Business Requests

1. **Provide a list of products with a base price greater than 500 and that are featured in promo type of 'BOGOF' (Buy One Get One Free). This information will help us identify high-value products that are currently being heavily discounted, which can be useful for evaluating our pricing and C strategies**

product_code	product_name	base_price
P08	Atliq_Double_Bedsheet_set	1190
P14	Atliq_waterproof_Immersion_Rod	1020

THERE ARE ONLY TWO PRODUCTSWITH BASE PRICE >500 WITH BOGOF

```
SELECT DISTINCT(E.product_code), product_name , base_price
FROM retail_events_db.fact_events E
LEFT JOIN dim_products P ON p.product_code =E.product_code
WHERE base_price >500 AND promo_type ="BOGOF";
```

2. **Provide an overview of the number of stores in each city.**

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

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

3. **Total revenue generated before and after the campaign?**

Campaign	total_revenue_before_promotion	total_revenue_after_promotion
Sankranti	58.13	124.15
Diwali	82.57	171.46

```
SELECT campaign_name as Campaign,
        round(sum(before_revenue)/1000000 ,2) AS total_revenue_before_promotion,
        round(sum(after_revenue)/1000000 ,2) AS total_revenue_after_promotion
FROM fact_events E LEFT JOIN dim_campaigns C
ON E.campaign_id = C.campaign_id    GROUP BY campaign_name;
```

4. **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%.**

category	Incremental_sales_quantity	ISU%	ISU%_rank
Home Appliances	30776	588.45	1
Home Care	27070	203.14	2
Combo1	33978	202.36	3
Personal Care	5231	31.06	4
Grocery & Staples	10491	18.05	5

```
WITH Diwali_ISU AS
(

SELECT   category,
         Sum(promo_quantity) AS after_quantity,
         Sum(`quantity_sold(before_promo)`) AS before_quantity
FROM fact_events E
LEFT JOIN dim_products P
ON E.product_code= P.product_code
WHERE campaign_id ="CAMP_DIW_01"   -- "CAMP_SAN_01" -- for Sankranthi Campaign
GROUP BY category
)

SELECT  category,

         (after_quantity - before_quantity) AS Incremental_sales_quantity,
         round(((after_quantity /before_quantity)-1)*100,2) AS `ISU%`,
         RANK() OVER( ORDER BY ((after_quantity /before_quantity)-1) Desc)  AS `ISU%_rank`
From Diwali_ISU;
```

5. **Create a report for Top 5 products, ranked by Incremental Revenue Percentage (IR%), across all campaigns. The report will provide essential information including product name, category, and IR%. This analysis helps identify the most successful products in terms of incremental revenue across our campaigns, assisting in product optimization.**

product_name	category	Incremental_revenue_in_millions	IR%	IR%_rank
Atliq_waterproof_Immersion_Rod	Home Appliances	17.56	266.06	1
Atliq_High_Glo_15W_LED_Bulb	Home Appliances	7.58	262.28	2
Atliq_Double_Bedsheet_set	Home Care	12.92	258.40	3
Atliq_Curtains	Home Care	3.52	255.07	4
Atliq_Farm_Chakki_Atta (1KG)	Grocery & Staples	17.37	160.09	5

```
WITH Top5products_IR_perc AS
(
SELECT E.product_code ,product_name,category ,
         round(sum(before_revenue)/1000000 ,2) AS before_revenue ,
         round(sum(after_revenue)/1000000 ,2) AS after_revenue,
FROM fact_events E
LEFT JOIN dim_products P
```

```
ON E.product_code=P.product_code
GROUP BY product_code
)
SELECT product_name,category,
        after_revenue - before_revenue AS Incremental_revenue_in_millions,
        ROUND(((after_revenue / before_revenue) -1 )*100 ,2) AS `IR%`,
        RANK() OVER( ORDER BY ( (after_revenue / before_revenue) -1) Desc) AS `IR%_rank`
FROM Top5products_IR_perc LIMIT 5;
```

Recommended Insights

STORE PERFORMANCE ANALYSIS

I. Top 10 stores based on incremental revenue

store_id	city	Incremental_revenue_in_millions	IR%	IR_rank
STMYS-1	Mysuru	4.92	138.98	1
STCHE-4	Chennai	4.82	135.39	2
STBLR-0	Bengaluru	4.76	140.00	3
STBLR-7	Bengaluru	4.71	140.18	4
STCHE-7	Chennai	4.65	142.64	5
STBLR-6	Bengaluru	4.61	135.59	6
STCHE-3	Chennai	4.41	136.96	7
STMYS-3	Mysuru	4.41	136.96	7
STCHE-6	Chennai	4.03	112.89	9
STBLR-3	Bengaluru	3.94	117.26	10

```
WITH TOP10Stores_IR AS
(
 Select    E.store_id,city,

           Round(sum(before_revenue)/1000000,2) AS revenue_before,

           Round(sum(after_revenue)/1000000,2) AS revenue_after

 From retail_events_db.fact_events E
 Left Join retail_events_db.dim_stores S
 ON E.store_id =S.store_id
 group by store_id
)
Select     store_id, city,
      ROUND((revenue_after - revenue_before),2) AS Incremental_revenue_in_millions ,
      Round(((revenue_after / revenue_before) -1)*100,2) AS  `IR%`,
      RANK() over (order by (revenue_after - revenue_before)  Desc) as `IR_rank`
FROM TOP10Stores_IR Limit 10;
```

II. Bottom 10 stores based on ISU

store_id	city	Incremental_sold_units	ISU%	ISU_rank
STMLR-0	Mangalore	3978	156.80	1
STVSK-3	Visakhapatnam	4553	136.36	2
STVSK-4	Visakhapatnam	4988	142.35	3
STTRV-1	Trivandrum	5072	213.74	4
STVJD-1	Vijayawada	5302	204.55	5
STTRV-0	Trivandrum	5306	215.69	6
STMLR-2	Mangalore	5374	207.57	7
STMLR-1	Mangalore	5481	228.09	8
STVJD-0	Vijayawada	5870	217.01	9
STCBE-4	Coimbatore	5942	161.82	10

```
WITH BOTTOM10Stores_ISU AS(
 Select E.store_id,city,
                    sum(promo_quantity) AS after_quantity ,
      sum(`quantity_sold(before_promo)`) AS before_quantity
 From retail_events_db.fact_events E
 Left Join retail_events_db.dim_stores S
 ON E.store_id =S.store_id
 group by store_id
)
Select     store_id, city,
           (after_quantity - before_quantity) AS Incremental_sold_units ,
      Round(((after_quantity / before_quantity) -1)*100,2) AS  `ISU%`,
      RANK() over(order by (after_quantity - before_quantity)  ASC) as `ISU_rank`
FROM BOTTOM10Stores_ISU LIMIT 10;
```

III. Performance of stores by city

Cities with Less Stores has Lowest Average IR Values

City	Stores	ISU	IR_Millions	Avg_IR	Avg_IR_rank
Chennai	8	86125	30.71	3.84	1
Bengaluru	10	108162	38.23	3.82	2
Mysuru	4	36102	13.89	3.47	3
Hyderabad	7	68763	22.71	3.24	4
Madurai	4	32548	12.40	3.10	5
Coimbatore	5	40598	13.62	2.72	6
Visakhapatnam	5	32995	10.82	2.16	7
Vijayawada	2	11172	4.04	2.02	8
Trivandrum	2	10378	3.50	1.75	9
Mangalore	3	14833	4.98	1.66	10

```
WITH Cities_CTE AS(
 Select City, Count(Distinct(S.store_id)) as Stores,
                    sum(promo_quantity) AS after_quantity ,
      sum(`quantity_sold(before_promo)`) AS before_quantity,
      Round(sum(before_revenue)/1000000,2) AS revenue_before,
                    Round(sum(after_revenue)/1000000,2) AS revenue_after
 From retail_events_db.fact_events E
 Left Join retail_events_db.dim_stores S
```

```
 ON E.store_id =S.store_id  group by City
)
Select     City, Stores,
           (sum(after_quantity)- sum(before_quantity)) AS ISU ,
           ROUND((sum(revenue_after) - sum(revenue_before)),2) AS IR_Millions ,
           ROUND((sum(revenue_after) - sum(revenue_before))/Stores,2) AS Avg_IR,
           RANK()   over ( order by ((sum(revenue_after) - sum(revenue_before))/Stores)  Desc) as
                `Avg_IR_rank`
From Cities_CTE group by city;
```

PROMOTION TYPE ANALYSIS

I. Top two promotions based on IR

promo_type	Incremental_revenue	IR%	IR_rank
500 Cashback	91.05	136.10	1
BOGOF	69.31	267.30	2

```
WITH TOP2Promo_IR AS
(
 Select E.promo_type,
                    Round(sum(before_revenue)/1000000,2) AS revenue_before,
                    Round(sum(after_revenue)/1000000,2) AS revenue_after
 From retail_events_db.fact_events E
 Left Join retail_events_db.dim_stores S
 ON E.store_id =S.store_id
 group by promo_type
)
Select
           promo_type ,
   ROUND((revenue_after - revenue_before),2) AS Incremental_revenue ,
           Round(((revenue_after / revenue_before) -1)*100,2) AS  `IR%`,
           RANK() over( order by (revenue_after - revenue_before)  Desc) as `IR_rank`
From TOP2Promo_IR  limit 2;
```

II. Bottom 2 promotions based on ISU

promo_type	Incremental_sold_units	ISU%	IS_rank
25% OFF	-5717	-12.99	1
50% OFF	6931	32.63	2

```
WITH Bottom2Promo_IR AS
(
 Select E.promo_type,
                    sum(promo_quantity) AS after_quantity ,
      sum(`quantity_sold(before_promo)`) AS before_quantity
 From retail_events_db.fact_events E
 Left Join retail_events_db.dim_stores S
 ON E.store_id =S.store_id
```

```
 group by promo_type
)
-- Bottom 2 promotion types based on Incremental Sold Quantity
select
            promo_type ,
   (after_quantity - before_quantity) AS Incremental_sold_units ,
            Round(((after_quantity / before_quantity) -1)*100,2) AS  `ISU%`,
            RANK() over(order by (after_quantity - before_quantity)  ASC) as `IS_rank`
From Bottom2Promo_IR  LIMIT 2 ;
```

III. Is there a significant difference in the performance of discount-based promotions versus BOGOF (Buy One Get One Free) or cashback promotions?

promotion	ISU	IR
Cashback	40881	91.05
BOGOF	372326	69.32
Discount	28469	-5.46

CASHBACK HAS THE HIGHEST IR VALUE AND BOGOF HAS THE HIGHEST ISU

```
SELECT
 CASE
            WHEN promo_type IN ('25% OFF', '50% OFF', '33% OFF') THEN 'Discount'
            WHEN promo_type = '500 Cashback' THEN 'Cashback'
            WHEN promo_type = 'BOGOF' THEN 'BOGOF'
 END AS promotion,
            sum(promo_quantity) - sum(`quantity_sold(before_promo)`) AS ISU,
            Round((Sum(after_revenue) -Sum(before_revenue))/1000000,2) AS IR
FROM retail_events_db.fact_events
GROUP BY promotion ORDER BY IR DESC;
```

PRODUCT & CATEGORY ANALYSIS

I. Which Categories that saw significant lift from the promotions?

PERSONAL CARE responded Very Poorly and has the least IR and ISU values

Category	IR	IR_Rank	ISU	ISU_Rank
Combo1	91.053000	1	40881	4
Home Appliances	25.150390	2	92513	2
Grocery & Staples	23.992888	3	249639	1
Home Care	15.554676	4	52443	3
Personal Care	-0.845498	5	6200	5

```
With Category_Performance_CTE AS (
select     P.category,
            sum(before_revenue)/1000000 as before_revenue,
            sum(after_revenue)/1000000 as after_revenue,
            sum(promo_quantity) as after_quantity,
            sum(`quantity_sold(before_promo)`) as before_quantity
from fact_events E
```

```
left join dim_products P
On E.product_code =P.product_code  Group by Category
)
-- Rank based on IR and ISU
Select    Category,
          (after_revenue-before_revenue) as IR,
          rank() over(order by (after_revenue - before_revenue) Desc) as IR_Rank,
          (after_quantity- before_quantity) as ISU,
          rank() over(order by (after_quantity- before_quantity) Desc) as ISU_Rank
from Category_Performance_CTE ORDER BY IR_Rank;
```

II. Which products have seen most significant lift in sales?

Scrub_Sponge_for_Dishwash, Contaier_set_3 from **HOME CARE** responded Very Poorly

Farm_Chakki_Atta (1kg), Sunflower_Oil from **Grocery & Staples** has Highest ISU values

product_name	category	IR	IR_Rank	ISU	ISU_Rank
Atliq_Home_Essential_8_Product_Combo	Combo1	91.053000	1	40881	5
Atliq_waterproof_Immersion_Rod	Home Appliances	17.561340	2	40902	4
Atliq_Farm_Chakki_Atta (1KG)	Grocery & Staples	17.363475	3	118030	1
Atliq_Double_Bedsheet_set	Home Care	12.917450	4	25913	7
Atliq_Suflower_Oil (1L)	Grocery & Staples	8.192769	5	104354	2
Atliq_High_Glo_15W_LED_Bulb	Home Appliances	7.589050	6	51611	3
Atliq_Curtains	Home Care	3.517500	7	28042	6
Atliq_Scrub_Sponge_For_Dishwash	Home Care	-0.111279	8	-777	15
Atliq_Cream_Beauty_Bathing_Soap (125GM)	Personal Care	-0.137752	9	1317	12
Atliq_Lime_Cool_Bathing_Bar (125GM)	Personal Care	-0.159836	10	2562	10
Atliq_Masoor_Dal (1KG)	Grocery & Staples	-0.175703	11	11301	9
Atliq_Body_Milk_Nourishing_Lotion (120ML)	Personal Care	-0.216170	12	556	13
Atliq_Doodh_Kesar_Body_Lotion (200ML)	Personal Care	-0.331740	13	1765	11
Atliq_Fusion_Container_Set_of_3	Home Care	-0.768995	14	-735	14
Atliq_Sonamasuri_Rice (10KG)	Grocery & Staples	-1.387653	15	15954	8

```
With Product_Performance_CTE As
(
select    product_name,
          sum(before_revenue)/1000000 as before_revenue,
          sum(after_revenue)/1000000 as after_revenue,
          sum(promo_quantity) as after_quantity,
          sum(`quantity_sold(before_promo)`) as before_quantity
from fact_events E
left join dim_products P
On E.product_code =P.product_code
group by product_name
)
-- Rank based on IR and ISU
Select    product_name ,
          (after_revenue-before_revenue) as IR,
          rank() over(order by (after_revenue - before_revenue) Desc) as IR_rank,
           (after_quantity- before_quantity) as ISU,
          rank() over(order by (after_quantity- before_quantity) Desc) as ISU_rank
FROM Product_Performance_CTE   ORDER BY IR_rank;
```

III. Correlation between Product Category and Product Promotion Type

Incremental Sold Quantity

Every Product Category with '25%OFF' Promotion Type has negative ISU Values

category	25% OFF	33% OFF	50% OFF	BOGOF	500 Cashback
Personal Care	-731	0	6931	0	0
Grocery & Staples	-3474	27255	0	225858	0
Home Care	-1512	0	0	53955	0
Combo1	0	0	0	0	40881
Home Appliances	0	0	0	92513	0

```
SELECT
   category,
            SUM(CASE WHEN promo_type = '25% OFF'
           THEN promo_quantity - `quantity_sold(before_promo)` ELSE 0 END) AS '25% OFF',
            SUM(CASE WHEN promo_type = '33% OFF'
           THEN promo_quantity - `quantity_sold(before_promo)` ELSE 0 END) AS '33% OFF',
             SUM(CASE WHEN promo_type = '50% OFF'
           THEN promo_quantity - `quantity_sold(before_promo)` ELSE 0 END) AS '50% OFF',
             SUM(CASE WHEN promo_type = 'BOGOF'
            THEN promo_quantity - `quantity_sold(before_promo)` ELSE 0 END) AS 'BOGOF',
           SUM(CASE WHEN promo_type = '500 Cashback'
           THEN promo_quantity - `quantity_sold(before_promo)` ELSE 0 END) AS '500 Cashback'
FROM fact_events E
LEFT JOIN dim_products P ON E.product_code = P.product_code GROUP BY category;
```

Incremental Revenue

```
Select
            Category,
           round(sum(case when promo_type="25% OFF"
           then after_revenue-before_revenue else 0 end)/1000000,2)  as '25% OFF',
            round(sum(case when promo_type="33% OFF"
           then after_revenue-before_revenue else 0 end)/1000000,2)  as '33% OFF',
            round(sum(case when promo_type="50% OFF"
           then after_revenue-before_revenue else 0 end)/1000000,2)  as '50% OFF',
            round(sum(case when promo_type="BOGOF"
           then after_revenue-before_revenue else 0 end)/1000000,2)  as 'BOGOF',
           round(sum(case when promo_type="500 Cashback"
           then after_revenue-before_revenue else 0 end)/1000000,2)  as '500 Cashback'
From fact_events E
left join dim_products P on E.product_code =p.product_code  GROUP BY category;
```

Category	25% OFF	33% OFF	50% OFF	BOGOF	500 Cashback
Personal Care	-0.12	0.00	-0.73	0.00	0.00
Grocery & Staples	-2.18	-1.56	0.00	27.73	0.00
Home Care	-0.88	0.00	0.00	16.43	0.00
Combo1	0.00	0.00	0.00	0.00	91.05
Home Appliances	0.00	0.00	0.00	25.15	0.00

Personal Care has the negative IR values in for the promotion types.

Personal Care (50%), Grocery & Staples (33%) have negative IR values even though the ISU values are Positive