Title:-

Employee Salary Analysis – Explore correlations in employee salaries and positions with visualizations.

Introduction:-

Employee salaries vary based on multiple factors such as position, experience, and education level. Understanding these variations is essential for organizations to maintain fair compensation structures and for employees to make informed career decisions. This analysis aims to explore salary distributions, identify trends, and examine correlations between different variables using data visualization techniques.

Methodology:-

Data collection:-

- The dataset consists of employee details, including position, salary, years of experience, and education level.
- The data is structured in a dictionary format and converted into a Pandas Data Frame.

Data Visualization:-

- **Box Plot:** Displays salary distribution across different job positions to identify variations and outliers.
- **Bar Plot:** Shows the average salary for each job position to highlight differences in earnings.

- **Scatter Plot:** Analyse the relationship between salary and experience to understand career growth trends.
- **Heatmap:** Computes and visualizes correlations between numeric variables (salary, experience, education level).

Data processing:-

- Converts categorical variables (education level) into numerical values to facilitate correlation analysis.
- Uses statistical and graphical techniques to extract insights from the dataset.

Code Typed:-

```python
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt

# Sample data (replace with your dataset)
data = {
    'Position': ['Manager', 'Engineer', 'Technician', 'Engineer', 'Manager',
'Technician', 'Engineer', 'Manager'],
    'Salary': [85000, 75000, 55000, 72000, 88000, 53000, 71000, 92000],
    'Experience (Years)': [5, 3, 2, 4, 6, 1, 4, 7],
    'Education Level': ['Bachelor', 'Bachelor', 'Associate', 'Bachelor',
'Master', 'Associate', 'Bachelor', 'Master']
}

# Convert to DataFrame
df = pd.DataFrame(data)

# Visualizing salary distribution by position using Box Plot
plt.figure(figsize=(10, 6))
sns.boxplot(x='Position', y='Salary', data=df)
plt.title('Salary Distribution by Position')
plt.show()

# Visualizing average salary by position using Bar Plot
plt.figure(figsize=(10, 6))
sns.barplot(x='Position', y='Salary', data=df, estimator='mean')
```

```
plt.title('Average Salary by Position')
plt.show()

# Correlation heatmap between numeric variables
# First, let's convert categorical columns into numeric if needed (e.g.,
Education Level)
df['Education Level'] = df['Education Level'].map({'Associate': 1, 'Bachelor':
2, 'Master': 3})

# Calculate the correlation matrix
correlation_matrix = df.corr()

# Heatmap visualization
plt.figure(figsize=(8, 6))
sns.heatmap(correlation_matrix, annot=True, cmap='coolwarm', fmt='.2f')
plt.title('Correlation Matrix')
plt.show()

# Scatter plot: Salary vs Experience
plt.figure(figsize=(8, 6))
sns.scatterplot(x='Experience (Years)', y='Salary', data=df)
plt.title('Salary vs Experience')
plt.show()
```
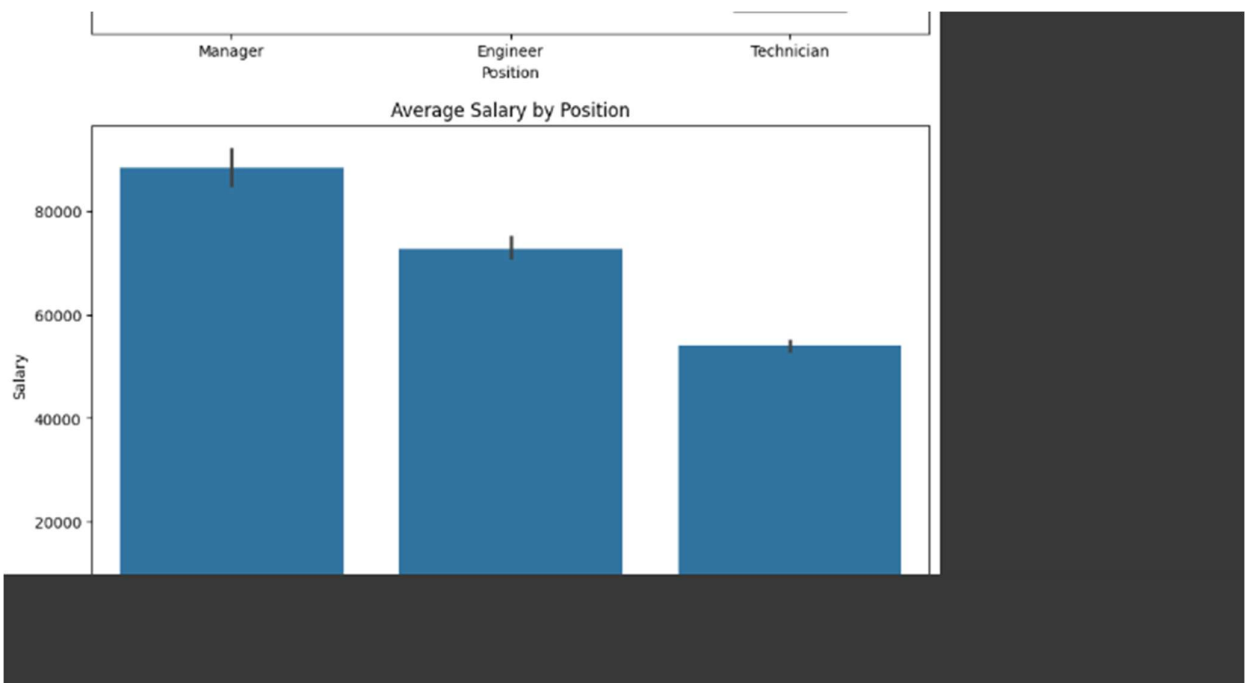
output:-

-ROHIT PARASHAR,

-CSE AIML.