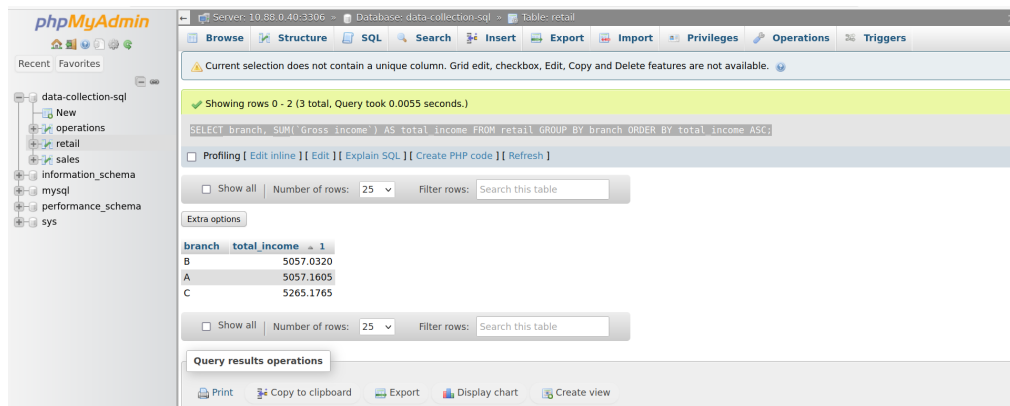


# SQL Project Answer

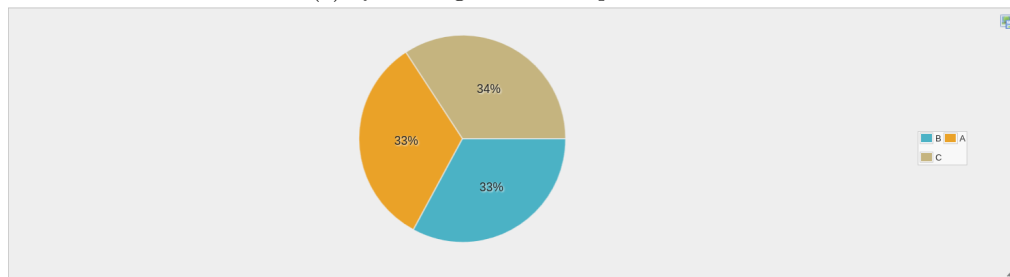
February 2025

Q1-Which branch had the highest gross income?

```
SELECT branch, SUM('Gross income') AS total_income  
FROM retail  
GROUP BY branch  
ORDER BY total_income ASC;
```



(a) Q1: Total gross income per branch



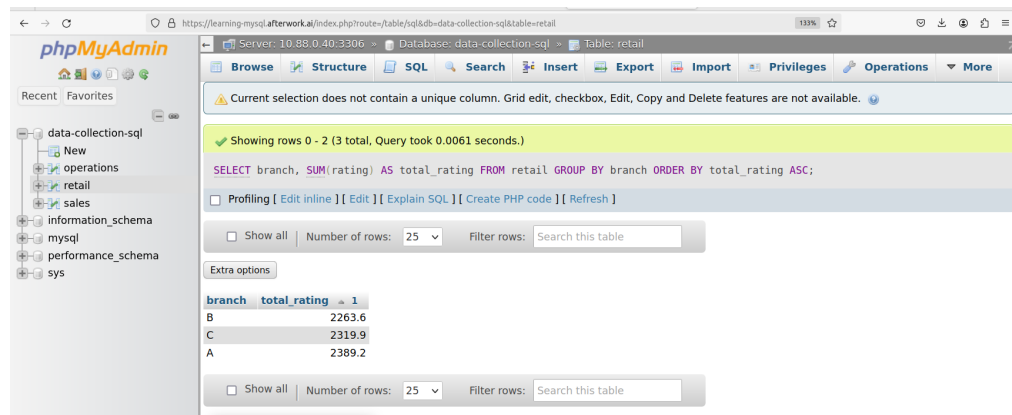
(b) Q1: Pie of the Total gross income per each branch

Answer Q1: C

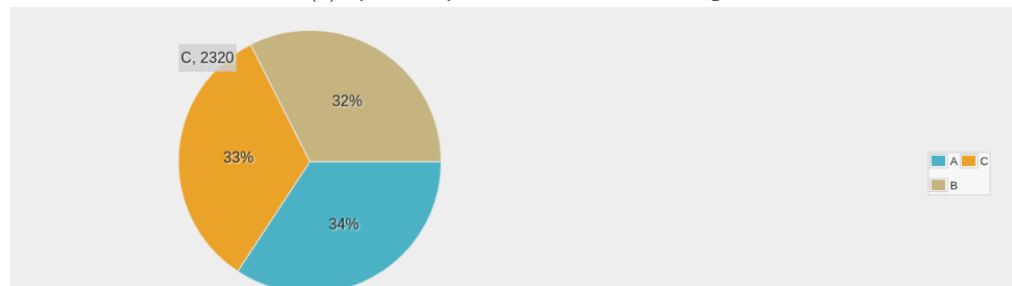
**Q2- Which branch was the top-rated?**

**Answer Q2: A**

```
SELECT branch, SUM(rating) AS total_rating
FROM retail
GROUP BY branch
ORDER BY total_rating ASC;
```



(a) Q2 and Q3: Branch vs total rating



(b) Q2 and Q3: Pie Branch vs total rating

**Q3-Which branch was the lowest-rated?**

**Answer Q3: B**

**Q4-Should the company spend more costs on advertising to normal clients or clients who are members?**

```
SELECT cust_type, SUM(unit_price*quantity)
AS total_sales, SUM('Gross income')
AS total_income FROM retail GROUP BY cust_type;
```

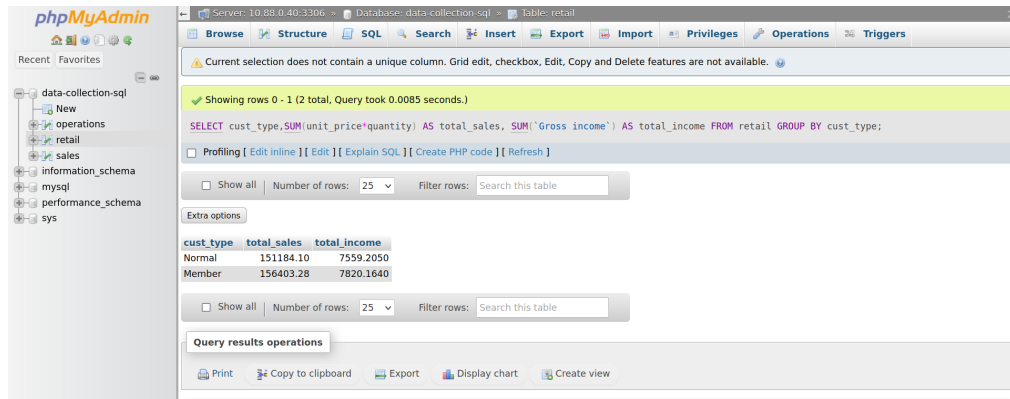


Figure 3: Q4: Customer type vs the total sales and the total income

Based on the numbers in the table:

- **Sales comparison:** Members have slightly higher total sales than normal customers, suggesting that members may spend more per transaction.
- **Gross income:** The gross income from members is also slightly higher, which could indicate that members tend to generate more profit.

Calculating the gross margin for each group would give us further insight into which group brings more profit relative to the sales. **Gross Margin Calculation:**

$$GrossMargin = \frac{TotalGrossIncome}{TotalSales}$$

For Normal customers:

$$GrossMargin = \frac{7,559.2050}{151,184.10} \approx 0.05 \quad \text{or} \quad 5\%$$

For Member customers:

$$GrossMargin = \frac{7,820.1640}{156,403.28} \approx 0.05 \quad \text{or} \quad 5\%$$

Both groups have roughly the same gross margin percentage. However, since Members generate slightly more total sales and gross income, they may be a more profitable group to target for advertising. The company can consider focusing on increasing the membership base for the long term to maintain or increase profitability.

**Q5-What type of products should the company focus on increasing sales?**

```
SELECT type, SUM(quantity),
SUM('Gross income') FROM retail
GROUP BY type ORDER BY SUM('Gross income') DESC;
```

Showing rows 0 - 5 (6 total, Query took 0.0070 seconds.)

SELECT type, SUM(quantity), SUM('Gross income') FROM retail GROUP BY type ORDER BY SUM('Gross income') DESC;

Number of rows: 25 Filter rows: Search this table

type	SUM(quantity)	SUM('Gross income')
Food and beverages	952	2673.5640
Sports and travel	920	2624.8965
Electronic accessories	971	2587.5015
Fashion accessories	902	2585.9950
Home and lifestyle	911	2564.8530
Health and beauty	854	2342.5590

Number of rows: 25 Filter rows: Search this table

Query results operations

Print Copy to clipboard Export Display chart Create view

Figure 4: Q5: Type vs Gross income

Based on the obtained data, the company should focus on increasing sales in the **Food and beverages** category. This category has the highest Gross Income (2673.5640), which indicates it generates the most revenue.

However, depending on the company's strategy, they could also consider boosting sales in **Sports and travel** and **Electronic accessories** since these categories are also performing well in terms of revenue generation.

**Q6-Based on findings, should the company invest in their own payments systems if they are outsourcing all payment methods?**

```
SELECT payment, SUM(quantity), SUM('Gross income')
FROM retail
GROUP BY payment
ORDER BY SUM('Gross income') ASC;
```

Analysis Based on Combined Payment Methods:

- Credit Card Gross Income: 4798.4320
- eWallet Gross Income: 5237.7670
- Total (Credit Card + eWallet): 10,036.1990
- Cash Gross Income: 5343.1700

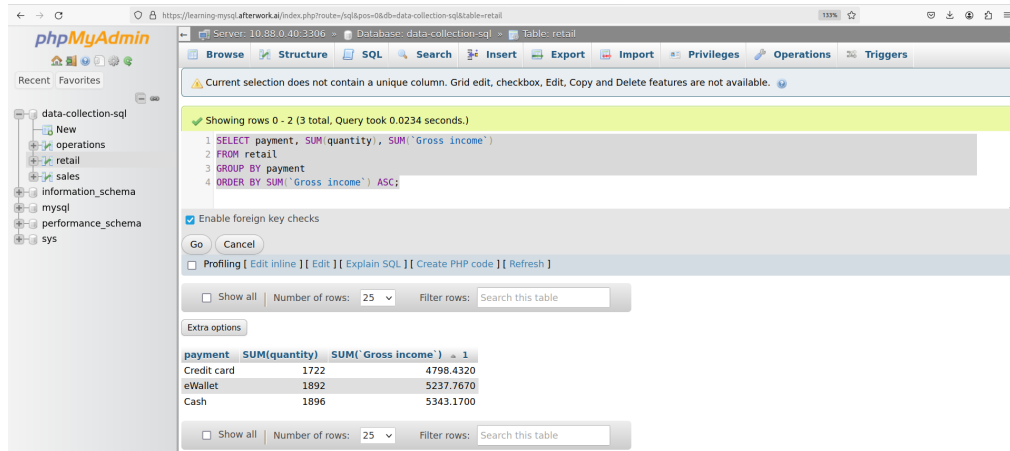


Figure 5: Q6: Payment method vs gross income

Should the company invest in its own payment system?

The combined gross income from **Credit Card** + **eWallet** (10,036.1990) is significantly higher than Cash payments (5343.1700). This suggests that the majority of customers prefer digital payment methods over cash.

What the company should take into consideration before investing in an In-House Payment System:

- Since more revenue is generated through digital transactions, reducing dependency on third-party providers could save on fees and increase profitability.
- Since outsourcing fees for Credit Card and eWallet transactions are high, developing an in-house system could lower costs over time.
- The data suggests a strong customer preference for digital payments. A well-designed in-house system could improve customer experience and retention.
- Implementing an internal payment system requires strict regulatory compliance and fraud prevention measures.

The company should consider investing in its own payment system, as the majority of gross income comes from Credit Card and eWallet transactions. However, before making a decision, they should conduct a cost-benefit analysis to compare the investment cost against potential savings from reduced third-party fees.