`
FROM ranked_products
WHERE top <= 4 OR bottom <= 4
ORDER BY
    incremental_revenue_mil DESC;

```

product_name	incremental_revenue_mil	IR%
Atiq_Home_Essential_8_Product_Combo	91.07	136.1
Atiq_waterproof_Immersion_Rod	5.49	83.3
Atiq_Farm_Chakki_Atta (1KG)	4.62	43.2
Atiq_Double_Bedsheet_set	3.97	80.0
Atiq_Masoor_Dal (1KG)	-0.11	-4.0
Atiq_Doodh_Kesar_Body_Lotion (200ML)	-0.17	-32.1
Atiq_Fusion_Container_Set_of_3	-0.69	-35.5
Atiq_Sonamasuri_Rice (10KG)	-1.44	-4.4

```

-- CORRELATION BETWEEN PRODUCT CATEGORY AND
-- PROMOTION TYPE EFFECTIVENESS
WITH ranked_products AS (
SELECT
    p.product_name,
    SUM(s.total_revenue_before_mil) AS total_revenue_before_mil,
    SUM(s.total_revenue_after_mil) AS total_revenue_after_mil,
    SUM(s.incremental_revenue_mil) AS incremental_revenue_mil,
    ROUND((SUM(s.total_revenue_after_mil) - SUM(s.total_revenue_before_mil))
    ) / SUM(s.total_revenue_before_mil) * 100, 1) AS `IR%`,
    ROW_NUMBER() OVER( order by
        SUM(s.incremental_revenue_mil) DESC) AS top,
    ROW_NUMBER () OVER ( order by
        SUM(s.incremental_revenue_mil) ASC) AS bottom
FROM summary s
JOIN dim_products p ON s.product_code = p.product_code
GROUP BY p.product_name, p.category )
SELECT
    product_name,
    total_revenue_before_mil,
    total_revenue_after_mil,
    incremental_revenue_mil,
    `IR%`
FROM ranked_products
WHERE top <= 5 OR bottom <= 5
ORDER BY `IR%` DESC;

```

product_name	total_revenue_before_mil	total_revenue_after_mil	incremental_revenue_mil	IR%
Atiq_Home_Essential_8_Product_Combo	66.94	158.07	91.07	136.1
Atiq_High_Glo_15W_LED_Bulb	2.88	5.28	2.33	83.3
Atiq_waterproof_Immersion_Rod	6.58	12.06	5.49	83.3
Atiq_Double_Bedsheet_set	4.96	8.93	3.97	80.0
Atiq_Farm_Chakki_Atta (1KG)	10.79	15.45	4.62	43.2
Atiq_Masoor_Dal (1KG)	4.50	4.32	-0.11	-4.0
Atiq_Sonamasuri_Rice (10KG)	32.06	30.65	-1.44	-4.4
Atiq_Doodh_Kesar_Body_Lotion (200ML)	1.06	0.72	-0.17	-32.1
Atiq_Fusion_Container_Set_of_3	2.17	1.40	-0.69	-35.5
Atiq_Scrub_Sponge_For_Dishwash	0.30	0.00	0.00	-100.0