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# AdventureWorks2019

## Key Business Insights

**A DATA-DRIVEN ANALYSIS REVIEW**

***GROUP 4***

# QUESTIONS

What are the regional sales in the best performing country?

1

What is the relationship between annual leave taken and bonus?

2

What is the relationship between Country and Revenue?

3

What is the relationship between sick leave and Job Title (PersonType)?

4

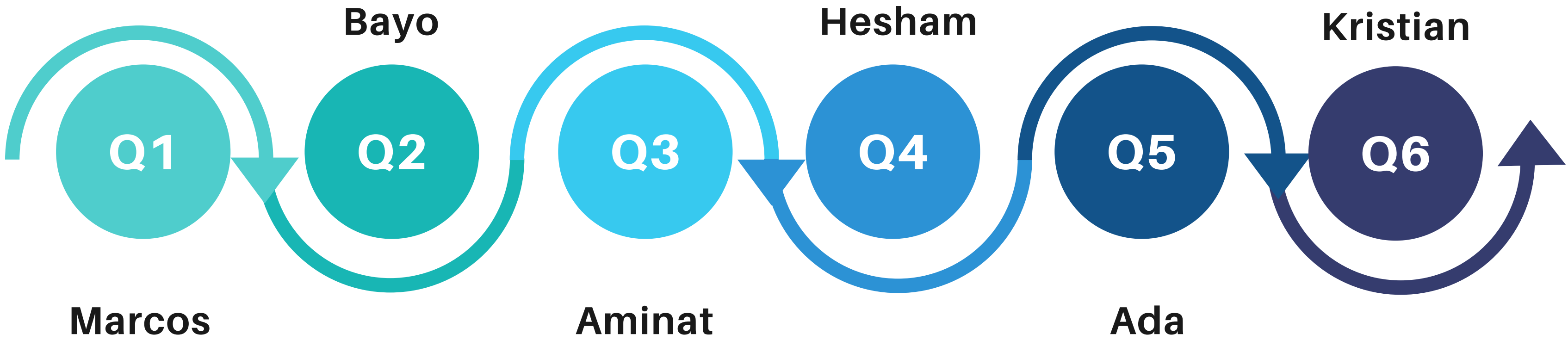
What is the relationship between store trading duration and revenue?

5

What is the relationship between the size of the stores, number of employees and revenue?

6

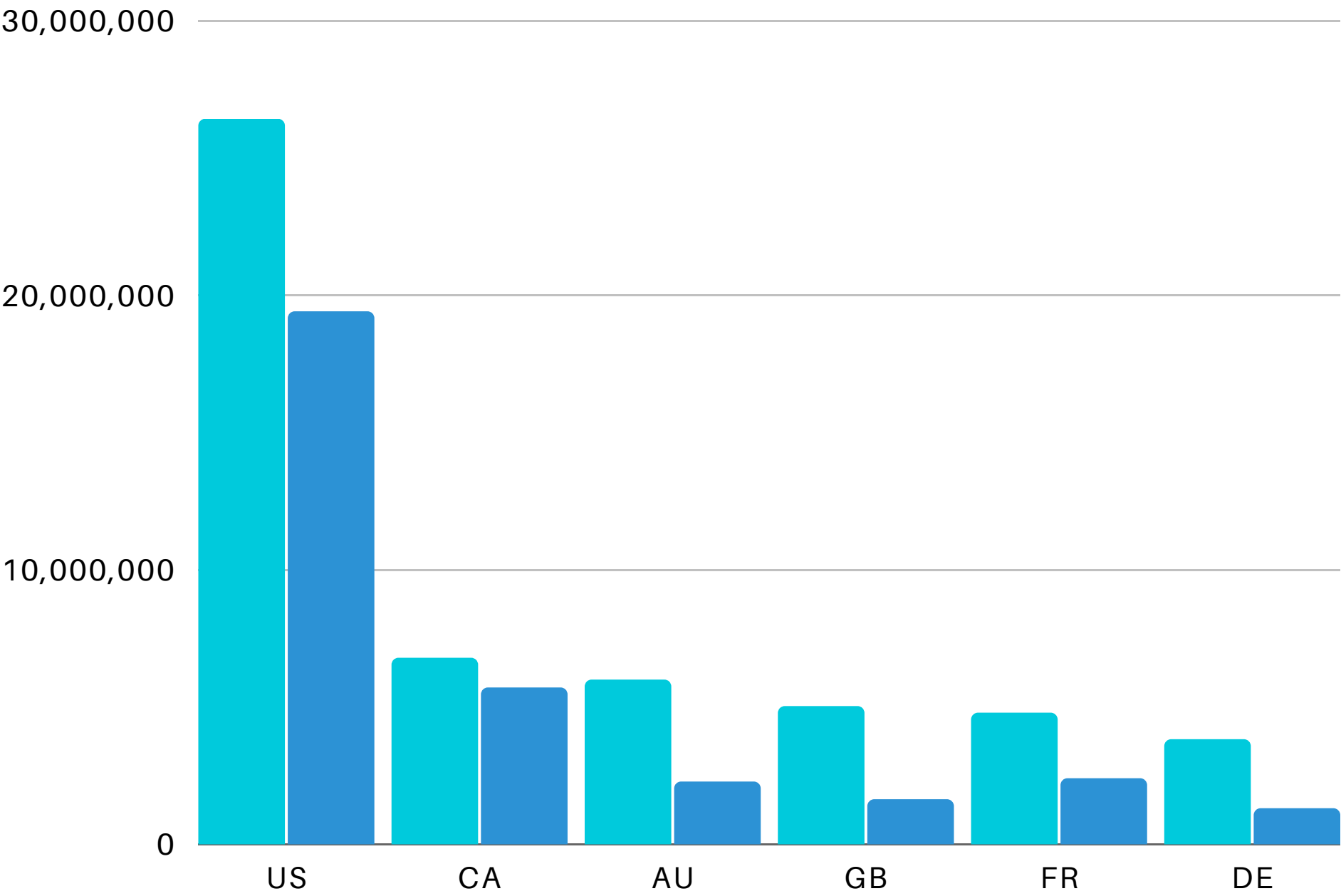
**PRESENTED BY**



Q1: What are the regional sales in the best performing country?

BEST PERFORMING COUNTRY

This\_Year\_Sales Last\_Year\_Sales



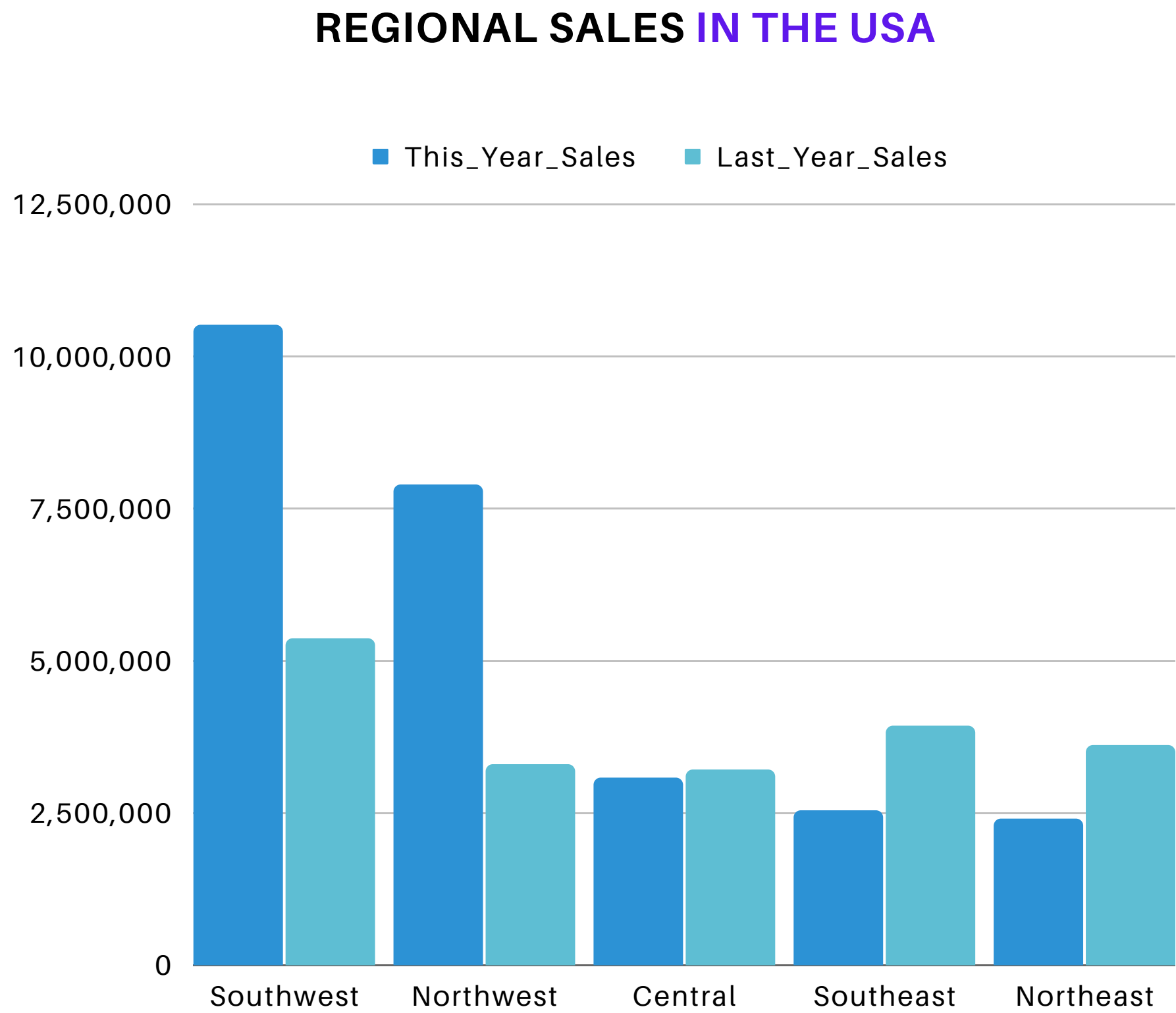
**US:** Increase: \$7M (36%)  
**CA:** Increase: \$1M (19%)  
**AU:** Increase: \$3M (162%)  
**GB:** Increase: \$3M (206%)  
**FR:** Increase: \$2M (99%)  
**DE:** Increase: \$2M (190%)

Q1: What are the regional sales in the best performing country?

**Southwest:** Increase: \$5M (96%)  
**Northwest:** Increase: \$4M (139%)  
**Central:** Decrease: -\$132K (-4%)  
**Southeast:** Decrease: -\$1M (-35%)  
**Northeast:** Decrease: -\$1M (-33%)

**Recommendation:**

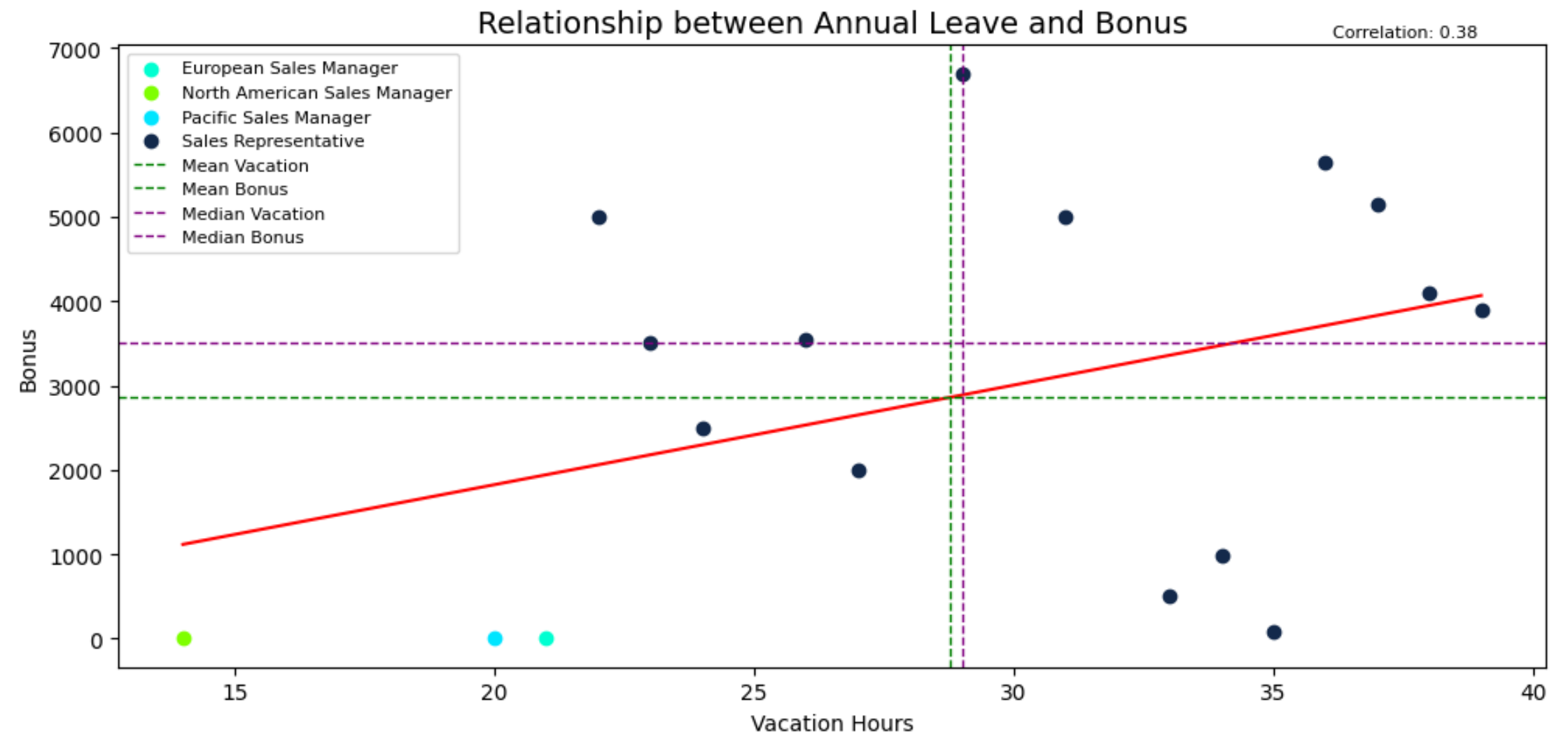
3 questions - 3 tools (SWOT, PESTLE, 5P's)



## Q2: Relationship Between Annual Leave taken and Bonus

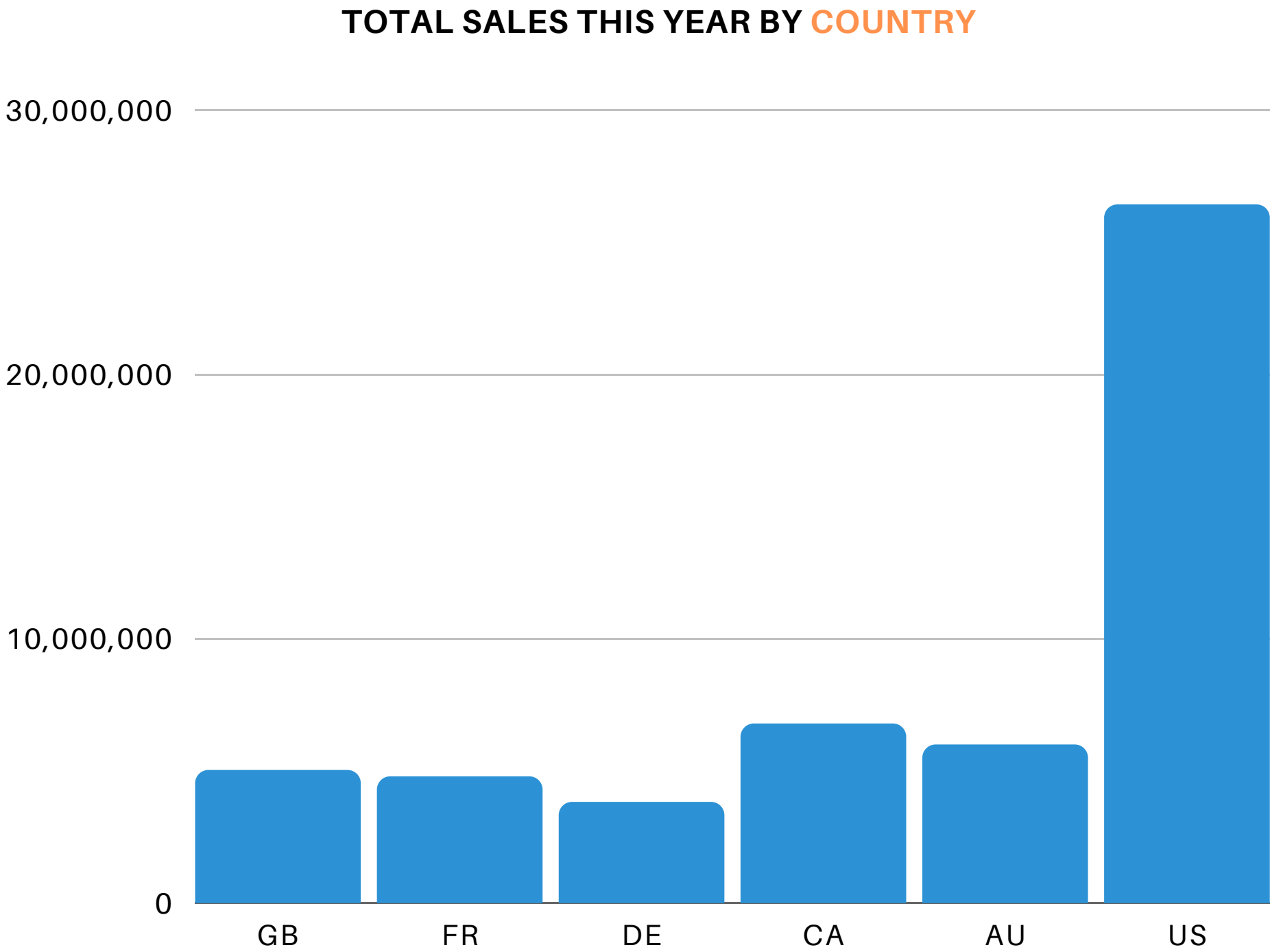
- Correlation Coefficient of 0.38 positive but not strong enough to suggest a definite relationship across the organisation.
- Sales Reps took more Annual Leave (28-40Hrs) and got higher Bonus (above \$3,000) while Managers took less Annual leave (less than 22Hrs) and received lower bonus (less than \$1,000).
- Opposing implications for Managers and Sales Representatives may require further studies: Is the bonus policy pro sales reps?, Are the sales reps more effective in their use of time at work? Are there other factors like worklife balance working for the sales reps?

## SCATTER PLOT OF ANNUAL LEAVE VS BONUS



### Q3: What is the relationship between Country and Revenue?

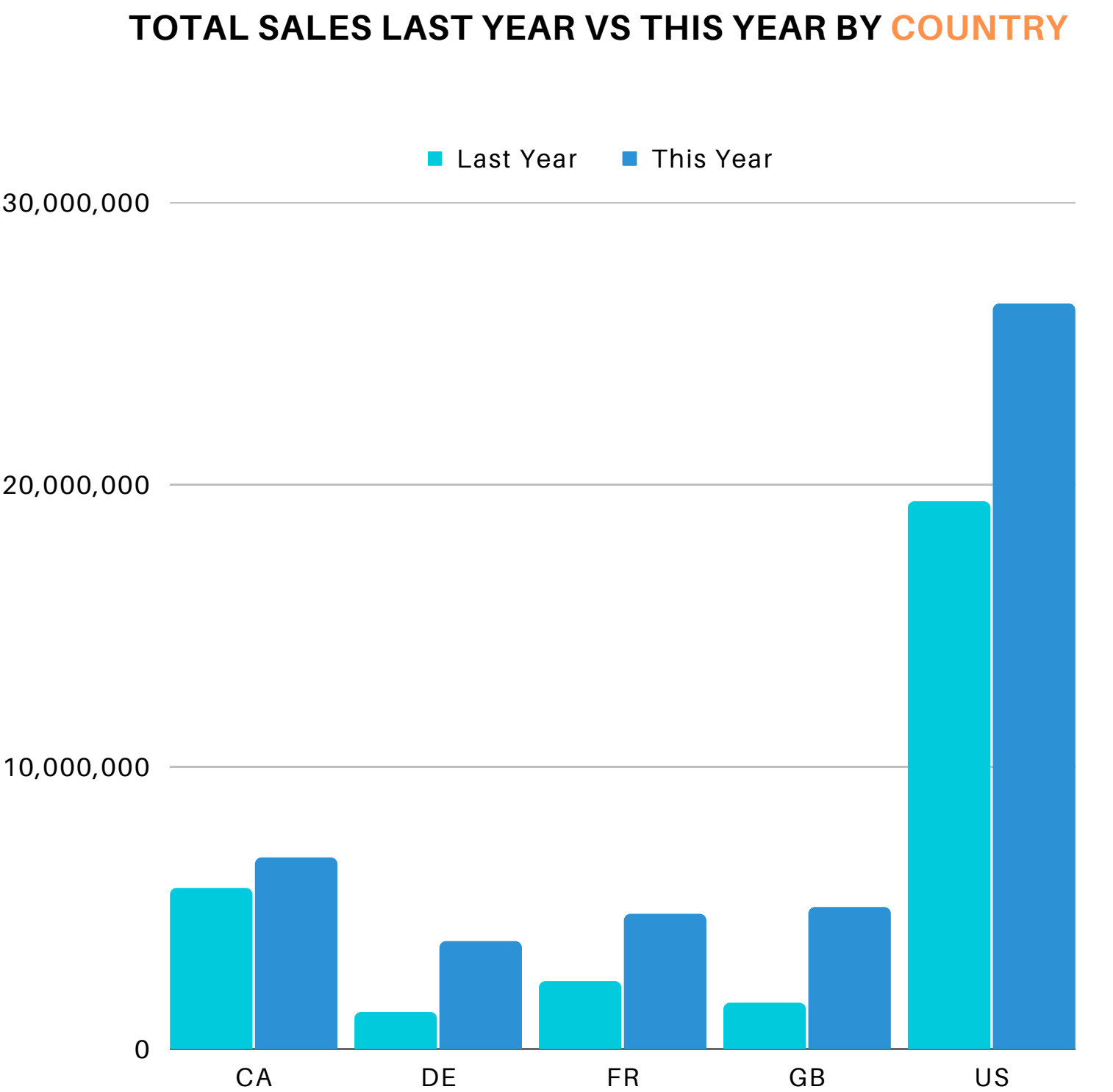
- The United States made the highest total sales this year followed by Canada.



CountryRegionCode	TotalSalesYTD
US	26411059.88
CA	6771829.138
AU	5977814.915
GB	5012905.366
FR	4772398.308
DE	3805202.348

### Q3: What is the relationship between Country and Revenue?

- Increase in total sales for all the countries this year compared to last year.

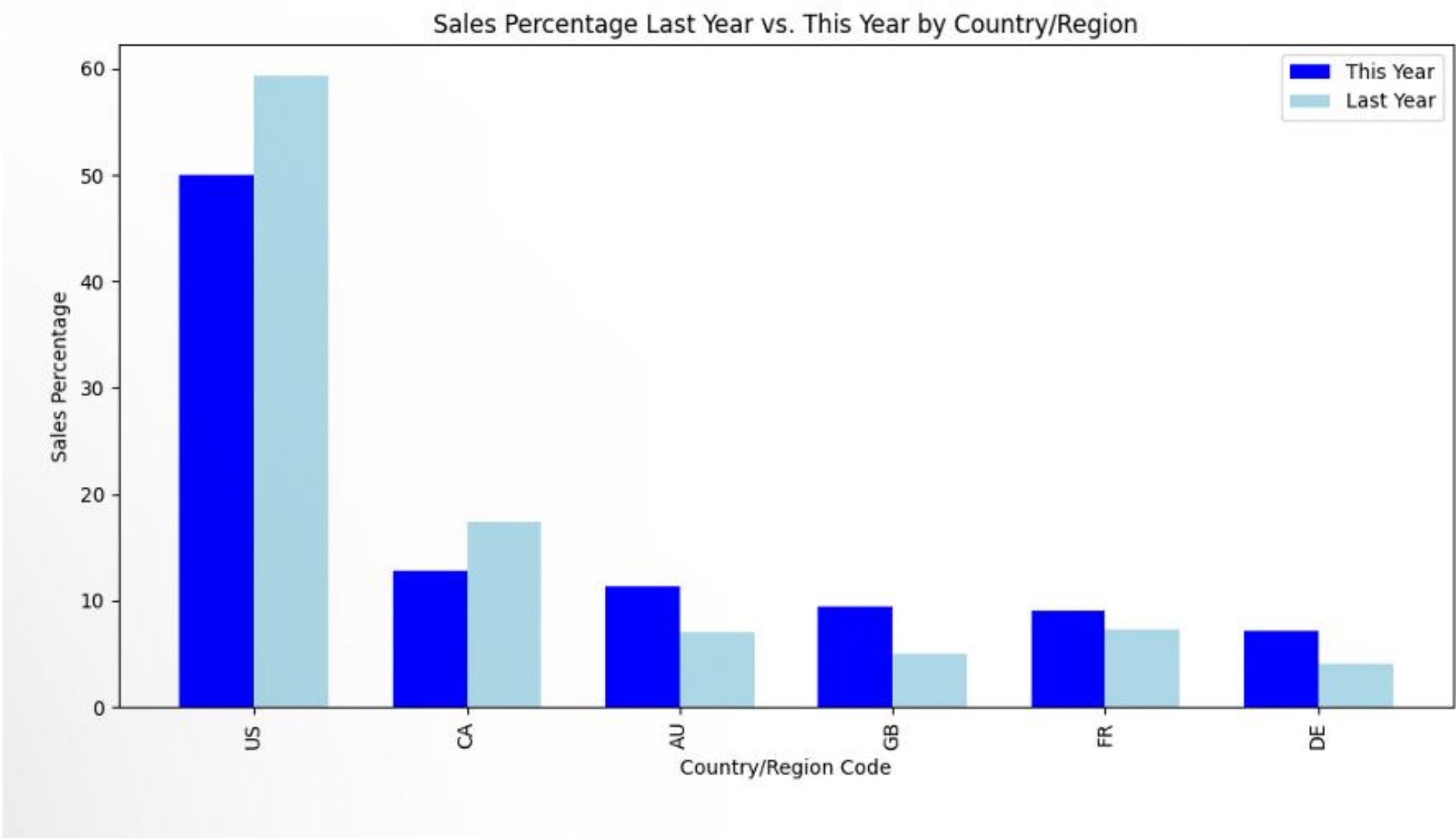


CountryRegionCode	TotalSalesLastYear	TotalSalesYTD
US	19402504.65	26411059.88
CA	5693988.86	6771829.138
FR	2396539.76	4772398.308
AU	2278548.978	5977814.915
GB	1635823.397	5012905.36
DE	1307949.792	3805202.348



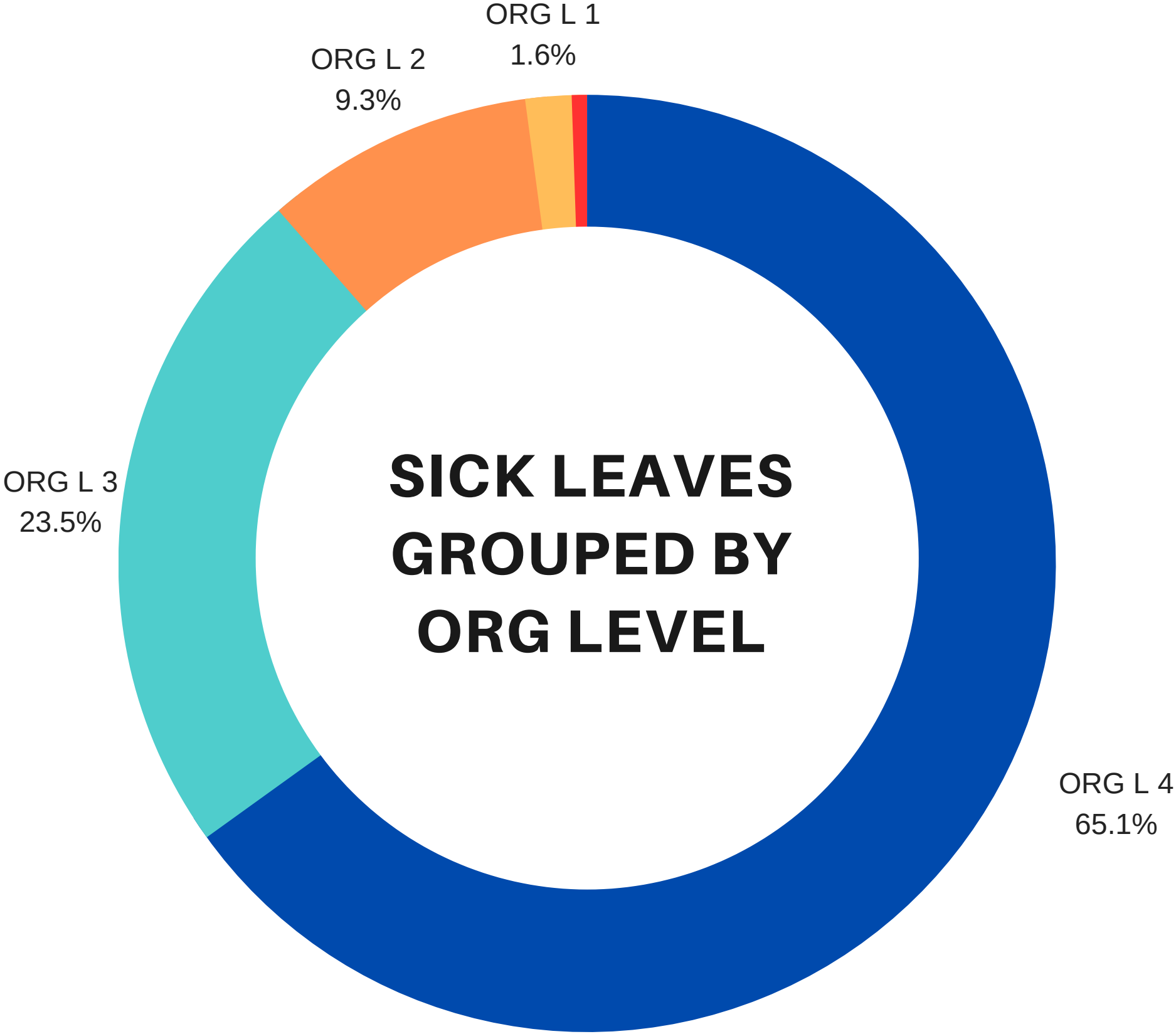
# Q3: What is the relationship between Country and Revenue?

Sales Percentage for the United States and Canada reduces this year compared to last year , while the sales percentage for the other countries increases this year compared to last year. However the United States generates the highest revenue



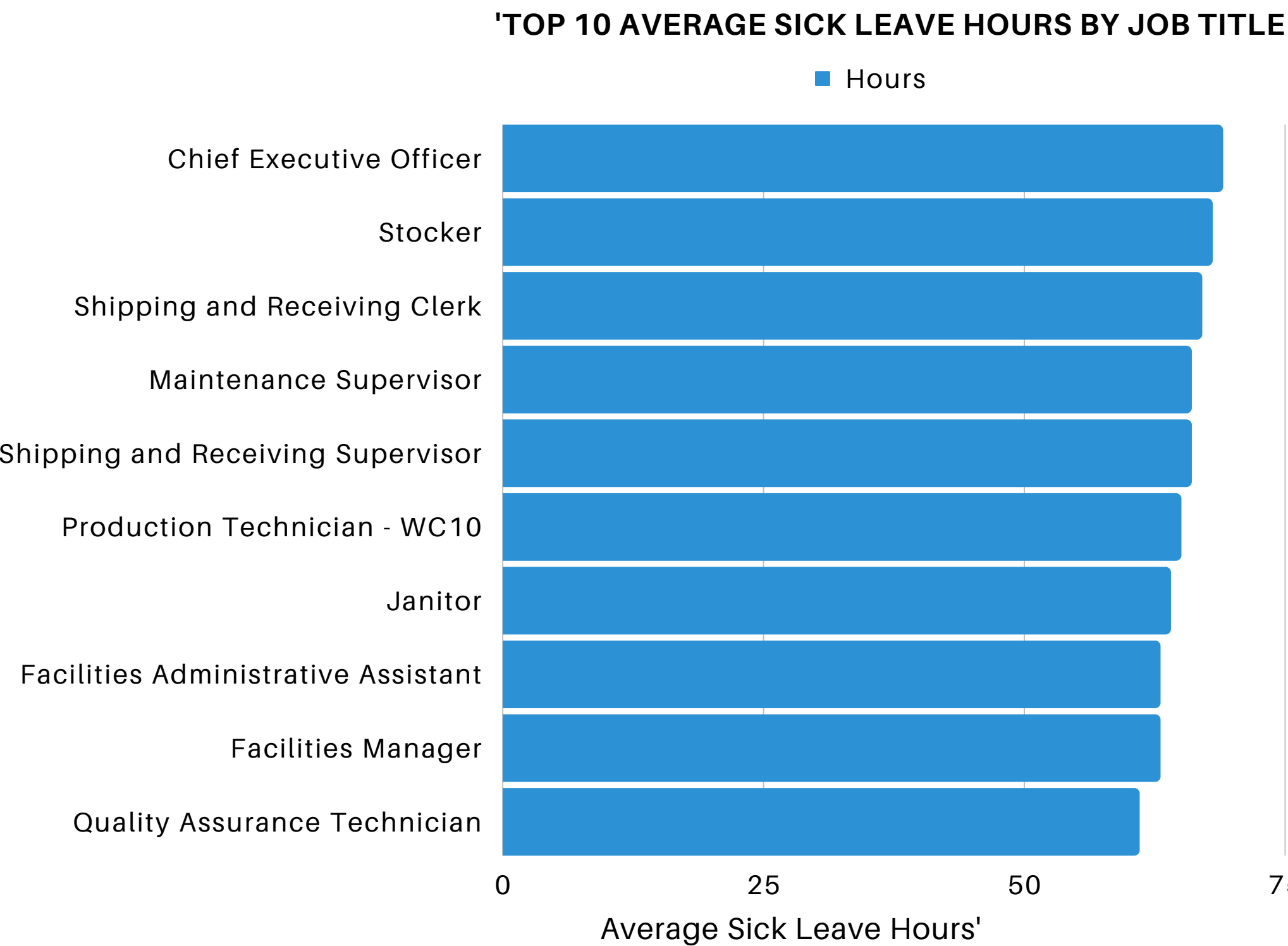
CountryRegionCode	TotalSalesYTD	TotalSalesLastYear	SalesPercentageYTD	SalesPercentageLastYear
US	26411059.88	19402504.65	50.06	59.3
CA	6771829.138	5693988.86	12.83	17.4
AU	5977814.915	2278548.978	11.33	6.96
GB	5012905.366	1635823.397	9.5	5
FR	4772398.308	2396539.76	9.04	7.32
DE	3805202.348	1307949.792	7.21	3.99

Q4: What is the relationship between sick leave and Job Title (PersonType)?



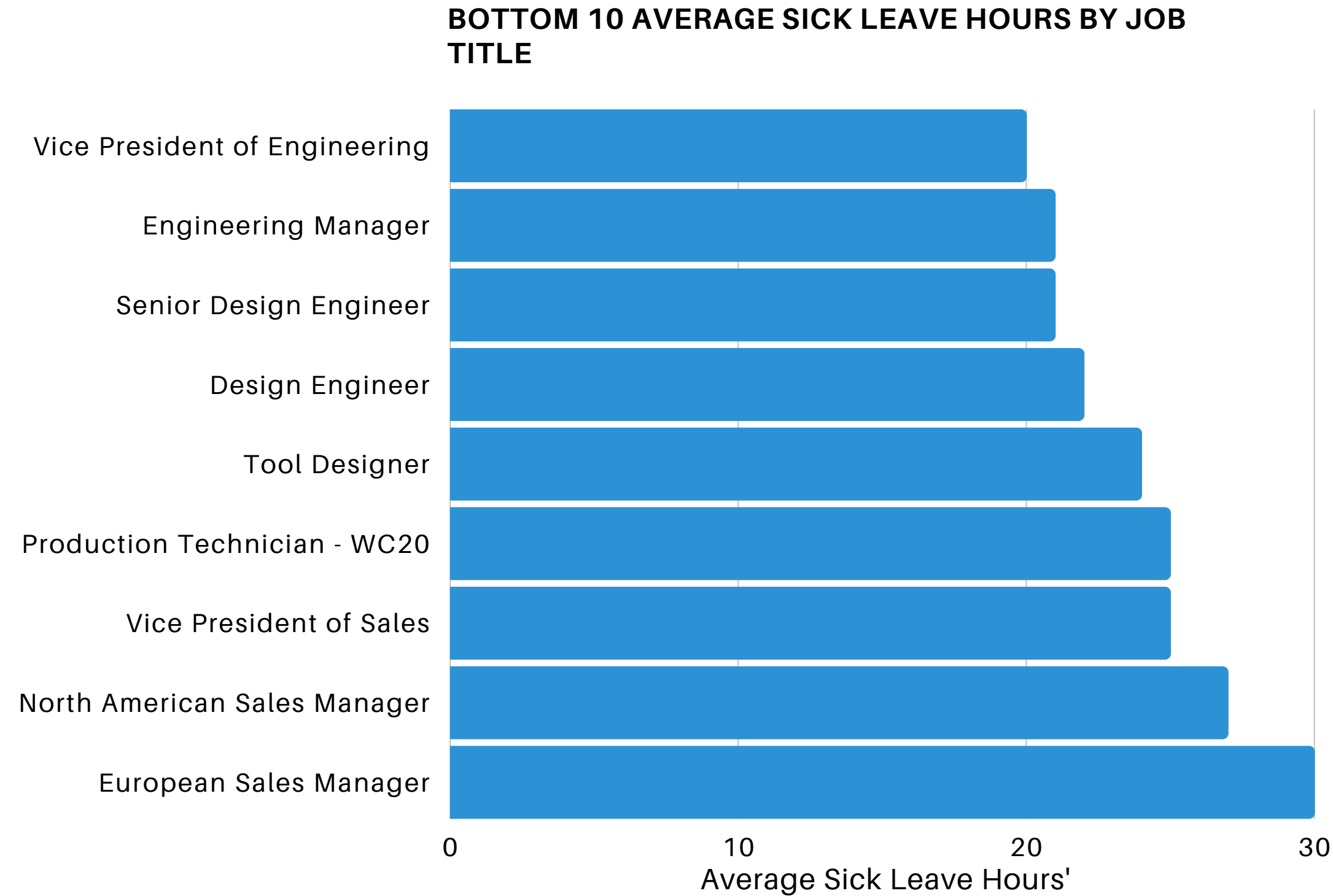
Q4: What is the relationship between sick leave and Job Title (PersonType)?

- **Job Titles with High Sick Leave:**
  - This suggests these roles may face more health-related challenges.



Q4: What is the relationship between sick leave and Job Title (PersonType)?

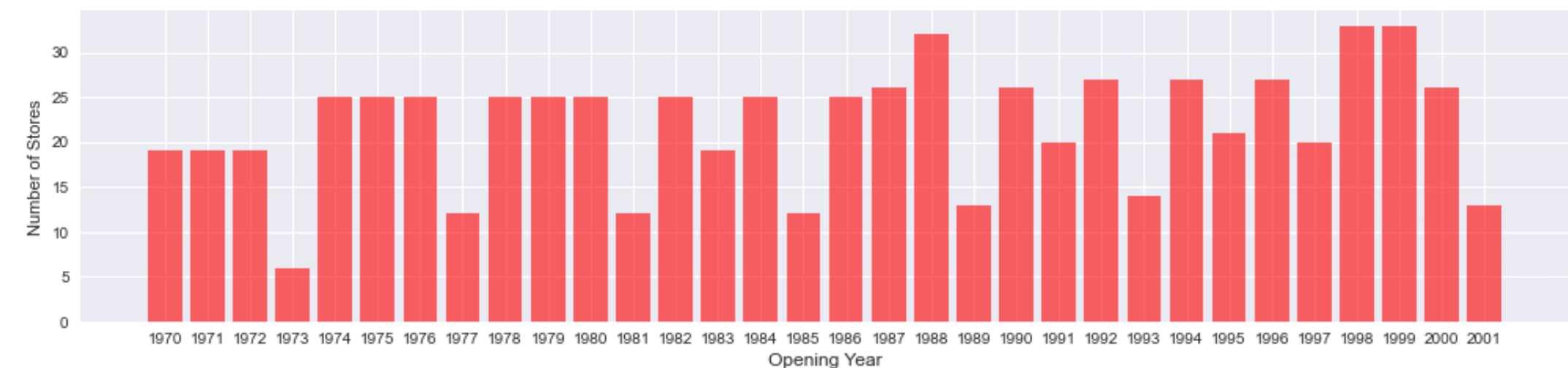
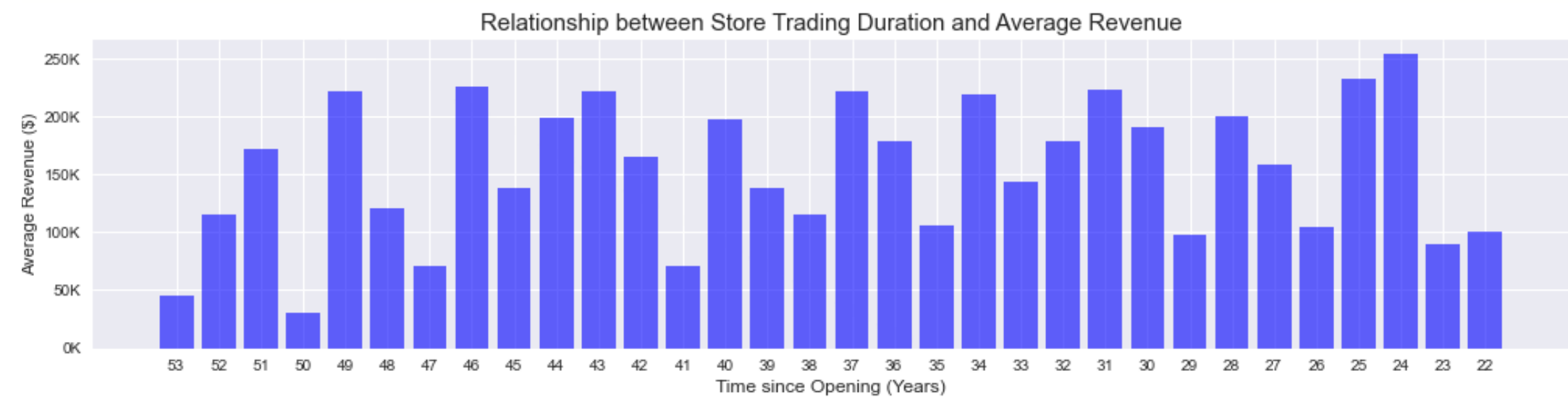
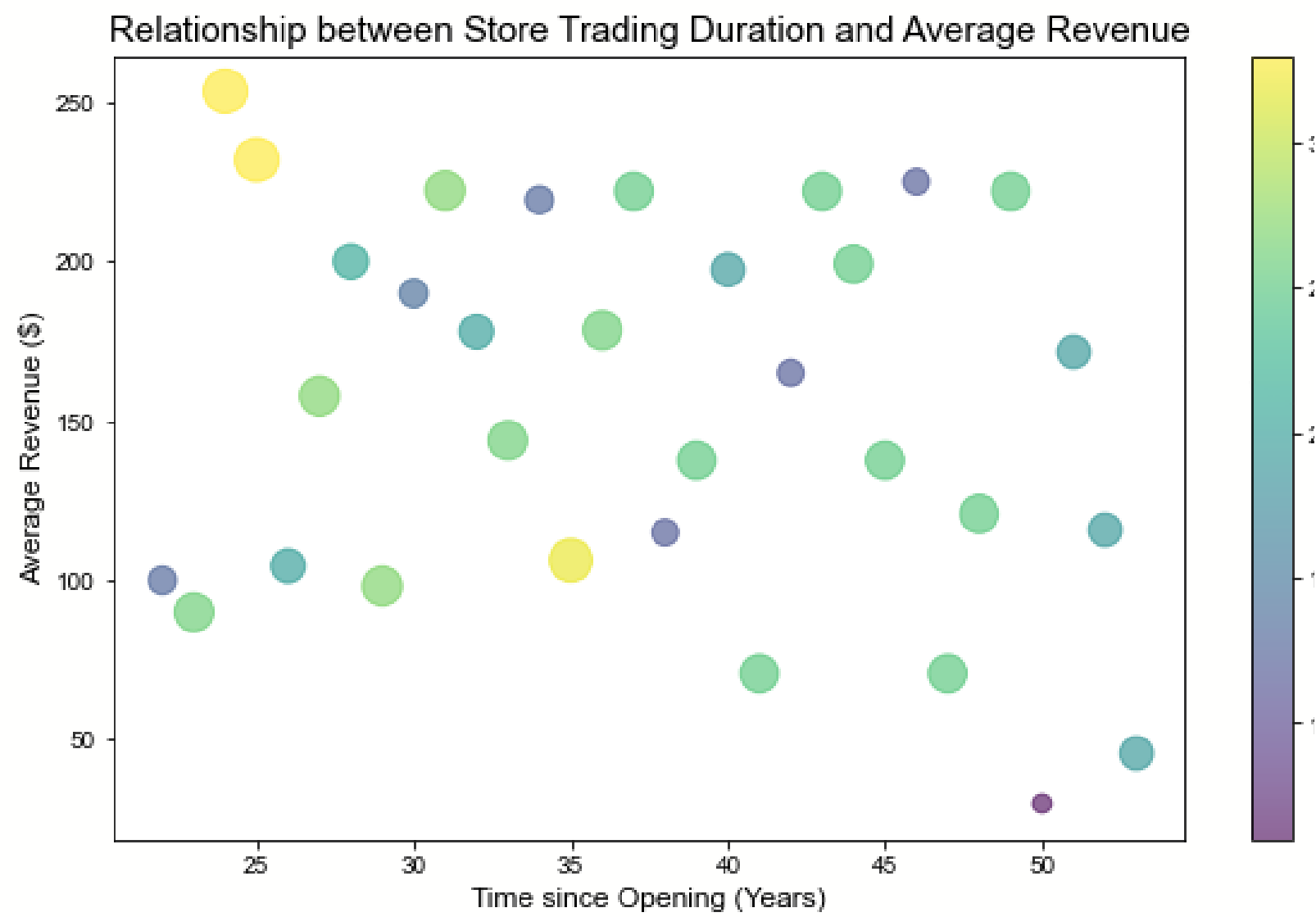
- The lowest average sick leave hours.
  - This indicating strong health and attendance.



# Q5: Correlation between Store Trading Duration and Revenue

Scattered plots showing :

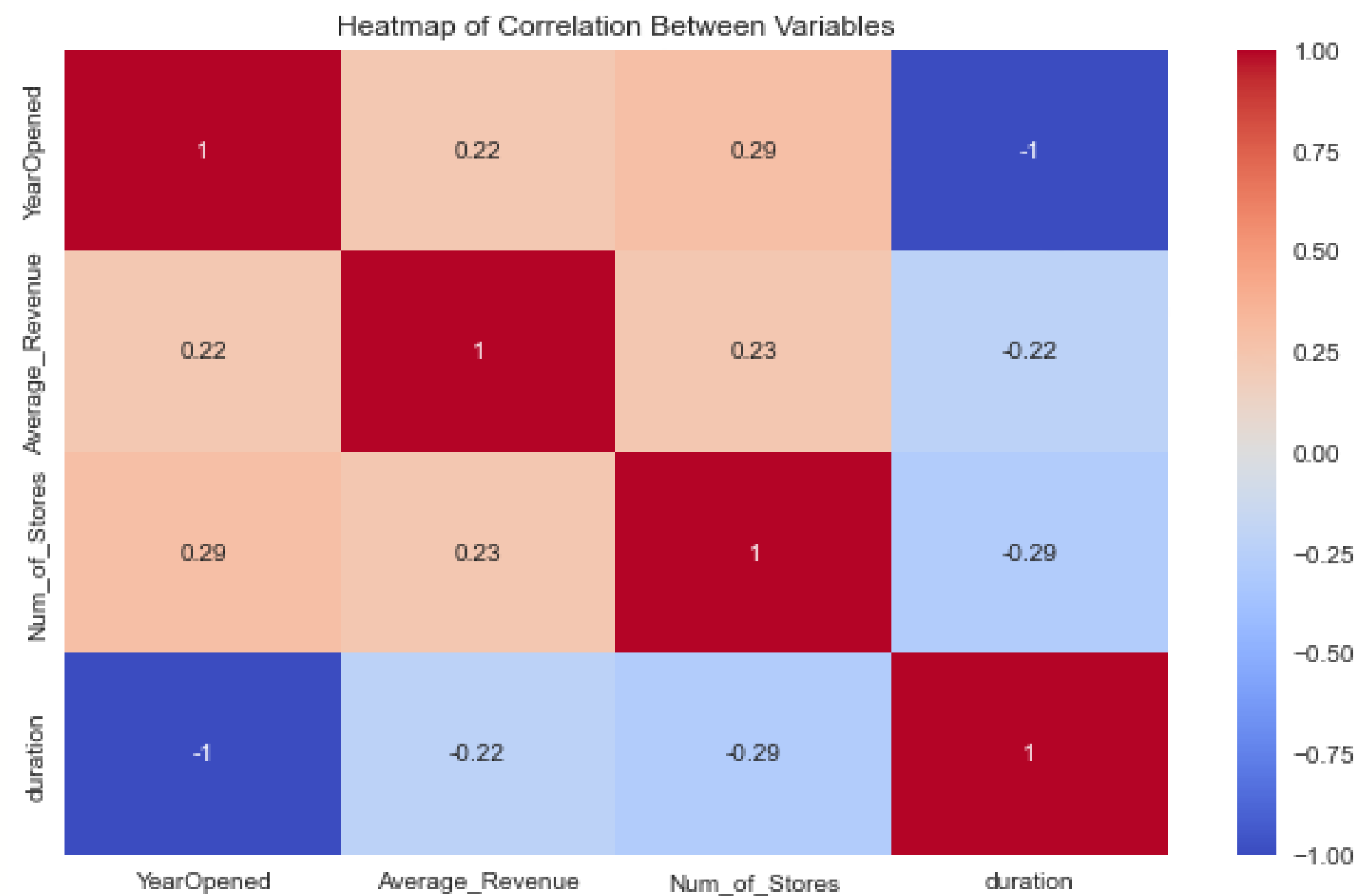
- Newer stores with higher average revenue-
- Older stores with lower average revenue



Comparison between Average revenue over trading duration and the number of stores over the opening year.

# Q5: Correlation between Store Trading Duration and Revenue

- Correlation Coefficient ranging from -0.22 to 1
- Recommendations

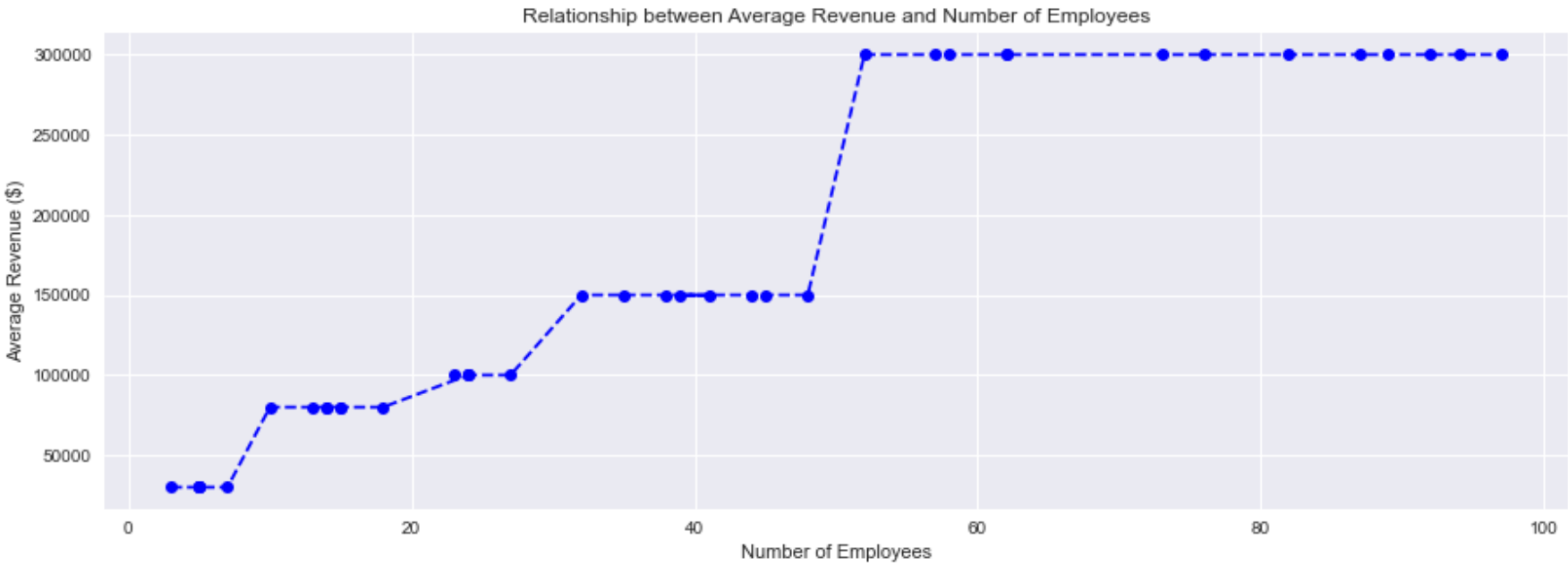


# Q6. Store Size and Employee no. effect on Revenue

The three line charts show a clear positive trend between store size, number of employees and revenue.

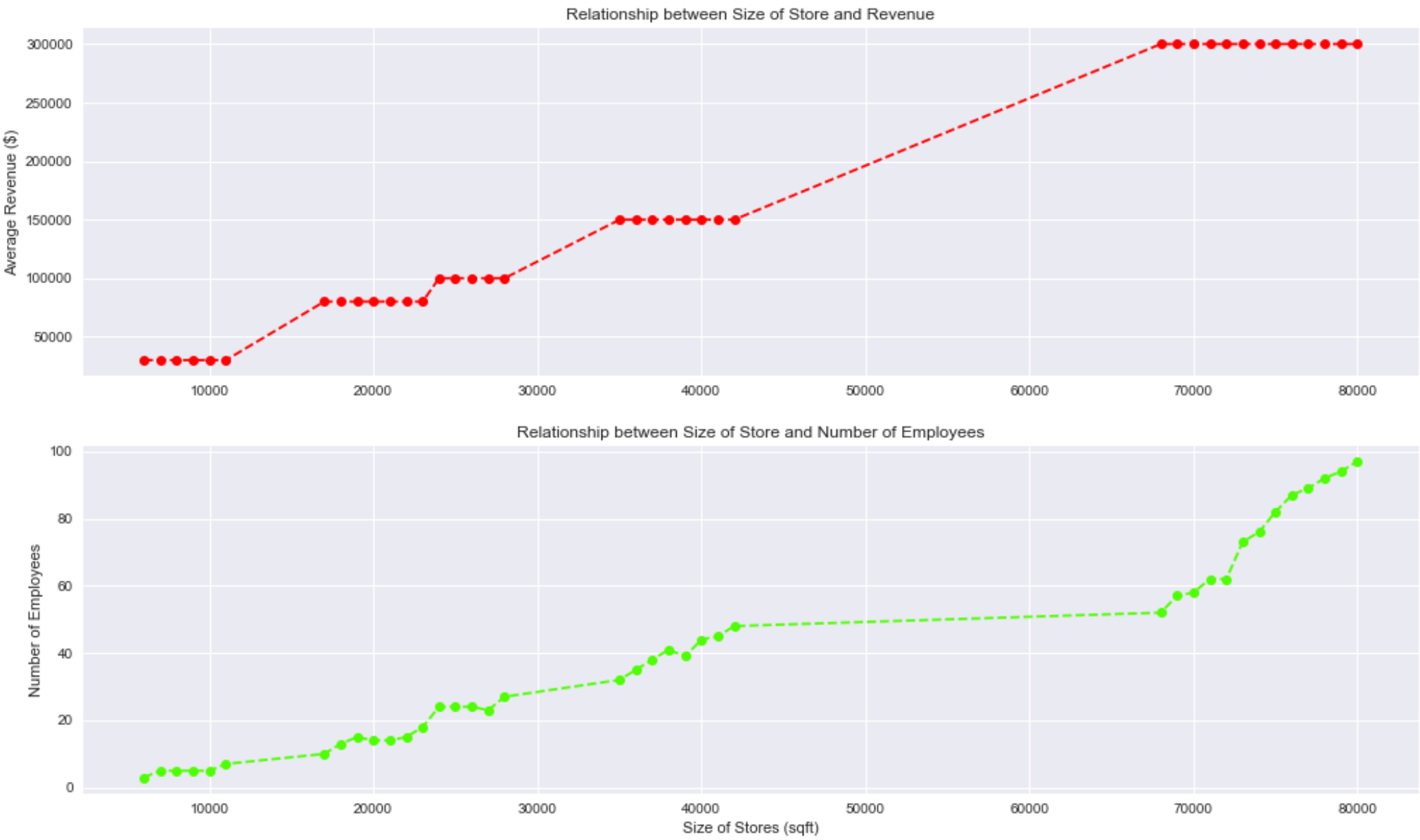
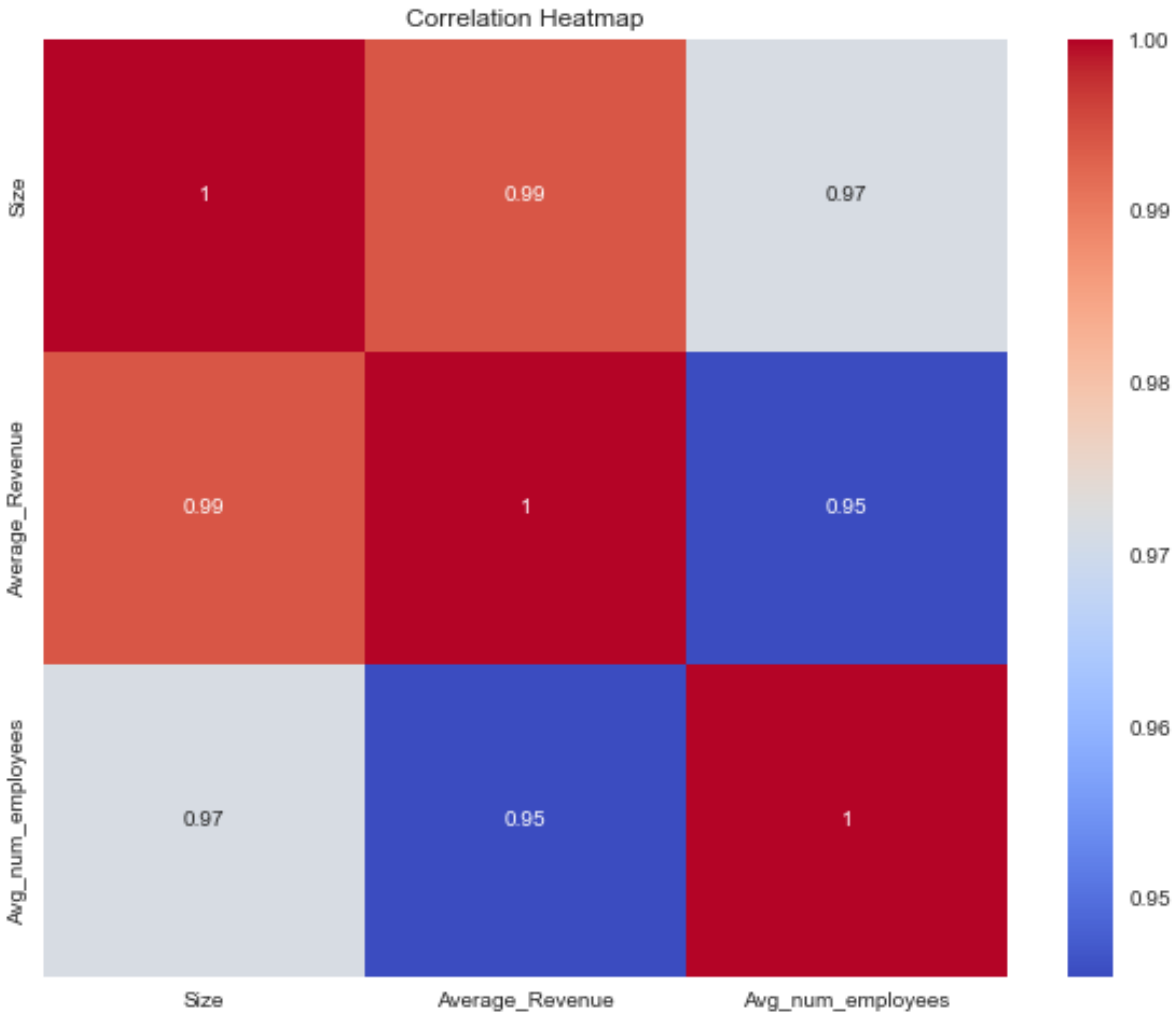
There is a positive correlation among all three variables:

- Chart 1: The higher the average number of employees, the higher the revenue.
- Chart 2: The larger the store size, the higher the revenue.
- Chart 3: The larger the store size, the more employees the store has.



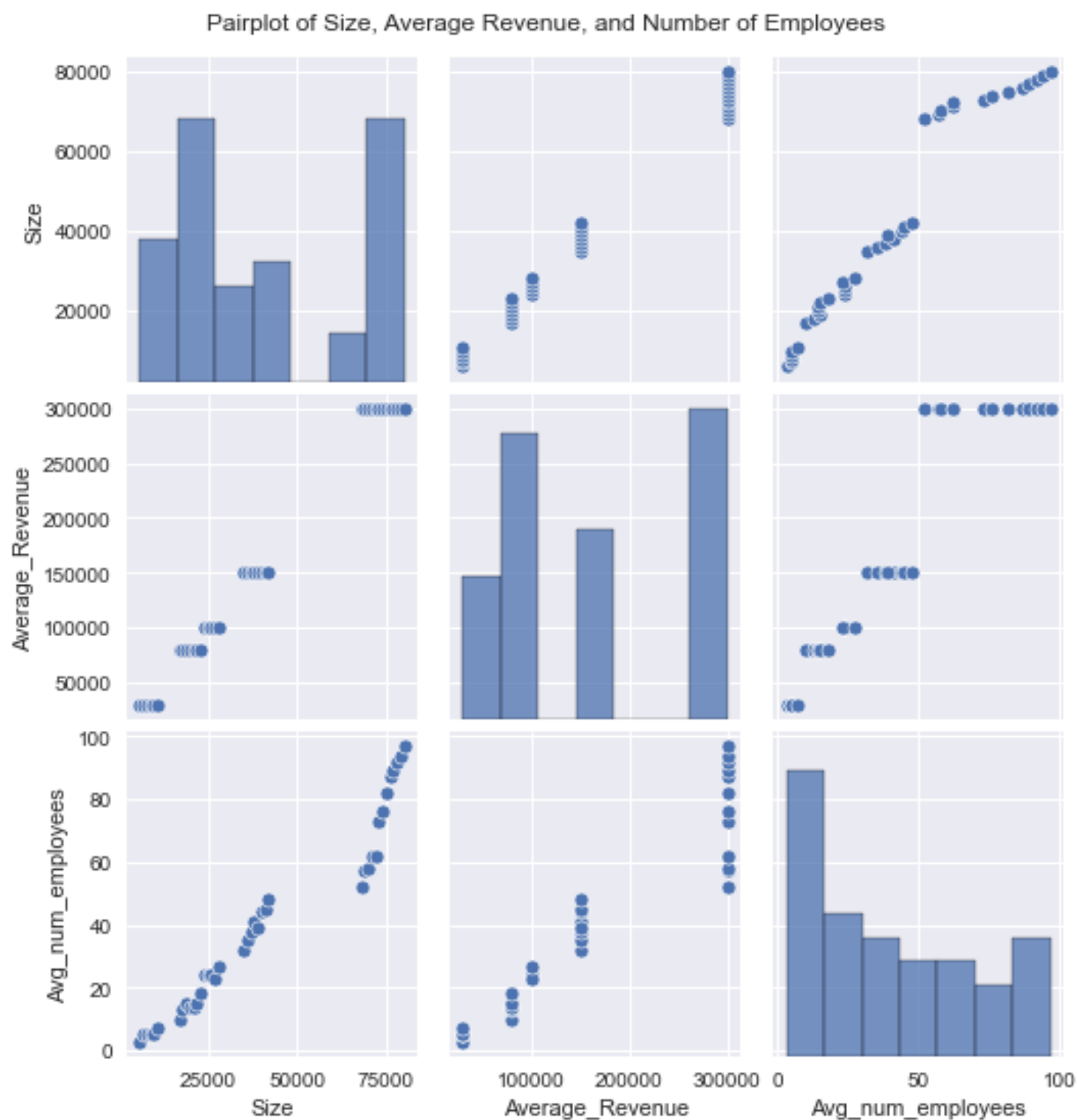
Correlation Heatmap between the three variables:

- Size and Revenue: **0.99**
- Size and Number of Employees: **0.97**
- Revenue and Number of Employees: **0.95**



# Q6. Store Size and Employee no. effect on Revenue

The **pairplot** below shows the relationships between store size, average number of employees and average revenue generated using **histograms** and **scatterplots**.



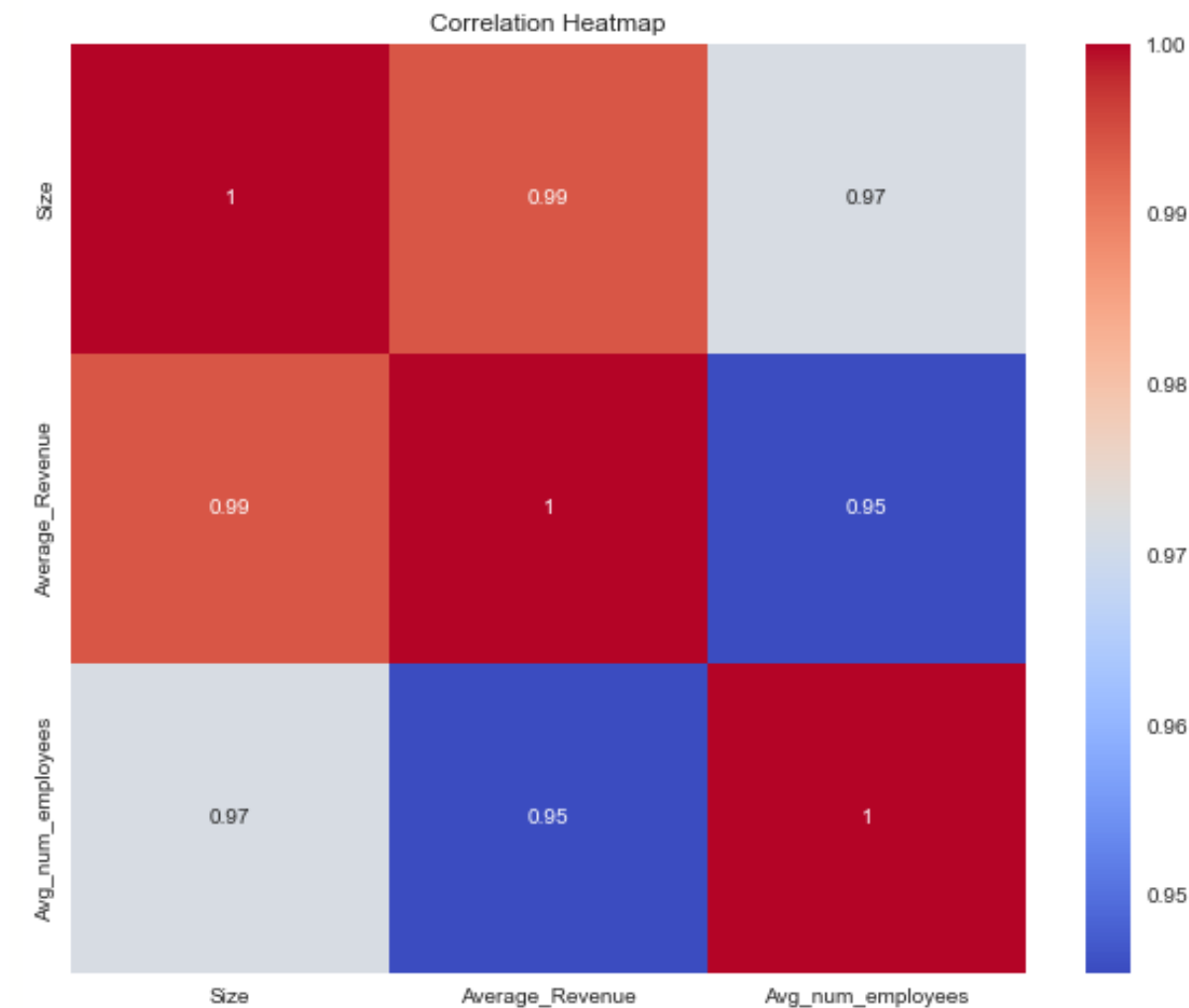
- The data shows bimodal distributions for both store size and revenue, with fewer mid-sized stores and a gap in store sizes around 50,000 sqft.
- A positive correlation exists between store size and both revenue and number of employees, suggesting that larger stores are generally more profitable and require more staff.
- While there is a general upward trend in revenue with an increasing number of employees, the data points cluster horizontally for each store size, indicating other factors also influence revenue.

## Insights/Recommendations

- **Tailored Strategies:** Segment plans for small, mid, and large stores.
- **Bimodal Gaps:** Address market divide at 50,000 sqft for tailored growth.
- **Data-Driven Decisions:** Use variable and location analysis for staffing and revenue.
- **Resource & Causal Analysis:** Align resources and investigate causality.

Correlation Heatmap between the three variables:

- Size and Revenue: **0.99**
- Size and Number of Employees: **0.97**
- Revenue and Number of Employees: **0.95**







THANK YOU!