

Product and Category Analysis:

1. Which product categories saw the most significant lift in sales from the promotions?

CODE:

```
WITH CategorySales AS (  
    SELECT  
        dp.category,  
        SUM(  
            CASE  
                WHEN fe.promo_type = 'BOGOF' THEN fe.`quantity_sold(after_promo)`* 2  
                ELSE fe.`quantity_sold(after_promo)`  
            END  
        ) AS total_quantity_after_promo,  
        SUM(`quantity_sold(before_promo)`) AS total_quantity_before_promo  
    FROM  
        retail_events_db.fact_events fe  
    JOIN  
        dim_products dp ON fe.product_code = dp.product_code  
    GROUP BY  
        dp.category  
)  
SELECT  
    category,  
    (total_quantity_after_promo - total_quantity_before_promo) AS sales_lift  
FROM  
    CategorySales  
group by  
    category  
ORDER BY  
    sales_lift DESC;
```

RESULT:

	category	sales_lift
►	Grocery & Staples	249639
	Home Appliances	92513
	Home Care	52443
	Combo1	40881
	Personal Care	6200

2. Are there specific products that respond exceptionally well or poorly to promotions?

- promotional impact on product performance

CODE:

```
WITH ProductRevenue AS (  
    SELECT  
        product_name,  
        SUM(`quantity_sold(before_promo)` * base_price)  
            AS Total_Revenue_Before_promotion,  
        SUM(CASE  
            WHEN promo_type = 'BOGOF' THEN base_price * 0.5 * (2 * `quantity_sold(after_promo)`)  
            WHEN promo_type = '50% Off' THEN base_price * 0.50 * `quantity_sold(after_promo)`  
            WHEN promo_type = '25% Off' THEN base_price * 0.75 * `quantity_sold(after_promo)`  
            WHEN promo_type = '33% Off' THEN base_price * 0.67 * `quantity_sold(after_promo)`  
            WHEN promo_type = '500 Cashback' THEN (base_price - 500) * `quantity_sold(after_promo)`  
        END) AS Total_Revenue_After_promotion  
    FROM  
        retail_events_db.fact_events  
    JOIN  
        dim_products using (product_code)  
    GROUP BY  
        product_name  
) ,  
IR_Calculation AS (  
    SELECT product_name,  
        (Total_Revenue_After_promotion- Total_Revenue_Before_promotion) as IR  
    FROM  
        ProductRevenue  
)  
select product_name,round(IR/1000000,2) as IR_million from  
(select product_name, IR,  
    row_number() over(order by sum(IR) desc) as top_rank,  
    row_number() over(order by sum(IR) asc) as bottom_rank  
from IR_Calculation  
group by product_name  
) as ranked_products  
where  
top_rank <= 3 or bottom_rank <=3  
order by IR desc;
```

RESULT:

	product_name	IR_million
▶	Atliq_Home_Essential_8_Product_Combo	91.05
	Atliq_waterproof_Immersion_Rod	17.56
	Atliq_Farm_Chakki_Atta (1KG)	17.36
	Atliq_Doodh_Kesar_Body_Lotion (200ML)	-0.33
	Atliq_Fusion_Container_Set_of_3	-0.77
	Atliq_Sonamasuri_Rice (10KG)	-1.39

3. What is the correlation between product category and promotion type effectiveness?

CODE:

WITH CategorySales AS (

SELECT

promo_type,

category,

SUM(`quantity_sold(before_promo)` * base_price)

AS Total_Revenue_Before_promotion,

SUM(CASE

WHEN promo_type = 'BOGOF' THEN base_price * 0.5 * (2 * `quantity_sold(after_promo)`)

WHEN promo_type = '50% Off' THEN base_price * 0.50 * `quantity_sold(after_promo)`

WHEN promo_type = '25% Off' THEN base_price * 0.75 * `quantity_sold(after_promo)`

WHEN promo_type = '33% Off' THEN base_price * 0.67 * `quantity_sold(after_promo)`

WHEN promo_type = '500 Cashback' THEN (base_price - 500) * `quantity_sold(after_promo)`

END) AS Total_Revenue_After_promotion,

SUM(

CASE

WHEN promo_type = 'BOGOF' THEN `quantity_sold(after_promo)` * 2

ELSE `quantity_sold(after_promo)`

END

) AS total_quantity_after_promo,

SUM(`quantity_sold(before_promo)`) AS total_quantity_before_promo

FROM

retail_events_db.fact_events

JOIN

dim_products using (product_code)

GROUP BY

promo_type, category

),

Calculation AS (

SELECT

promo_type,

category, (Total_Revenue_After_promotion- Total_Revenue_Before_promotion) as IR,

(total_quantity_after_promo- total_quantity_before_promo) as ISU

FROM

CategorySales

)

select * from Calculation order by IR desc;

RESULT:

	promo_type	category	IR	ISU
►	500 Cashback	Combo1	91053000.00	40881
	BOGOF	Grocery & Staples	27731650.00	225858
	BOGOF	Home Appliances	25150390.00	92513
	BOGOF	Home Care	16434950.00	53955
	25% OFF	Personal Care	-118835.00	-731
	50% OFF	Personal Care	-726663.50	6931
	25% OFF	Home Care	-880273.75	-1512
	33% OFF	Grocery & Staples	-1563356.16	27255
	25% OFF	Grocery & Staples	-2175406.00	-3474
