Department of Computer Science Engineering (AI)

ARTIFICAL INTELLIGENCE
Project Report

On

EMPLOYEE SALARY ANALYSIS

By

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	Page No.
TABLE OF CONTENTS	

1.2. DATA OVERVIEW

1.3.Data Preprocessing

1.4.Key Findings

1.5.Visual Analysis

1.6.Conclusion & Recommendations

1.1 INTRODUCTION

This report provides an in-depth analysis of employee salaries based on the provided dataset. The objective is to identify salary trends, disparities among departments, and the impact of experience on compensation.

1.2 DATA OVERVIEW

The dataset includes the following attributes:

- **Employee ID**: Unique identifier for each employee.
- **Name**: Employee name.
- **Department**: The department in which the employee works.
- **Salary**: Annual salary of the employee.
- **Experience (Years)**: Number of years of experience.

DATA PREPROCESSING

To ensure data integrity, the following preprocessing steps were undertaken:

- **Checked for missing values and handled them appropriately.**
- **Removed duplicate records.**
- **Standardized department names for consistency.**

Key Findings

1. Salary Distribution

- **The salary distribution is slightly right-skewed, indicating that most employees earn within a mid-range, while a few earn significantly higher salaries.**
- **The majority of employees earn between the lower and mid-tier salary brackets.**

2. Salary vs. Experience

- **A positive correlation exists between experience and salary, confirming that employees with more experience tend to earn higher salaries.**
- **Some anomalies were found where employees with lower experience had higher salaries, possibly due to specific job roles or skill sets.**

3. Department-Wise Salary Comparison

- **The Finance department had the highest total salary allocation.**
- **IT and HR departments showed a balanced salary distribution.**
- **Variability in salaries suggests differences in pay structures across departments.**

Visual Analysis

To better understand the data, the following visualizations were created:

1. **Salary Distribution Histogram: Highlights overall salary spread and skewness.**
2. **Scatter Plot (Salary vs. Experience): Displays the relationship between experience and salary.**
3. **Bar Chart (Average Salary by Department): Highlights department-wise salary trends.**

***Conclusion & Recommendations

- **Salary Growth with Experience: Employees with more experience generally receive higher salaries, reinforcing the importance of career progression.**
- **Departmental Pay Differences: Further analysis into salary structures across departments can help address potential pay disparities.**
- **Identifying Salary Anomalies: Examining cases where low-experience employees have high salaries can provide insights into specialized skills or managerial roles.**
- **Future Analysis: Incorporating additional factors such as education, job roles, and performance evaluations could refine salary predictions and workforce planning.**

This report serves as a foundation for understanding salary trends and optimizing compensation strategies within the organization.