Case study- 7

Friday, February 11, 2022 5:19 PM

High Level Sales Analysis

1. What was the total quantity sold for all products?

```
SELECT  p.product_id,
        p.product_name,
        count(s.qty) total_qty from
        balanced_tree.sales s inner join balanced_tree.product_details p on
         p.product_id=s.prod_id
         group by product_name,p.product_id;
```

product_id	product_name	total_qty
f084eb	Navy Solid Socks - Mens	1281
e83aa3	Black Straight Jeans - Womens	1246
5d267b	White Tee Shirt - Mens	1268
b9a74d	White Striped Socks - Mens	1243
2a2353	Blue Polo Shirt - Mens	1268
2feb6b	Pink Fluro Polkadot Socks - Mens	1258
d5e9a6	Khaki Suit Jacket - Womens	1247
e31d39	Cream Relaxed Jeans - Womens	1243
c4a632	Navy Oversized Jeans - Womens	1274
72f5d4	Indigo Rain Jacket - Womens	1250
9ec847	Grey Fashion Jacket - Womens	1275
c8d436	Teal Button Up Shirt - Mens	1242

2. What is the total generated revenue for all products before discounts?

```
SELECT
        p.product_id,
        p.product_name,
        count(s.qty) as Total_Qty,
        sum(s.price) as Total_Price,
        sum(s.price)*count(s.qty) as Total_Revenue
        from    --The total revenue formula is simply: TR = P * Q (Total Revenue = Price * Quantity
Sold)
         balanced_tree.sales s inner join balanced_tree.product_details p on
         p.product_id=s.prod_id
         group by product_name,p.product_id;
```

Query #2 Execution time: 8ms

product_id	product_name	total_qty	total_price	total_revenue
f084eb	Navy Solid Socks - Mens	1281	46116	59074596
e83aa3	Black Straight Jeans - Womens	1246	39872	49680512
5d267b	White Tee Shirt - Mens	1268	50720	64312960
b9a74d	White Striped Socks - Mens	1243	21131	26265833
2a2353	Blue Polo Shirt - Mens	1268	72276	91645968
2feb6b	Pink Fluro Polkadot Socks - Mens	1258	36482	45894356
d5e9a6	Khaki Suit Jacket - Womens	1247	28681	35765207
e31d39	Cream Relaxed Jeans - Womens	1243	12430	15450490
c4a632	Navy Oversized Jeans - Womens	1274	16562	21099988
72f5d4	Indigo Rain Jacket - Womens	1250	23750	29687500
9ec847	Grey Fashion Jacket - Womens	1275	68850	87783750
c8d436	Teal Button Up Shirt - Mens	1242	12420	15425640

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3. What was the total discount amount for all products?

```
SELECT
        p.product_id,
        p.product_name,
        sum(s.discount) Total_discount from
        balanced_tree.sales s inner join balanced_tree.product_details p on
        p.product_id=s.prod_id
        group by product_name,p.product_id;
```

product_id	product_name	total_discount
f084eb	Navy Solid Socks - Mens	15646
e83aa3	Black Straight Jeans - Womens	15257
5d267b	White Tee Shirt - Mens	15487
b9a74d	White Striped Socks - Mens	14873
2a2353	Blue Polo Shirt - Mens	15553
2feb6b	Pink Fluro Polkadot Socks - Mens	14946
d5e9a6	Khaki Suit Jacket - Womens	14669
e31d39	Cream Relaxed Jeans - Womens	15065
c4a632	Navy Oversized Jeans - Womens	15418
72f5d4	Indigo Rain Jacket - Womens	15283
9ec847	Grey Fashion Jacket - Womens	15500
c8d436	Teal Button Up Shirt - Mens	15003

Transaction Analysis

1. How many unique transactions were there?

```
select  count(distinct txn_id)
        from balanced_tree.sales;
```

Query #4 Execution time: 6ms

count
2500

2. What is the average unique products purchased in each transaction?

```
select Round(avg(total_products),2) as Average_products from
                (select count(Distinct prod_id) as total_products ,
                        txn_id from balanced_tree.sales
                         group by txn_id) t;
```

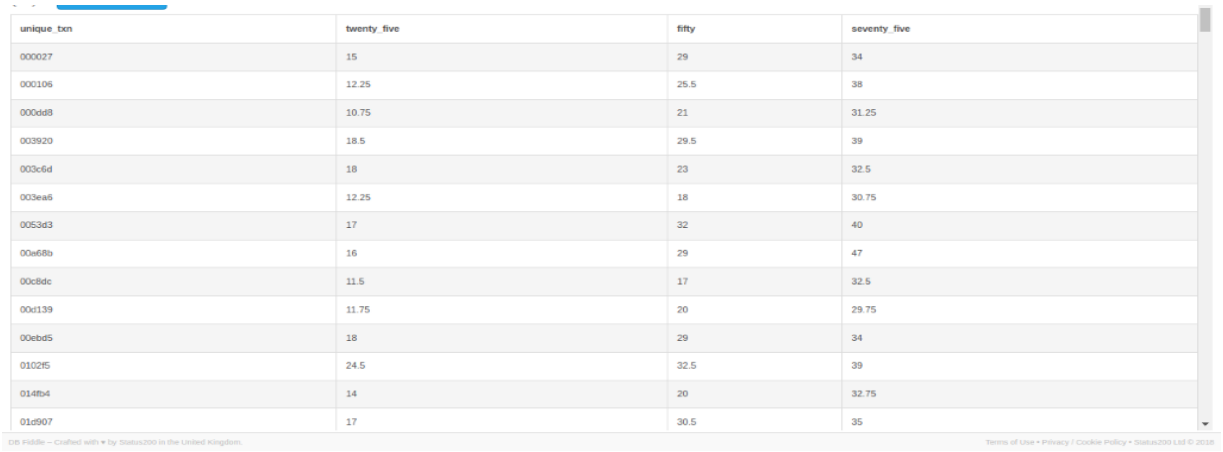
Query #5 Execution time: 20ms

average_products
6.04

3. What are the 25th, 50th and 75th percentile values for the revenue per transaction?

```
SELECT txn_id as unique_txn,
    PERCENTILE_CONT(0.25) WITHIN GROUP(ORDER BY Total_Revenue) As twenty_Five,
    PERCENTILE_CONT(0.50) WITHIN GROUP(ORDER BY Total_Revenue) As Fifty,
    PERCENTILE_CONT(0.75) WITHIN GROUP(ORDER BY Total_Revenue) As Seventy_Five
    from
```

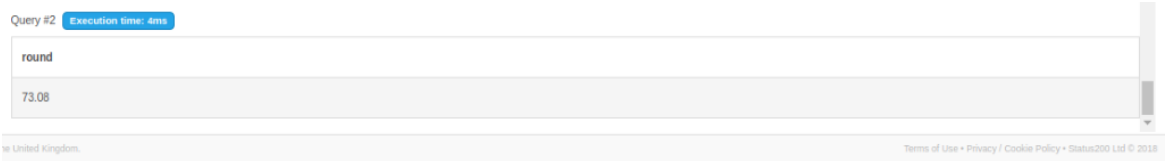
```
(SELECT
s.txn_id,
count(s.qty) as Total_Qty,
sum(s.price) as Total_Price,
sum(s.price)*count(s.qty) as Total_Revenue
    from      --The total revenue formula is simply: TR = P * Q (Total Revenue = Price * Quantity Sold)
balanced_tree.sales s inner join balanced_tree.product_details p on
p.product_id=s.prod_id
group by product_name,p.product_id,s.txn_id)t group by unique_txn;
```



unique_txn	twenty_five	fifty	seventy_five
000027	15	29	34
000106	12.25	25.5	38
000dd8	10.75	21	31.25
003920	18.5	29.5	39
003c6d	18	23	32.5
003ea6	12.25	18	30.75
0053d3	17	32	40
00a68b	16	29	47
00c8dc	11.5	17	32.5
00d139	11.75	20	29.75
00ebd5	18	29	34
0102f5	24.5	32.5	39
014fb4	14	20	32.75
01d907	17	30.5	35

4. What is the average discount value per transaction?

```
select round(avg(total_dis),2) from
 (select txn_id as unique_txn,
        sum(discount) as Total_dis
        from balanced_tree.sales
        group by unique_txn)t;
```



Query #2 Execution time: 4ms

round
73.08

5. What is the percentage split of all transactions for members vs non-members?

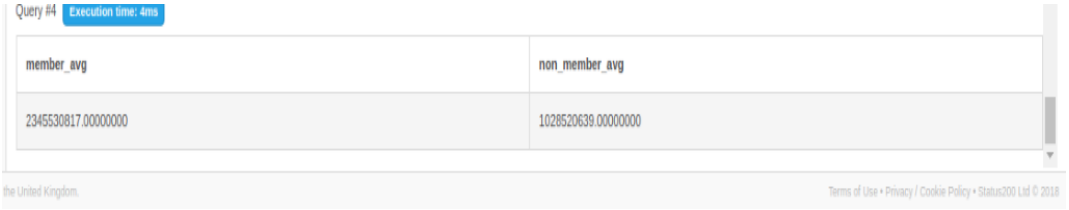
```
select Round((sum(case when member='t' then 1 else 0 end)::Numeric/count(*))*100,2) as member_perc,
       Round((sum(case when member='f' then 1 else 0 end)::Numeric/count(*))*100,2) as non_member_perc
       from balanced_tree.sales;
```

Query #3 Execution time: 15ms

member_perc	non_member_perc
60.03	39.97

6. What is the average revenue for member transactions and non-member transactions?

```
select round(avg(Member_avg),2) as Member_avg,Round(avg(Non_Member_avg),2) As Non_member_avg from
(select
case when member='t' then (sum(price)*count(qty))+sum(discount) end as Member_avg,
     case when member='f' then (sum(price)*count(qty))+sum(discount) end as Non_Member_avg
   from      --The total revenue formula is simply: TR = P * Q (Total Revenue = Price * Quantity Sold)
balanced_tree.sales group by member) t;
```

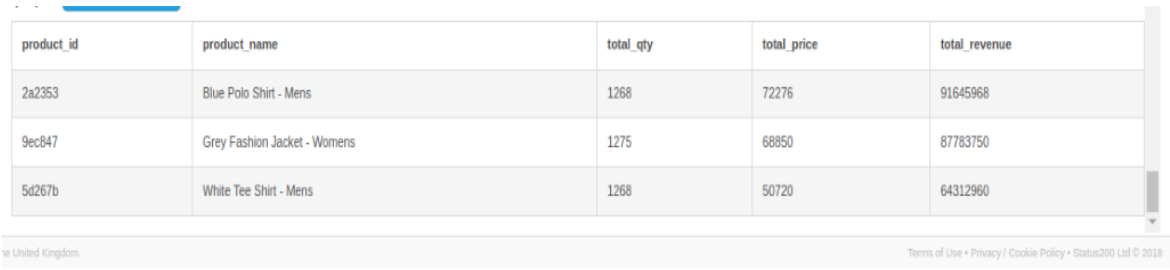

Query #4 Execution time: 4ms

member_avg	non_member_avg
2345530817.00000000	1028520639.00000000

Product Analysis

1. What are the top 3 products by total revenue before discount?

```
SELECT
        p.product_id,
        p.product_name,
         count(s.qty) as Total_Qty,
         sum(s.price) as Total_Price,
         sum(s.price)*count(s.qty) as Total_Revenue  from      --The total revenue formula is simply: TR = P * Q (Total Revenue = Price * Quantity Sold)
balanced_tree.sales s inner join balanced_tree.product_details p on
p.product_id=s.prod_id
group by product_name,p.product_id
         order by Total_Revenue DESC Limit 3;
```



product_id	product_name	total_qty	total_price	total_revenue
2a2353	Blue Polo Shirt - Mens	1268	72276	91645968
9ec847	Grey Fashion Jacket - Womens	1275	68850	87783750
5d267b	White Tee Shirt - Mens	1268	50720	64312960

2. What is the total quantity, revenue and discount for each segment?

```
SELECT
         Distinct(p.segment_id) as Segment,
          p.segment_name,
         count(s.qty) as Total_Qty,
         sum(s.price) as Total_Price,
         sum(s.discount) as Total_Discount,
         (sum(s.price)*count(s.qty))+sum(discount) as Total_Revenue  from      --The total revenue formula is simply: TR = P * Q (Total Revenue = Price * Quantity Sold)
balanced_tree.sales s inner join balanced_tree.product_details p on
p.product_id=s.prod_id
group by Segment,p.segment_name
         order by segment_id;
```

segment	total_qty	total_price	total_discount	total_revenue
3	3763	68864	45740	259180972
4	3772	121281	45452	457517384
5	3778	135416	46043	511647691
6	3782	103729	45465	392348543

3. What is the top selling product for each segment?

```
With Segment_CTE as (
SELECT
Distinct(p.segment_id) as Segment,
 p.segment_name,
      p.product_name,
      (sum(s.price)*count(s.qty))+sum(discount) as Total_Revenue,
      Dense_Rank() Over (Partition by segment_id order by Product_name) Rank from      --The total revenue formula is simply: TR = P * Q (Total Revenue = Price * Quantity Sold)
balanced_tree.sales s inner join balanced_tree.product_details p on
      p.product_id=s.prod_id
group by Segment,p.product_name,p.segment_name
order by Total_Revenue Desc)

select Segment,segment_name
Product_name
     from Segment_CTE where Rank=1 order by Segment;
```

segment	segment_name	product_name
3	Jeans	Black Straight Jeans - Womens
4	Jacket	Grey Fashion Jacket - Womens
5	Shirt	Blue Polo Shirt - Mens
6	Socks	Navy Solid Socks - Mens

4. What is the total quantity, revenue and discount for each category?

```
SELECT
    Distinct(p.category_name)as category,
count(s.qty) as Total_Qty,
sum(s.price) as Total_Price,
sum(s.discount) as Total_Discount,
(sum(s.price)*count(s.qty))+sum(discount) as Total_Revenue  from      --The total revenue formula is simply: TR = P * Q (Total Revenue = Price * Quantity Sold)
balanced_tree.sales s inner join balanced_tree.product_details p on
p.product_id=s.prod_id
group by  category
order by category;
```

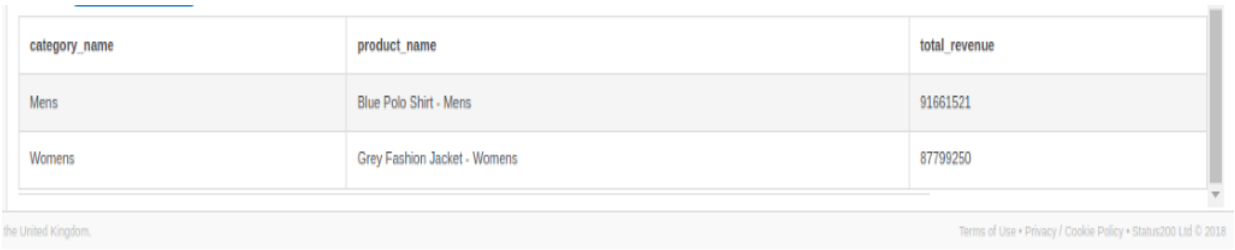
category	total_qty	total_price	total_discount	total_revenue
Mens	7560	239145	91508	1808027708
Womens	7535	190145	91192	1432833767

5. What is the top selling product for each category?

```
With Segment_CTE as (
SELECT
Distinct(p.category_id)as category,
  p.category_name,
p.product_name,
(sum(s.price)*count(s.qty))+sum(discount) as Total_Revenue,
```

```
Dense_rank() Over (order by category_id) Rank from      --The total revenue formula is simply: TR = P * Q (Total Revenue = Price * Quantity Sold)
balanced_tree.sales s inner join balanced_tree.product_details p on
p.product_id=s.prod_id
group by p.product_name,category,category_name
order by Total_Revenue Desc)

select category_name,
        Product_name,Total_Revenue
         from Segment_CTE order by Total_Revenue DESC LIMIT 2;
```



category_name	product_name	total_revenue
Mens	Blue Polo Shirt - Mens	91661521
Womens	Grey Fashion Jacket - Womens	87799250

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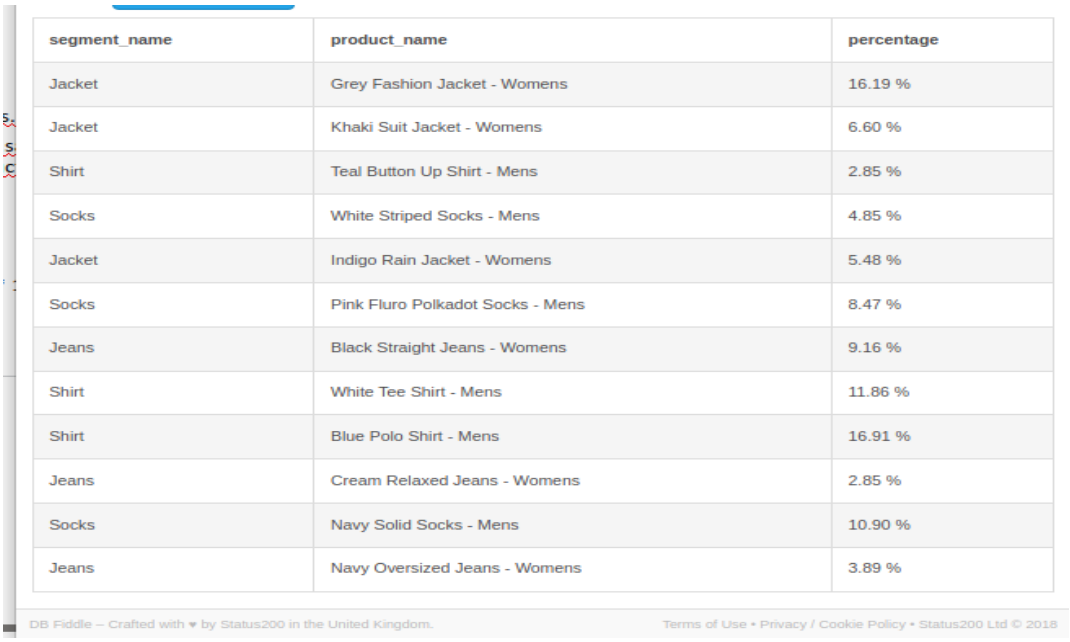
6. What is the percentage split of revenue by product for each segment?

```
with Perc_CTE as
(select
        p.segment_name,
       p.product_name,
       (sum(s.price)*count(s.qty))+sum(s.discount) as revenue
       from  balanced_tree.sales s inner join balanced_tree.product_details p on
        p.product_id=s.prod_id group by p.segment_name,p.product_name)

  select  segment_name,
            product_name,
            Round(revenue * 100/(SELECT SUM(revenue) FROM Perc_CTE),2) || ' %' as Percentage
            from Perc_CTE;
```



segment_name	product_name	percentage
Jacket	Grey Fashion Jacket - Womens	16.19 %
Jacket	Khaki Suit Jacket - Womens	6.60 %
Shirt	Teal Button Up Shirt - Mens	2.85 %
Socks	White Striped Socks - Mens	4.85 %
Jacket	Indigo Rain Jacket - Womens	5.48 %
Socks	Pink Fluro Polkadot Socks - Mens	8.47 %
Jeans	Black Straight Jeans - Womens	9.16 %
Shirt	White Tee Shirt - Mens	11.86 %
Shirt	Blue Polo Shirt - Mens	16.91 %
Jeans	Cream Relaxed Jeans - Womens	2.85 %
Socks	Navy Solid Socks - Mens	10.90 %
Jeans	Navy Oversized Jeans - Womens	3.89 %

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7. What is the percentage split of revenue by segment for each category?

```
with Perc_CTE as
(select
```

```
p.category_name,
p.segment_name,
(sum(s.price)*count(s.qty))+sum(s.discount) as revenue
from  balanced_tree.sales s inner join balanced_tree.product_details p on
p.product_id=s.prod_id
group by p.category_name,
p.segment_name)
```

```
select  category_name,
        segment_name,
        Round(revenue * 100/(SELECT SUM(revenue) FROM Perc_CTE),2) || ' %' as Percentage from Perc_CTE;
```

category_name	segment_name	percentage
Womens	Jeans	15.99 %
Womens	Jacket	28.23 %
Mens	Socks	24.21 %
Mens	Shirt	31.57 %

8. What is the percentage split of total revenue by category?

```
with Perc_CTE as
(select
        p.category_name,
       (sum(s.price)*count(s.qty))+sum(s.discount) as revenue
       from  balanced_tree.sales s inner join balanced_tree.product_details p on
        p.product_id=s.prod_id
        group by p.category_name)
```

```
select  category_name,
        Round(revenue * 100/(SELECT SUM(revenue) FROM Perc_CTE),2) || ' %' as Percentage
        from Perc_CTE;
```

category_name	percentage
Mens	55.79 %
Womens	44.21 %

9. What is the total transaction “penetration” for each product? (hint: penetration = number of transactions where at least 1 quantity of a product was purchased divided by total number of transactions)

```
select
    product_name,
   round(sum(case when s.qty >= 1 then 1 else 0 end)::NUMERIC/(select count(txn_id) from balanced_tree.sales),3) as Penetration
    from balanced_tree.sales s inner join balanced_tree.product_details p
    on p.product_id=s.prod_id
```

group by product_name;

product_name	penetration
White Tee Shirt - Mens	0.084
Navy Solid Socks - Mens	0.085
Grey Fashion Jacket - Womens	0.084
Navy Oversized Jeans - Womens	0.084
Pink Fluro Polkadot Socks - Mens	0.083
Khaki Suit Jacket - Womens	0.083
Black Straight Jeans - Womens	0.083
White Striped Socks - Mens	0.082
Blue Polo Shirt - Mens	0.084
Indigo Rain Jacket - Womens	0.083
Cream Relaxed Jeans - Womens	0.082
Teal Button Up Shirt - Mens	0.082

10. What is the most common combination of at least 1 quantity of any 3 products in a 1 single transaction?

```
with CTE as (select txn_id,
          product_id,
    product_name,
       sum(qty) as total_Qty,
       dense_rank() over(partition by txn_id order by product_name)as rank
       from balanced_tree.sales s inner join balanced_tree.product_details p
      on p.product_id=s.prod_id group by txn_id,product_name,product_id having sum(s.qty)>=1)

      select * from CTE where Rank In (1,2,3);
--  select

-- (select max(product_name) from CTE where rank=1)As Most_rank_1,

--    (select max(product_name) from CTE where rank=2)As Most_rank_2,

--     (select max(product_name) from CTE where rank=3)As Most_rank_3 ;
```

txn_id	product_id	product_name	total_qty	rank
000027	e83aa3	Black Straight Jeans - Womens	3	1
000027	e31d39	Cream Relaxed Jeans - Womens	3	2
000027	9ec847	Grey Fashion Jacket - Womens	3	3
000106	e83aa3	Black Straight Jeans - Womens	5	1
000106	2a2353	Blue Polo Shirt - Mens	1	2
000106	e31d39	Cream Relaxed Jeans - Womens	1	3
000dd8	e83aa3	Black Straight Jeans - Womens	1	1
000dd8	2a2353	Blue Polo Shirt - Mens	5	2
000dd8	e31d39	Cream Relaxed Jeans - Womens	1	3
003920	2a2353	Blue Polo Shirt - Mens	4	1
003920	d5e9a6	Khaki Suit Jacket - Womens	3	2
003920	f084eb	Navy Solid Socks - Mens	1	3
003c6d	9ec847	Grey Fashion Jacket - Womens	2	1