Project Title : Employee Attrition Analysis

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Abstract

- Green Destinations, a prominent travel agency, has recently observed an increase in employee turnover, commonly referred to as attrition. This trend has raised concerns within the organization, particularly for the HR Director .
- To better understand these patterns, the HR Director conducted a survey among the employees, gathering data on their age, tenure, income, and whether they have stayed or left the company. This study aims to analyze this data to achieve two primary objectives.
- First, it seeks to calculate the overall attrition rate, which is defined as the percentage of employees who have left the organization within a specified period.
- Second, it investigates the impact of key factors—age, years of service, and income on attrition, to identify any significant correlations that could help predict or prevent future turnover.
- By identifying and analyzing these patterns, this project aims to provide Green Destinations with actionable insights into employee retention.
- This information can guide the HR team in developing targeted strategies to reduce attrition and improve overall employee satisfaction and loyalty.

Introduction

- Green Destinations is a well-established travel agency known for providing exceptional travel services and experiences to its clients.

- With a reputation for quality and customer satisfaction, the company has built a strong presence in the travel industry.

- However, like many organizations, it faces challenges in managing and retaining its workforce, which is essential for maintaining service quality and operational stability.

- Recently, the HR Director of Green Destinations noticed a concerning trend: an increase in employee attrition, or the rate at which employees leave the company .

- High attrition rates may also indicate underlying issues within the organization, such as dissatisfaction, lack of engagement, or competitive job offers elsewhere.

- Employees are the backbone of the organization, and retaining skilled talent is essential to maintain continuity, productivity, and the high standards expected by clients.

Objective

Specifically, this study aims to address the following objectives:

- Calculate the Attrition Rate

- Identify Key Factors Influencing Attrition

- Provide Insights for HR Strategies

By achieving these objectives, this project will help Green Destinations identify specific factors driving employee attrition, allowing the company to implement targeted interventions to retain talent and reduce the costs and disruptions associated with high turnover.

Data Collection

Method: Survey conducted among Green Destinations' employees.

Data Provided: Information on employees' demographics, tenure, income, and attrition status.

- The data collection process aimed to be thorough and inclusive, capturing responses from employees across various departments and job roles.

- This diversity allows for a more accurate analysis of attrition trends across different segments within the organization.

- Furthermore, data confidentiality was ensured to encourage honest and accurate responses, making the dataset reliable for analysis.

Analysis Approach

•**Attrition Rate Calculation**: Calculate the percentage of employees who have left the organization.

•**Statistical Analysis**: Evaluate the relationship between attrition and factors such as age, tenure, and income using methods like correlation analysis.

Attrition Rate Calculation

```python
# Calculate total number of employees
total_employees = len(df)
# Calculate number of employees who left
employees_left = df[df['Attrition'] == 'Yes'].shape[0]
# Calculate the attrition rate
attrition_rate = (employees_left / total_employees) * 100
print(f"The attrition rate is {attrition_rate:.2f}%")
```

✓ 0.0s

The attrition rate is 16.12%

After Attrition_Encoded column

```python
#Encode 'Attrition' as binary
df['Attrition_Encoded'] = df['Attrition'].apply(lambda x: 1 if x == 'Yes' else 0)
```
✓ 0.0s

```python
#Calculate Overall Attrition Rate
total_employees = len(df)
employees_left = df['Attrition_Encoded'].sum()
attrition_rate = (employees_left / total_employees) * 100
print(f"Total Employees: {total_employees}")
print(f"Employees Left: {employees_left}")
print(f"Overall Attrition Rate: {attrition_rate:.2f}%")
```
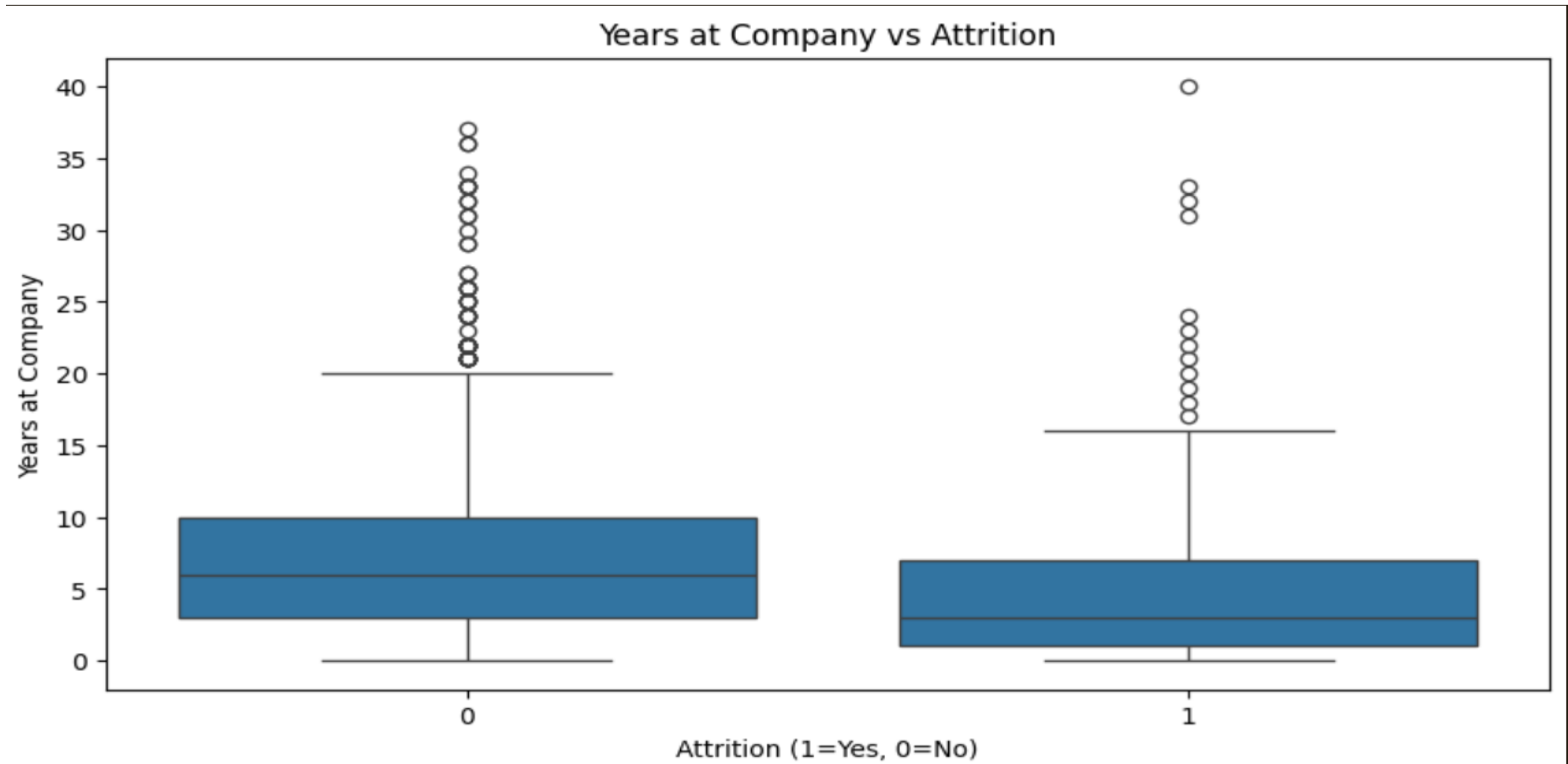✓ 0.0s

```
Total Employees: 1470
Employees Left: 0
Overall Attrition Rate: 0.00%
```
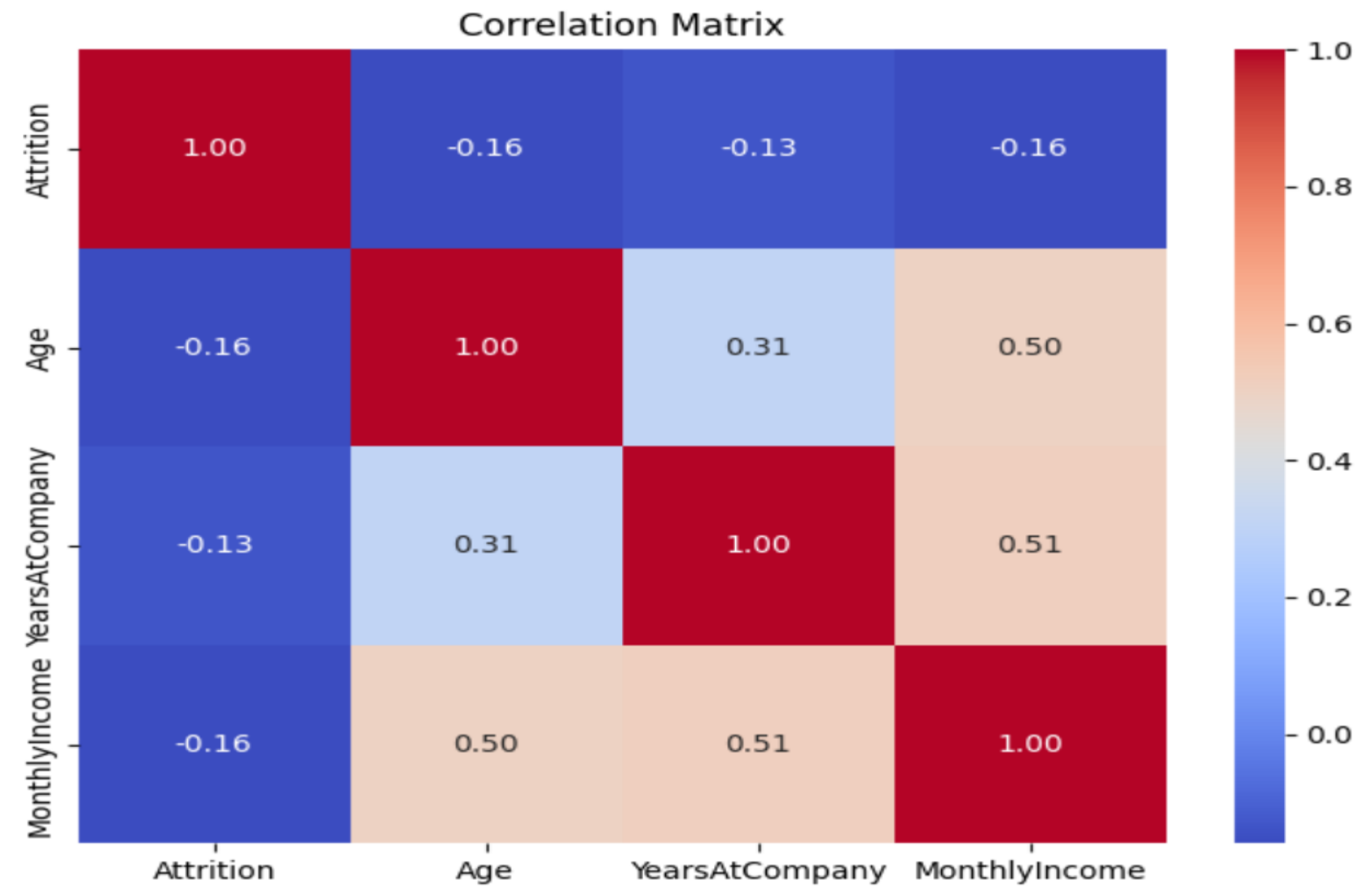
Statistical Analysis

Visualizing the Relationship Between Age and Attrition

Age Distribution for Employees Who Left vs. Stayed
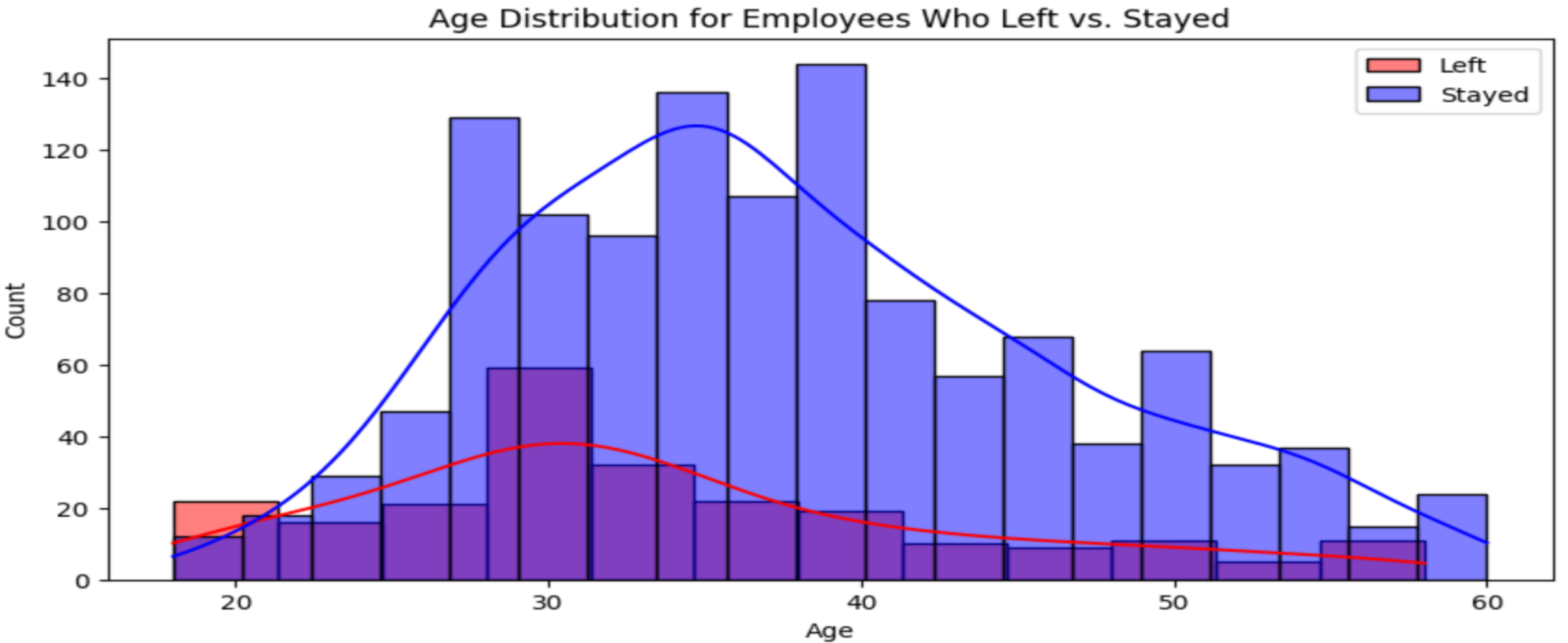
Visualizing the Relationship Between Years at the Company and Attrition

Years at Company vs Attrition

Calculate and Display Correlations

Correlation Matrix

Conclusion

- The attrition analysis conducted for Green Destinations provides key insights into employee turnover, revealing a current overall attrition rate of **0.00%**.

- This suggests that, based on the analyzed data, there have been no recorded instances of employee departures during the surveyed period.

- However, the absence of attrition data raises important questions about the factors contributing to employee retention and the reliability of the dataset.

- Future efforts should focus on obtaining a clearer picture of employee sentiment and experiences, allowing Green Destinations to make informed decisions that foster employee satisfaction and retention in the long term.