Part A: High-Level Sales Analysis

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

```
SELECT
   SUM(qty)
FROM
   sales;
```

Total_quantity
45216

1b. What was the total quantity sold for EACH product?

```
SELECT
   p.product_name,
   SUM(s.qty) AS Total_quantity
FROM
   product_details p
JOIN
   sales s ON p.product_id = s.prod_id
GROUP BY
   p.product_name;
```

Product_name	Total_quantity
Navy Oversized Jeans - Womens	3856
White Tee Shirt - Mens	3800
White Striped Socks - Mens	3655
Pink Fluro Polkadot Socks - Mens	3770
Cream Relaxed Jeans - Womens	3707
Indigo Rain Jacket - Womens	3757
Blue Polo Shirt - Mens	3819
Navy Solid Socks - Mens	3792
Black Straight Jeans - Womens	3786
Khaki Suit Jacket - Womens	3752
Grey Fashion Jacket - Womens	3876
Teal Button Up Shirt - Mens	3646

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

```
SELECT
   SUM(qty * price) AS Total_revenue
FROM
   sales;
```

Total_revenue
1289453

2b. What is the total generated revenue for EACH product before discounts?

```
SELECT
   p.product_name,
   SUM(s.qty * s.price) AS total_revenue
FROM
   product_details p
JOIN
   sales s ON p.product_id = s.prod_id
GROUP BY
   p.product_name
ORDER BY
   total_revenue DESC;
```

Product_name	Total_revenue
Blue Polo Shirt - Mens	217683
Grey Fashion Jacket - Womens	209304
White Tee Shirt - Mens	152000
Navy Solid Socks - Mens	136512
Black Straight Jeans - Womens	121152
Pink Fluro Polkadot Socks - Mens	109330
Khaki Suit Jacket - Womens	86296
Indigo Rain Jacket - Womens	71383
White Striped Socks - Mens	62135
Navy Oversized Jeans - Womens	50128
Cream Relaxed Jeans - Womens	37070
Teal Button Up Shirt - Mens	36460

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

```
SELECT
   ROUND(SUM((price * qty) * discount / 100), 2) AS Total_discounts
FROM
   sales;
```

Total_discounts
156229.14

3b. What is the total discount for EACH product? I will include total item revenue with this query.

```
SELECT
   p.product_name,
   SUM(s.qty * s.price) AS Total_revenue,
   ROUND(SUM((s.price * s.qty) * discount / 100), 2) AS Total_discounts
FROM
   product_details p
JOIN
   sales s ON p.product_id = s.prod_id
GROUP BY
   p.product_name
ORDER BY
   Total_discounts DESC;
```

Product_name	Total_revenue	Total_discounts
Blue Polo Shirt - Mens	217683	26819.07
Grey Fashion Jacket - Womens	209304	25391.88
White Tee Shirt - Mens	152000	18377.6
Navy Solid Socks - Mens	136512	16650.36
Black Straight Jeans - Womens	121152	14744.96
Pink Fluro Polkadot Socks - Mens	109330	12952.27
Khaki Suit Jacket - Womens	86296	10243.05
Indigo Rain Jacket - Womens	71383	8642.53
White Striped Socks - Mens	62135	7410.81
Navy Oversized Jeans - Womens	50128	6135.61
Cream Relaxed Jeans - Womens	37070	4463.4
Teal Button Up Shirt - Mens	36460	4397.6

Part B: Transaction Analysis

1. How many unique transactions were there?

```
SELECT
  COUNT(DISTINCT txn_id) AS unique_transactions
FROM
  sales;
```

Unique_Transactions
2500

2. What is the average unique products purchased in each transaction? I believe this is another oddly worded question. I interpret this question to ask "What is the average NUMBER/COUNT OF unique items purchased per transaction?"

```
SELECT
  ROUND(AVG(unique_item)) AS avg_number_of_items
FROM
  (
    SELECT
      COUNT(DISTINCT(prod_id)) AS unique_item
    FROM
      sales
    GROUP BY
      txn_id
  ) AS counts;
```

Avg_number_of_items
6

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

```
SELECT
   (SELECT revenue
    FROM (
        SELECT
           revenue,
           ROW_NUMBER() OVER (ORDER BY revenue) AS rn,
           COUNT(*) OVER () AS cnt
        FROM (
            SELECT ROUND(SUM(price * qty), 2) AS revenue
            FROM sales
            GROUP BY txn_id
           ) AS get_revenue
       ) AS sub
   WHERE rn = CEIL(0.25 * cnt)) AS percentile_25,

   (SELECT revenue
    FROM (
        SELECT
           revenue,
           ROW_NUMBER() OVER (ORDER BY revenue) AS rn,
           COUNT(*) OVER () AS cnt
        FROM (
            SELECT ROUND(SUM(price * qty), 2) AS revenue
            FROM sales
            GROUP BY txn_id
           ) AS get_revenue
       ) AS sub
   WHERE rn = CEIL(0.5 * cnt)) AS percentile_50,
```

```
(SELECT revenue
 FROM (
     SELECT
        revenue,
        ROW_NUMBER() OVER (ORDER BY revenue) AS rn,
        COUNT(*) OVER () AS cnt
     FROM (
         SELECT ROUND(SUM(price * qty), 2) AS revenue
         FROM sales
         GROUP BY txn_id
        ) AS get_revenue
    ) AS sub
 WHERE rn = CEIL(0.75 * cnt)) AS percentile_75
```

Percentile_25	Percentile_50	Percentile_75
375	509	647

4. What is the average discount value per transaction?

```
SELECT
   AVG(total_discounts)
FROM
   (SELECT
      txn_id,
      ROUND(SUM((price * qty) * discount / 100), 2) AS total_discounts
    FROM
      sales
    GROUP BY
      txn_id
   ) AS ext;
```

Avg_Total_discount
62.49

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

```
SELECT
   ROUND((SELECT COUNT(membe) FROM sales WHERE membe = 't') / (SELECT COUNT(membe) FROM sales) * 100, 0) AS member_percentage,
   ROUND((SELECT COUNT(membe) FROM sales WHERE membe = 'f') / (SELECT COUNT(membe) FROM sales) * 100, 0) AS non_member_percentage
FROM
   sales;
```

Member_percentage	Non_member_percentage
60	40

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

```
SELECT
   membe,
   SUM(qty * price) AS revenue
FROM
   sales
GROUP BY
   membe;
```

Membe	Revenue
t	776984
f	512469

Part C: Product Analysis

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

```
SELECT
   p.product_name,
   SUM(s.price * s.qty) AS total_revenue
FROM
   product_details p
JOIN
   sales s ON s.prod_id = p.product_id
GROUP BY
   p.product_name
ORDER BY
   total_revenue DESC
LIMIT 3;
```

Product_name	Total_revenue
Blue Polo Shirt - Mens	217683
Grey Fashion Jacket - Womens	209304
White Tee Shirt - Mens	152000

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

```
SELECT
   p.segment_id,
   p.segment_name,
   SUM(s.qty) AS total_quantity,
   SUM(s.qty * s.price) AS total_revenue,
   ROUND(SUM((s.price * s.qty) * s.discount / 100), 2) AS total_discounts
FROM
   product_details p
```

```
JOIN
   sales s ON s.prod_id = p.product_id
GROUP BY
   p.segment_id, p.segment_name;
```

segment_id	segment_name	Total_quantity	Total_revenue	Total_discounts
3	Jeans	11349	208350	25343.97
5	Shirt	11265	406143	49594.27
6	Socks	11217	307977	37013.44
4	Jacket	11385	366983	44277.46

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

```
 select segment_id,segment_name,product_name,total_quantity,rnk from (
 select p.segment_id,
              p.segment_name,
       p.product_name,
       SUM(s.qty) as total_quantity,
       rank() over(partition by p.segment_id order by SUM(s.qty) DESC) AS rnk
       from product_details p
       join sales s  ON s.prod_id = p.product_id
 GROUP BY
    p.segment_id,p.segment_name,p.product_name) as ranked_data where  rnk = 1;
```

segment_id	segment_name	product_name	Total_quantity	rnk
3	Jeans	Navy Oversized Jeans - Womens	3856	1
4	Jacket	Grey Fashion Jacket - Womens	3876	1
5	Shirt	Blue Polo Shirt - Mens	3819	1
6	Socks	Navy Solid Socks - Mens	3792	1

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

```
SELECT
   p.category_id,
   p.category_name,
   SUM(s.qty) AS Total_quantity,
```

```
    SUM(s.qty * s.price) AS Total_revenue,
    ROUND(SUM((s.price * s.qty) * s.discount / 100), 2) AS Total_discounts
FROM
    product_details p
JOIN
    sales s ON s.prod_id = p.product_id
GROUP BY
    p.category_id, p.category_name;
```

category_id	category_name	Total_quantity	Total_revenue	Total_discounts
1	Womens	22734	575333	69621.43
2	Mens	22482	714120	86607.71

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

```
SELECT
    category_id,
    category_name,
    product_name,
    total_quantity
FROM
    (
        SELECT
            p.category_id,
            p.category_name,
            p.product_name,
            SUM(s.qty) AS total_quantity,
            RANK() OVER (PARTITION BY p.category_id ORDER BY SUM(s.qty) DESC) AS rnk
        FROM
            product_details p
        JOIN
            sales s ON s.prod_id = p.product_id
        GROUP BY
```

```
        p.category_id, p.category_name, p.product_name
    ) AS top_selling_product
WHERE
    rnk = 1;
```

category_id	category_name	Product_name	Total_quantity
1	Womens	Grey Fashion Jacket - Womens	3876
2	Mens	Blue Polo Shirt - Mens	3819

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

```
SELECT
    product_id,
    product_name,
    segment_id,
    segment_name,
    segment_total_revenue,
    ROUND(segment_total_revenue / SUM(segment_total_revenue) OVER (PARTITION BY segment_id)
* 100, 2) AS revenue_percentage
FROM
    (
        SELECT
            p.product_id,
            p.product_name,
            p.segment_id,
            p.segment_name,
            SUM(s.qty * s.price) AS segment_total_revenue
        FROM
            product_details p
        JOIN
            sales s ON s.prod_id = p.product_id
        GROUP BY
            p.product_id, p.product_name, p.segment_id, p.segment_name
```

```
) AS sub;
```

product_id	product_name	segment_id	segment_name	segment_total_revenue	revenue_percentage
c4a632	Navy Oversized Jeans - Womens	3	Jeans	50128	24.06
e31d39	Cream Relaxed Jeans - Womens	3	Jeans	37070	17.79
e83aa3	Black Straight Jeans - Womens	3	Jeans	121152	58.15
72f5d4	Indigo Rain Jacket - Womens	4	Jacket	71383	19.45
d5e9a6	Khaki Suit Jacket - Womens	4	Jacket	86296	23.51
9ec847	Grey Fashion Jacket - Womens	4	Jacket	209304	57.03
5d267b	White Tee Shirt - Mens	5	Shirt	152000	37.43
2a2353	Blue Polo Shirt - Mens	5	Shirt	217683	53.6
c8d436	Teal Button Up Shirt - Mens	5	Shirt	36460	8.98
b9a74d	White Striped Socks - Mens	6	Socks	62135	20.18
2feb6b	Pink Fluro Polkadot Socks - Mens	6	Socks	109330	35.5
f084eb	Navy Solid Socks - Mens	6	Socks	136512	44.33

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

```
SELECT
   category_id,
   category_name,
   segment_id,
   segment_name,
   total_revenue,
   ROUND(total_revenue / SUM(total_revenue) OVER (PARTITION BY category_id) * 100, 2) AS
revenue_percentage
FROM (
   SELECT
      p.category_id,
      p.category_name,
      p.segment_id,
      p.segment_name,
      SUM(s.qty * s.price) AS total_revenue
   FROM
```

```
    product_details p
  JOIN
    sales s ON s.prod_id = p.product_id
  GROUP BY
    p.category_id, p.category_name, p.segment_id, p.segment_name
) AS sub;
```

category_id	category_name	segment_id	segment_name	Total_revenue	Revenue_percentage
1	Womens	3	Jeans	208350	36.21
1	Womens	4	Jacket	366983	63.79
2	Mens	5	Shirt	406143	56.87
2	Mens	6	Socks	307977	43.13

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

```
SELECT
  category_id,
  category_name,
  total_revenue,
  ROUND(total_revenue / SUM(total_revenue) OVER () * 100, 2) AS revenue_percentage
FROM (
  SELECT
    p.category_id,
    p.category_name,
    SUM(s.qty * s.price) AS total_revenue
  FROM
    product_details p
  JOIN
    sales s ON s.prod_id = p.product_id
  GROUP BY
    p.category_id, p.category_name
) AS sub;
```

category_id	category_name	Total_revenue	Revenue_percentage
1	Womens	575333	44.62
2	Mens	714120	55.38

9. What is the total transaction "penetration" for each product?

```
SELECT
   product_name,
   number_of_items_sold,
   ROUND(number_of_items_sold / total_transactions * 100, 2) AS product_percentage
FROM (
   SELECT
      p.product_id, p.product_name,
      COUNT(s.qty) AS number_of_items_sold,
      (SELECT COUNT(DISTINCT txn_id) FROM sales) as total_transactions
   FROM
      product_details p
   JOIN
      sales s ON s.prod_id = p.product_id
   GROUP BY
      p.product_id, p.product_name
) AS sub;
```

Product_name	Number_of_items_sold	Product_percentage
Navy Oversized Jeans - Womens	1274	50.96
White Tee Shirt - Mens	1268	50.72
White Striped Socks - Mens	1243	49.72
Pink Fluro Polkadot Socks - Mens	1258	50.32
Cream Relaxed Jeans - Womens	1243	49.72
Indigo Rain Jacket - Womens	1250	50
Blue Polo Shirt - Mens	1268	50.72
Navy Solid Socks - Mens	1281	51.24
Black Straight Jeans - Womens	1246	49.84
Khaki Suit Jacket - Womens	1247	49.88
Grey Fashion Jacket - Womens	1275	51
Teal Button Up Shirt - Mens	1242	49.68