Salary Trends Analysis Across Industries

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Introduction

This project analyzes salary trends across various industries and countries using a structured salary survey dataset. The objective is to understand how different factors influence salary and total compensation.

The analysis examines the impact of key variables such as industry, education level, gender, years of experience, job title, and geographic location. By exploring these dimensions, the project identifies compensation patterns, pay gaps, and regional as well as industry-based salary differences.

Tools Used:

- Microsoft Excel
- MySQL
- SQL

Project Objective

The key objectives of this project are:

- To analyze salary distribution across different industries
- To examine how education level influences salary growth
- To compare salary and bonus distribution across genders
- To identify the highest-paying job titles, industries, and countries
- To develop an interactive dashboard that enables data-driven insights

This project provides valuable understanding of real-world compensation trends, helping both organizations and individuals make informed career and workforce decisions.

Data Description

This project uses a salary survey dataset that captures employee compensation data from various industries around the world.

The dataset includes the following major attributes:

- Demographic information: Age group and gender
- Professional information: Industry, job role, and years of work experience
- Educational background: Highest qualification attained
- Compensation information: Annual base salary and additional financial compensation
- Geographic information: Country, state, and city
- Currency details

Number of records analyzed: 24,205 employees

DATA CLEANING & PREPROCESSING

Prior to analysis, the dataset underwent thorough preprocessing to improve data quality and maintain consistency.

The following actions were taken:

- Addressed missing values by either removing incomplete records or filling them with suitable replacements
- Normalized salary and compensation fields to maintain a consistent format
- Resolved inconsistencies in industry and job title entries
- Confirmed correct data types for both numerical and categorical variables
- Detected and managed salary outliers to prevent skewed results
- Saved the cleaned dataset and prepared it for database integration

These preprocessing activities helped ensure accurate and dependable analytical outcomes.

MYSQL INTEGRATION & SQL QUERIES

The cleaned dataset was loaded into a MySQL database for structured storage and analysis. A single well-organized table was created to hold all salary-related information.

Several SQL queries were developed to generate key insights, including:

- Average salary by industry and gender
- Total compensation by job title
- Salary distribution based on education level
- Median salary by age group and gender
- Highest-paying job titles across different countries
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The results of these queries were then exported to Excel for further analysis and visualization.

KEY PERFORMANCE

The dashboard presents important KPIs to deliver a quick summary of overall compensation trends:

- Total employee count: 24,205
- Overall average salary: $228,768,549
- Highest salary based on education level: $4,380,051,100
- Average total compensation: $605,326.11

These KPIs provide a high-level view of salary patterns and compensation insights across the dataset.

INSIGHTS

The analysis reveals that certain industries offer substantially higher average salaries, while others fall into lower-paying categories. Geographic factors also play a major role, with cities such as Toronto and London showing notably higher average compensation levels.

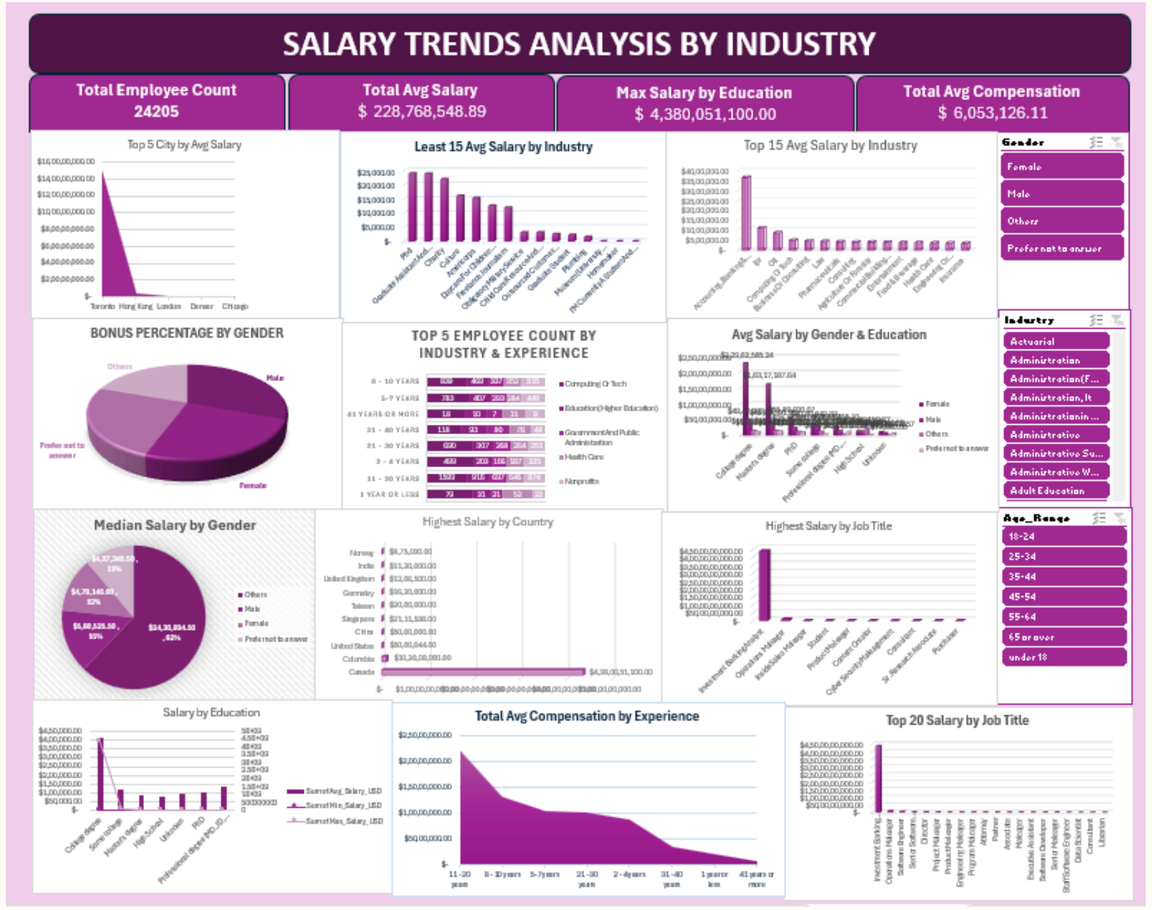
Overall, salary trends differ considerably across industries and locations, emphasizing the strong influence of both sector and geography on employee earnings.

GENDER, EDUCATION & BONUS ANALYSIS

The findings indicate noticeable differences in average salaries among gender groups. The analysis also suggests that salary levels typically increase with higher educational attainment. Variations are observed in bonus allocation between genders, and a considerable share of employees receive no bonus payments.

Moreover, individuals with advanced academic qualifications generally achieve higher total compensation. These insights help uncover pay disparities and emphasize the role of education in determining income levels.

DashBoard


SALARY TRENDS ANALYSIS BY INDUSTRY
Total Employee Count
24205
Total Avg Salary
$ 228,768,548.89
Max Salary by Education
$ 4,380,051,100.00
Total Avg Compensation
$ 6,053,126.11
Top 5 City by Avg Salary
Least 15 Avg Salary by Industry
Top 15 Avg Salary by Industry
Gender
Female
Male
Others
Prefer not to answer
BONUS PERCENTAGE BY GENDER
TOP 5 EMPLOYEE COUNT BY INDUSTRY & EXPERIENCE
Avg Salary by Gender & Education
Industry
Actuarial
Administration
Administration(F...
Administration, It
Administrationin ...
Administrative
Administrative Su...
Administrative W...
Adult Education
Median Salary by Gender
Highest Salary by Country
Highest Salary by Job Title
Age_Range
18-24
25-34
35-44
45-54
55-64
65 or over
under 18
Salary by Education
Total Avg Compensation by Experience
Top 20 Salary by Job Title

Conclusion

Salary levels are significantly affected by factors such as industry, education, work experience, and job role. Distinct compensation differences are also observed across industries and geographic locations.

The interactive dashboard delivers quick and meaningful insights, making the analysis easy to explore and understand. These findings can support HR professionals, job seekers, and organizations in making informed, data-driven decisions.

Overall, the project showcases the effective application of SQL and Excel for data analysis and business insights.

Thank you!