Analysis about Retail company's sales and inventory transactions

MySQL Code:

1. The Total revenue generated by the company for each product category.

```
SELECT category, SUM(s.amount) AS total_amount
FROM apnibus.sales s
JOIN apnibus.product p ON s.product_id = p.product_id
group by p.category;
```

2. Top 5 customers who have made the highest total purchases, considering the customer's age and gender.

```
SELECT c.customer_id, c.age, c.gender, SUM(s.amount) AS total_purchases
FROM sales s
JOIN customer c ON s.customer_id = c.customer_id
GROUP BY c.customer_id, c.age, c.gender
ORDER BY total_purchases DESC
LIMIT 5;
```

3. Most profitable product category by calculating the average revenue per unit sold.

```
SELECT AVG(s.amount/ s.quantity) AS avg_revenue_per_unit, p.category
FROM sales s
JOIN product p ON s.product_id = p.product_id
group by p.category
order by avg_revenue_per_unit;
```

4. Analyze the inventory data and identify products that need restocking (stock count less than a specified threshold).

```
select product.product_id, inventory.stock_count from inventory
where inventory.stock_count < 500;
```

5. Write a SQL query to calculate the average age of customers for each product category.

First, we joined the customer table and sales table with customer_id of customer and sales table then we joined that table with product table using product_id of product and sales table. Using select statement, we retrieved product category and average age of customers as output.

```
select product.category, avg(age) as 'Average Age'
from customer
join sales
on customer.customer_id = sales.customer_id
join product
on product.product_id = sales.product_id
group by product.category;
```

6. Write a SQL query to retrieve the top 3 product categories that have the highest average transaction amount.

Since This dataset has only 3 categories, I will find the top 2 categories.

```
select product.category
from product
join sales
on product.product_id = sales.product_id
group by product.category
order by avg(sales.amount) limit 2;
```

Tables:

1. **Average age of customer with respect to product category.**

category	Average Age
Furniture	43.0112
Office Supplies	44.9107
Technology	42.5233

2. **Top 5 customers who have made the highest total purchases, considering the customer's age and gender.**

customer_id	age	gender	total_purchases
SM-20320	62	Male	25043.05
TC-20980	29	Female	19052.218
RB-19360	70	Male	15117.339
TA-21385	19	Male	14595.62
AB-10105	63	Male	14473.571

3. **Most profitable product category by calculating the average revenue per unit sold.**

category	avg_revenue_per_unit
Office Supplies	21.44789578
Technology	66.81946512
Furniture	101.1865607

4. **Product category with highest average transaction amount:**

category
Office Supplies
Technology

5. Revenue with respect to product category:

category	total_amount
Furniture	71996.7158
Office Supplies	32371.273
Technology	19657.772

Visualizations:

(Made in Power BI)