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Msc it Fintech sem 2
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Dataset Name:Salary_Dataset_with_Extra_Features.xlsx

Introduction

Data analysis and visualization play a crucial role in understanding trends, making informed decisions, and deriving key insights from large datasets. This project focuses on implementing **data manipulation, visualization, and business intelligence techniques** using **Pandas, Matplotlib, Seaborn, and Power BI** on a real-world dataset.

Each student is assigned a dataset based on their roll number and is required to perform **data cleaning, exploration, and visualization** to uncover meaningful patterns and insights. The analysis includes:

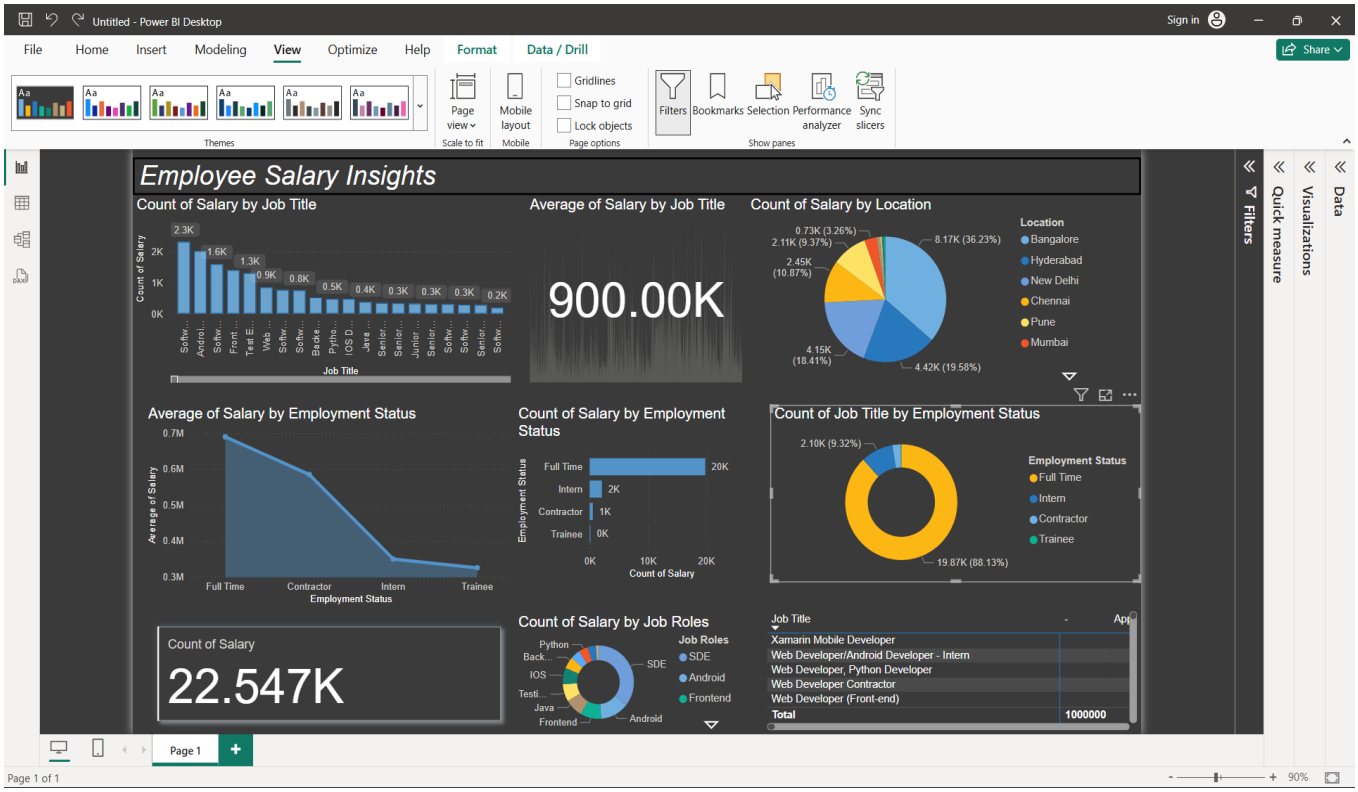
- **Pandas for Data Manipulation**: Handling missing values, grouping data, filtering datasets, merging tables, and performing calculations.
- **Matplotlib & Seaborn for Data Visualization**: Creating line plots, bar charts, histograms, heatmaps, and scatter plots to explore relationships within the data.
- **Power BI for Business Intelligence**: Designing interactive dashboards to present the key findings in a visually appealing and insightful manner.

This report provides a comprehensive **step-by-step analysis** of the dataset, showcasing various **data-driven insights** through detailed charts, tables, and summaries. The objective is to enhance data interpretation skills and demonstrate the effective use of analytics tools in **real-world scenarios**.

Power BI Analysis

Power BI has been used to visualize and analyze the dataset effectively, transforming raw data into interactive dashboards for better insights. Below are the screenshots of the Power BI report, followed by a detailed explanation of each dashboard.

Power BI Report :



Dashboard 1: Clustered Column Chart (Salary Distribution by Category)

- **Screenshot:** *(Insert the image of this dashboard here)*
- **Explanation:**
  - **Purpose:** This chart helps compare salary distributions across different categories.
  - **Key Insights:** Displays variations in salaries for different employee groups over time or by department.
  - **Visual Elements:** Uses clustered columns to represent salary figures for each category on the X-axis.
  - **Why It's Important:** Helps in identifying trends, differences, and outliers in salary allocation.

Dashboard 2: KPI Chart (Average Salary, etc.)

- **Screenshot:** Insert the image of this dashboard.
- **Explanation:**
  - **Purpose:** Provides a quick summary of key metrics like average salary.
  - **Key Insights:** Displays single-value KPIs to show important data points.
  - **Visual Elements:** KPI cards with large numbers.
  - **Why It's Important:** Gives a clear overview of key salary trends.

Dashboard 3: Pie Chart (Salary Distribution by Category)

- **Screenshot:** Insert the image of this dashboard.

- **Explanation:**
    - **Purpose:** Shows the proportion of salaries across different categories.
    - **Key Insights:** Helps in understanding the distribution of salary expenses.
    - **Visual Elements:** Pie chart with color-coded segments.
    - **Why It's Important:** Quickly identifies which categories have the highest and lowest salary allocations.

Dashboard 4: Line Chart (Salary Trends Over Time)

- **Screenshot:** Insert the image of this dashboard.
- **Explanation:**
    - **Purpose:** Displays trends in salaries over time.
    - **Key Insights:** Identifies salary growth, declines, or patterns over months/years.
    - **Visual Elements:** Line chart with a time-based X-axis and salary values on Y-axis.
    - **Why It's Important:** Helps in forecasting future salary trends.

Dashboard 5: KPI Chart (Additional Salary Metrics)

- **Screenshot:** Insert the image of this dashboard.
- **Explanation:**
    - **Purpose:** Adds more key performance indicators for salary analysis.
    - **Key Insights:** Shows important salary-related numbers at a glance.
    - **Visual Elements:** KPI cards with different metrics.
    - **Why It's Important:** Helps in decision-making by providing quick insights.

Dashboard 6: Stacked Chart (Comparison of Salary Components)

- **Screenshot:** Insert the image of this dashboard.
- **Explanation:**
    - **Purpose:** Breaks down salaries into components (basic, bonuses, benefits, etc.).
    - **Key Insights:** Identifies how different salary components contribute to total pay.
    - **Visual Elements:** Stacked column chart with different colors representing salary components.
    - **Why It's Important:** Useful for HR teams and finance departments to see detailed salary breakdowns.

Dashboard 7: Donut Chart (Salary Share by Department)

- **Screenshot:** Insert the image of this dashboard.
- **Explanation:**
    - **Purpose:** Similar to a pie chart but with a hole in the middle for better readability.
    - **Key Insights:** Shows the salary distribution among different departments.
    - **Visual Elements:** Donut chart with percentage values inside slices.
    - **Why It's Important:** Makes it easy to compare salary shares of different teams.

Dashboard 8: Matrix/Table (Detailed Salary Data)

- **Screenshot:** Insert the image of this dashboard.
- **Explanation:**
    - **Purpose:** Displays raw data in an organized format.
    - **Key Insights:** Allows detailed comparisons between employees, departments, and salary components.
    - **Visual Elements:** Table with multiple columns and row-wise data.
    - **Why It's Important:** Gives detailed insights for in-depth salary analysis.