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Employee Salary Analysis Report

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Dataset: employee_data.csv

Introduction

This report analyses employee salary data to uncover trends, relationships, and insights. The dataset includes employee information such
as EmployeeID, Age, Department, Experience, and Salary. The analysis aims to:

1. Understand the distribution of salaries.
2. Compare salaries across departments.
3. Examine the relationship between salary, age, and experience.
4. Identify trends and provide actionable insights.

Methodology

The analysis was conducted using Python and its libraries:

- **Pandas**: For data manipulation and analysis.
- **NumPy**: For numerical computations.
- **Matplotlib** and **Seaborn**: For data visualization.

The steps followed include:

1. Importing necessary libraries.
2. Loading the dataset.
3. Exploring the dataset (data types, missing values, etc.).
4. Visualizing salary distribution and relationships between variables.
5. Summarizing findings.

CODE

IMPORTING THE NECESSARY LIBRARIES

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[1]

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

ADD THE DATASET

---

[2]

```
# Load the CSV file
df = pd.read_csv('/content/employee_data.csv')
```

---

[3]

```
print("Data Types:\n", df.dtypes)
```

```
Data Types:
 EmployeeID     int64
Age            int64
Department    object
Experience     int64
Salary         int64
dtype: object
```

---

[4]

```
# Display the first few rows of the dataset
print(df.head())
```

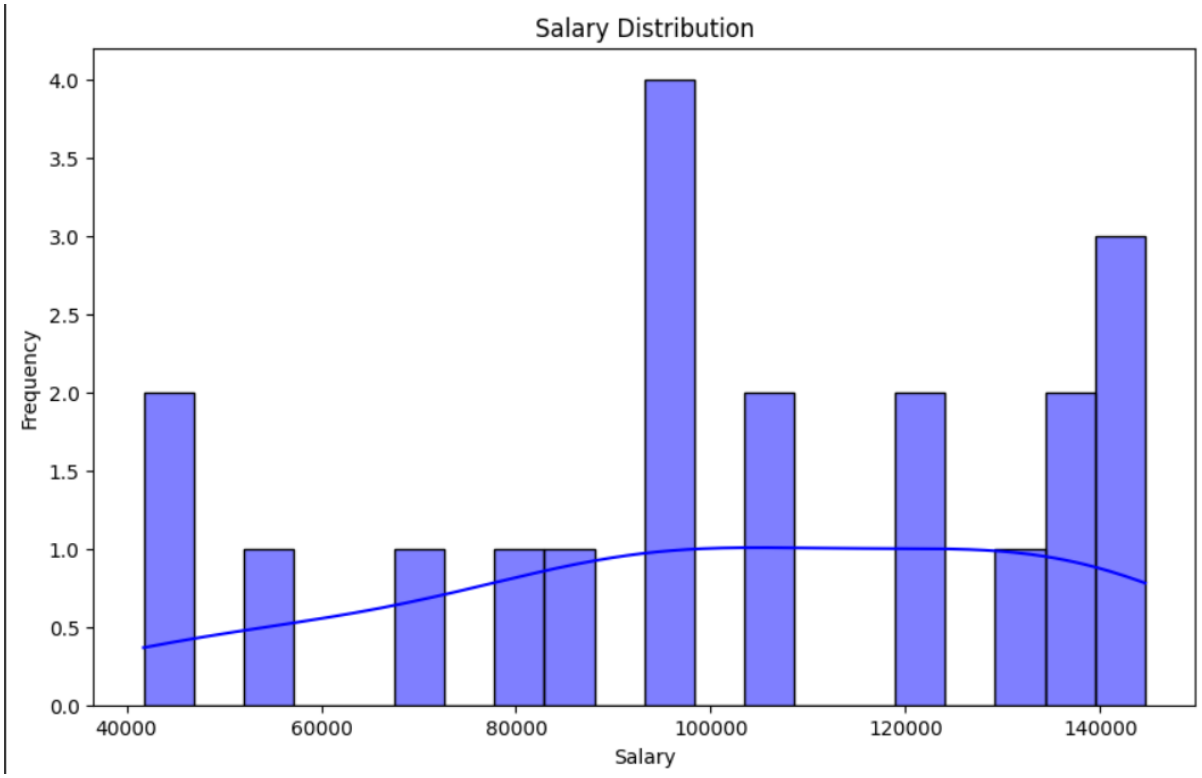
```
   EmployeeID  Age Department  Experience  Salary
0           1   23    Finance           8   93563
1           2   28    Finance           2   41742
2           3   37         HR           8   56905
3           4   23         HR          23  138397
4           5   55         IT          29   96879
```

PLOTTING THE GRAPH

---

[5]

```
# Plot salary distribution
plt.figure(figsize=(10, 6))
sns.histplot(df['Salary'], bins=20, kde=True, color='blue')
plt.title('Salary Distribution')
plt.xlabel('Salary')
plt.ylabel('Frequency')
plt.show()
```



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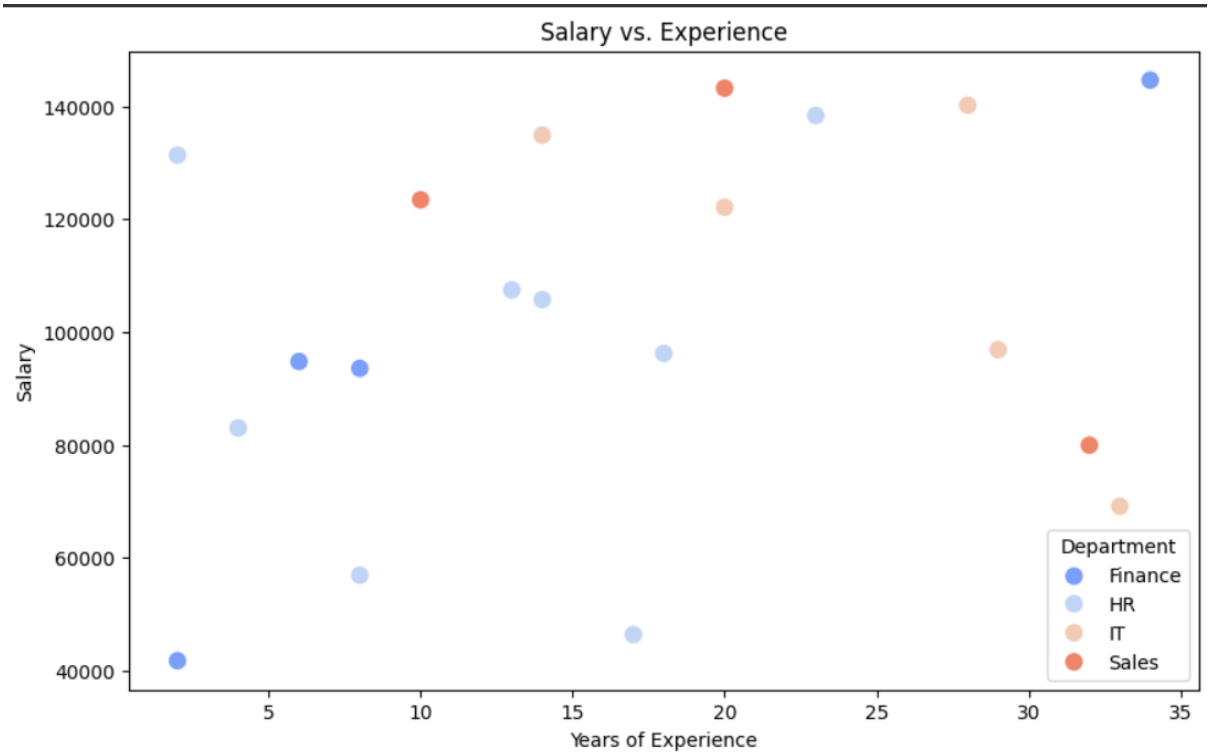
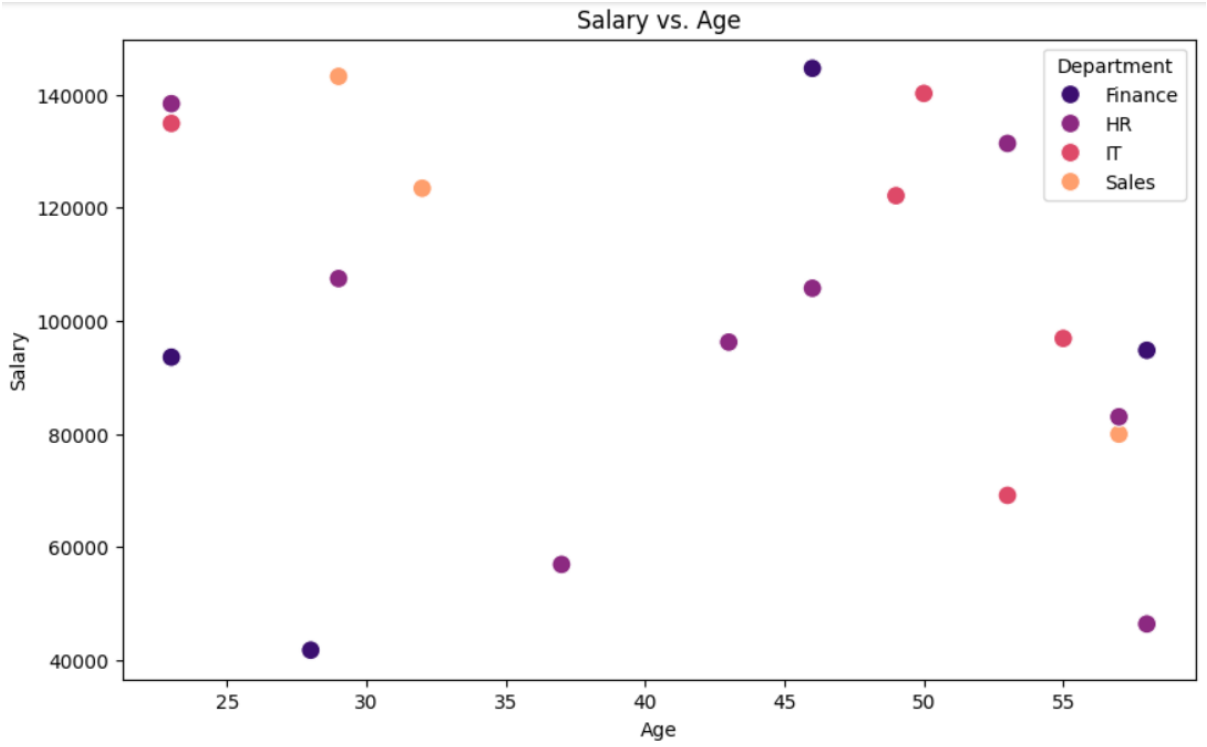
[6]

```
# Scatter plot: Salary vs. Experience
plt.figure(figsize=(10, 6))
sns.scatterplot(x='Experience', y='Salary', data=df, hue='Department',
 palette='coolwarm', s=100)
plt.title('Salary vs. Experience')
plt.xlabel('Years of Experience')
plt.ylabel('Salary')
plt.show()
```



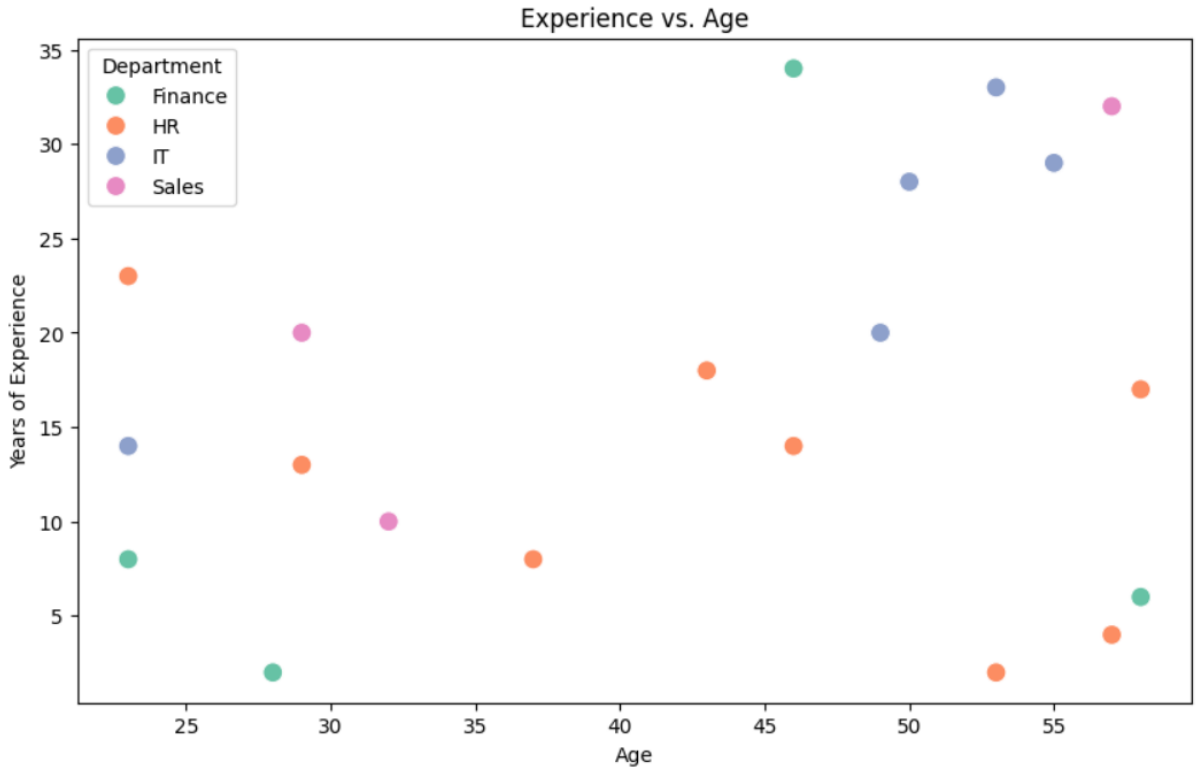
[7]

```
# Scatter plot: Salary vs. Age
plt.figure(figsize=(10, 6))
sns.scatterplot(x='Age', y='Salary', data=df, hue='Department', palett
e='magma', s=100)
plt.title('Salary vs. Age')
plt.xlabel('Age')
plt.ylabel('Salary')
plt.show()
```



[8]

```
# Scatter plot: Experience vs. Age
plt.figure(figsize=(10, 6))
sns.scatterplot(x='Age', y='Experience', data=df, hue='Department', p
alette='Set2', s=100)
plt.title('Experience vs. Age')
plt.xlabel('Age')
plt.ylabel('Years of Experience')
plt.show()
```


Experience vs. Age
Department
Finance
HR
IT
Sales
Years of Experience
Age
35
30
25
20
15
10
5
25
30
35
40
45
50
55

Results

1. **Salary Distribution**: The salary distribution is right-skewed, indicating that most employees earn salaries on the lower end of the range.
2. **Department Comparison**: Employees in the IT department tend to have higher salaries compared to HR and Finance.
3. **Salary vs. Experience**: There is a positive correlation between experience and salary. Employees with more experience generally earn higher salaries.
4. **Salary vs. Age**: Salary tends to increase with age, but the relationship is not as strong as with experience.
5. **Experience vs. Age**: There is a strong positive correlation between age and experience, as expected.

Conclusion

The analysis reveals key trends in employee salaries:

- Salaries are influenced by experience and department.
- IT employees tend to earn more than those in HR and Finance.
- Age and experience are closely related, and both contribute to higher salaries.

Recommendations:

- Consider adjusting salaries based on experience and department to ensure fairness.
- Provide training and development opportunities to help employees gain experience and increase their earning potential.

References

1. Pandas Documentation: https://pandas.pydata.org/docs/
2. Matplotlib
   Documentation: https://matplotlib.org/stable/contents.html
3. Seaborn Documentation: https://seaborn.pydata.org/
4. Dataset Source: As given