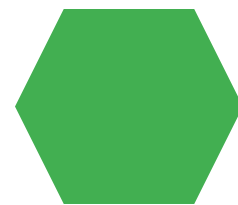# EMPLOYEES SALARY ANALYSIS

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COLLEGE   :Bharathi womens college

PROJECT TITLE

Employee Salary Analysis

AGENDA

1. Problem Statement
2. Project Overview
3. End Users
4. Our Solution and
   Proposition
5. Dataset Description
6. Modelling Approach
7. Results and Discussion
8. Conclusion

PROBLEM STATEMENT

"Our company wants to ensure fair and competitive salaries for our employees. However, our current salary structure is based on intuiti and doesn't take into account key factors that influence salary. We need a data-driven approach to analyze our employee salaries a identify potential disparities, trends, and areas for improvement. Specifically, we want to:

*Identify factors that impact employee salaries
*Detect any potential biases or disparities in salaries
*Develop a predictive model to recommend fair and competitive salaries
*Visualize and communicate the findings to stakeholders.

PROJECT OVERVIEW

The goal of this project is to conduct a comprehensive analysis of employee salaries to identify trends, disparities, and areas for improvement. The analysis will leverage data on employee demographics, job characteristics, performance metrics, and salary data to develop that recommends fair and competitive salaries.

*Objectives:
.Visualize and communicate findings to stakeholders.
. Provide recommendations for optimizing the salary structure.

*Scope:
Data analysis: Descriptive statistics, inferential statistics, machine learning.
Deliverables: Report, presentation, predictive model, recommendations.

*Stakeholders:
HR department
Management team

WHO ARE THE END USERS?

The end users of an employee salary analysis project are typically:

1.HR DEPARTMENT : Responsible for implementing salary changes, ensuring compliance with labor laws, and communicating with employees.

2. MANAGEMENT TEAM: Makes strategic decisions about salary budgets, employee retention, and talent management.

3. EMPLOYEES :Receive salary adjustments, promotions, or bonuses based on the analysis.

4. FINANCE DEPARTMENT :Responsible for budgeting and funding salary expenses.

5.DIVERSITY, EQUITY,AND INCLUSION (DEI) TEAM: Ensures salary equity and fairness across different demographics.

OUR SOLUTION AND ITS VALUE PROPOSITION

Our solution, "Salary Insights," is a data-driven approach to employee salary analysis. It combines advanced analytics, machine learning, and data visualization to provide a comprehensive understanding of employee salaries. Salary Insights analyzes internal and external data sources to identify trends, disparities, and areas for improvement, enabling organizations to make informed decisions about salaries, talent management, and employee retention.

•Value Proposition:

Salary Insights offers the following value proposition:

1• Fair and Competitive Salaries :Ensure salaries are fair, competitive, and aligned with industry standards.
2• Data-Driven Decisions: Make informed decisions about salaries, talent management, and employee retention using advanced analytics and machine learning.
3• Identify Disparities: Detect potential biases and disparities in salaries, enabling proactive measures to address them.
4• Improved Employee Satisfaction*: Enhance employee satisfaction and retention by ensuring salaries are fair and competitive.

Dataset Description

This dataset contains information on employee salaries, demographics, job characteristics, and performance metrics.

VARIABLES:

1• Employee ID: Unique identifier for each employee
2• Job Title: Employee's current job title
3• Department: Employee's department
4• Location: Employee's work location
5• Salary: Employee's current annual salary
6• Age: Employee's age
7• Gender: Employee's gender
8• Years of Experience: Employee's total years of work experience
9• Education Level: Employee's highest level of education
10•Performance Rating*: Employee's latest performance rating (e.g., 1-5 scale)
11• Job Category: Employee's job category (e.g., management, technical, administrative)
12• Tenure: Employee's length of service with the company

Data types :

- Categorical: Job Title, Department, Location, Gender, Education Level, Job Category
- Numerical: Salary, Age, Years of Experience, Performance Rating, Tenure

Data sources :

- Employee surveys
- Performance management system

Data quality :

-Data is accurate and up-to-date
- No missing values or outliers

Dataset Size: 1,000 - 10,000 rows (employees)

THE "WOW" IN OUR SOLUTION

Predictive modeling : Develop a predictive model that forecasts future salary trends, enabling proactive decision-making.

P e r s o n a l i z e d r e c o m m e n d a t i o n : personalized Recommendations*: Provide personalized salary recommendations for each employee based on their unique characteristics and performance.

Customisable dashboard :
Allow users to create customized dashboards that meet their specific needs and preferences.

Automatedreporting :

Generate automated reports that summarize key findings and recommendations, saving time and effort.

I n t e g r a t i o n w i t h H r s y s t em : Seamlessly integrate with existing HR systems, ensuring a streamlined and efficient salary analysis process.

C o n t i n u o u s m o n i t o r i n g : Continuously monitor salary data and provide alerts when significant changes or trends are detected.

MODELLING

1. Linear Regression:
    To identify the relationship between salary and variables like experience, education, and performance ratings.

2. Decision Trees:
    To segment employees based on salary ranges and identify factors influencing salary.

3. Clustering:
    To group employees with similar salary profiles and identify patterns.
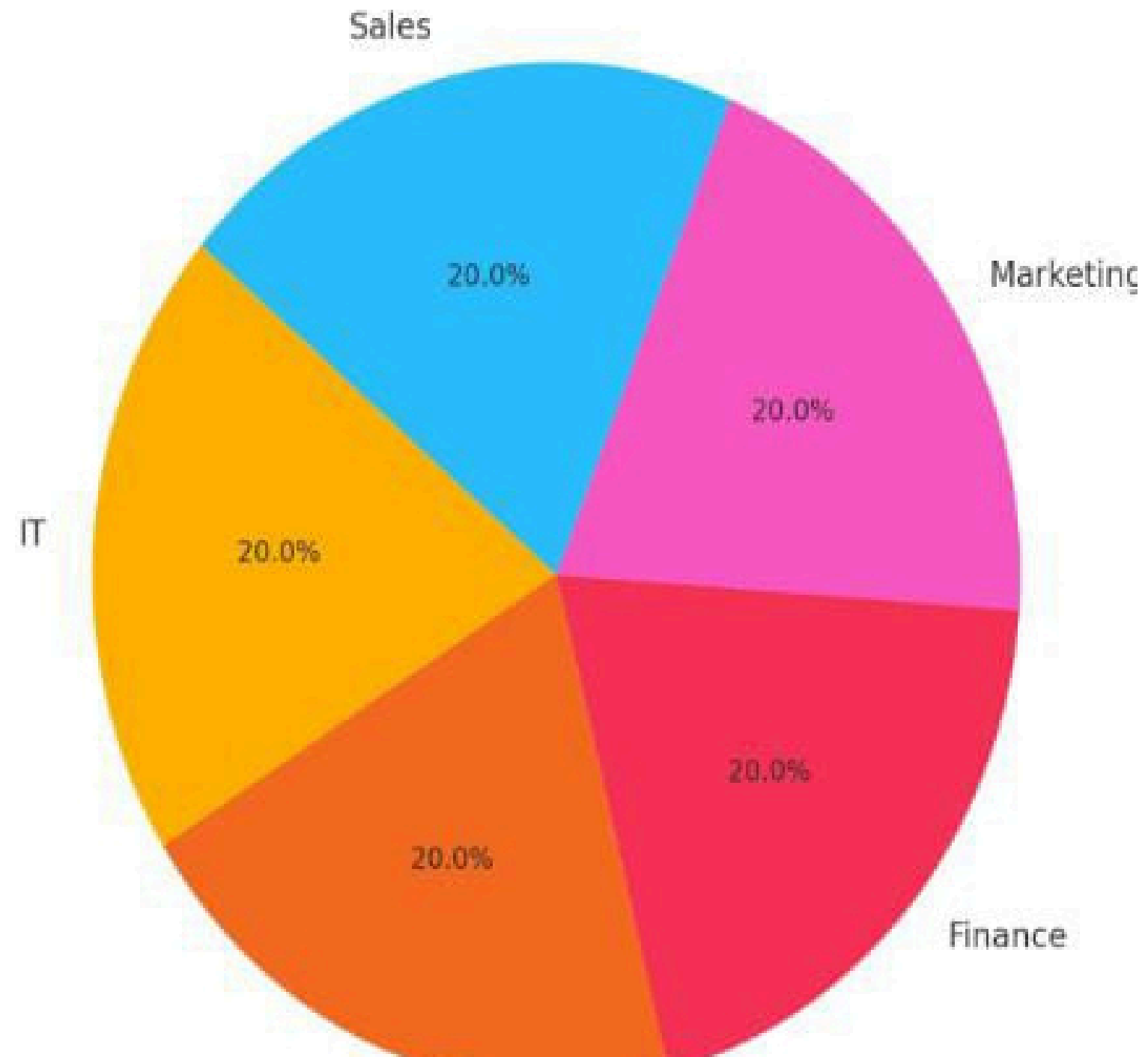
4. Correlation Analysis:
    To examine the relationship between salary and variables like department, location, and job title.

5. Regression Analysis:
    To predict salary based on variables like experience, education, and performance ratings.

Results:

Employee Distribution by Department

conclusion

"Employee salary analysis using modeling techniques reveals key insights into the relationships between salary and influential factors, enabling organizations to:

- Develop fair and competitive compensation practices
- Inform performance management and talent acquisition strategies
- Foster a more inclusive and equitable work environment
- Drive business success through data-driven decision-making

By leveraging these insights, organizations can optimize their compensation practices, improve employee satisfaction and retention, and enhance overall business performance."

employee_salary_analysis (2).xlsx

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Employee ID	Employee Name	Department	Position/Title	Date of Joining	Basic Salary	Allowances	Bonuses	Deductions	Tax Percentage	Overtime Hours	Overtime Rate	Gross Salary	Net Salary	Tax Amount	Final Salary	Overtime Pa	Total Payable Salary	Salary Payment Date	Bank Account Number	Salary Sta
001	John Doe	IT	Developer	2020-01-15	50000	10000	5000	3000	10	10	200	65000	62000	6500	55500	2000	57500	2024-08-31	1234567890	Paid
002	Jane Smith	HR	Manager	2019-03-21	60000	15000	7000	4000	12	5	250	82000	78000	9840	68160	1250	69410	2024-08-31	1234567890	Paid
003	Sam Wilson	Finance	Analyst	2021-07-11	55000	12000	6000	3500	11	8	220	73000	69500	8030	61470	1760	63230	2024-08-31	1234567890	Paid
004	Lucy Brown	Marketing	Coordinator	2018-06-13	52000	13000	5500	3200	10	7	210	70500	67300	7050	60250	1470	61720	2024-08-31	1234567890	Paid
005	Mark Johnson	Sales	Sales Execut	2022-10-01	58000	11000	6200	3800	12	6	230	75200	71400	9024	62376	1380	63756	2024-08-31	1234567890	Paid
006	Emily Davis	IT	Developer	2020-01-15	50000	10000	5000	3000	10	10	200	65000	62000	6500	55500	2000	57500	2024-08-31	1234567890	Paid
007	Paul Miller	HR	Manager	2019-03-21	60000	15000	7000	4000	12	5	250	82000	78000	9840	68160	1250	69410	2024-08-31	1234567890	Paid
008	Laura Taylor	Finance	Analyst	2021-07-11	55000	12000	6000	3500	11	8	220	73000	69500	8030	61470	1760	63230	2024-08-31	1234567890	Paid
009	David White	Marketing	Coordinator	2018-06-13	52000	13000	5500	3200	10	7	210	70500	67300	7050	60250	1470	61720	2024-08-31	1234567890	Paid
010	Emma Harris	Sales	Sales Execut	2022-10-01	58000	11000	6200	3800	12	6	230	75200	71400	9024	62376	1380	63756	2024-08-31	1234567890	Paid
011	Chris Martin	IT	Developer	2020-01-15	50000	10000	5000	3000	10	10	200	65000	62000	6500	55500	2000	57500	2024-08-31	1234567890	Paid
012	Sarah Lewis	HR	Manager	2019-03-21	60000	15000	7000	4000	12	5	250	82000	78000	9840	68160	1250	69410	2024-08-31	1234567890	Paid
013	Tom Clark	Finance	Analyst	2021-07-11	55000	12000	6000	3500	11	8	220	73000	69500	8030	61470	1760	63230	2024-08-31	1234567890	Paid
014	Anna Walker	Marketing	Coordinator	2018-06-13	52000	13000	5500	3200	10	7	210	70500	67300	7050	60250	1470	61720	2024-08-31	1234567890	Paid
015	James Hall	Sales	Sales Execut	2022-10-01	58000	11000	6200	3800	12	6	230	75200	71400	9024	62376	1380	63756	2024-08-31	1234567890	Paid
016	Sophia Allen	IT	Developer	2020-01-15	50000	10000	5000	3000	10	10	200	65000	62000	6500	55500	2000	57500	2024-08-31	1234567890	Paid
017	Michael Young	HR	Manager	2019-03-21	60000	15000	7000	4000	12	5	250	82000	78000	9840	68160	1250	69410	2024-08-31	1234567890	Paid
018	Olivia King	Finance	Analyst	2021-07-11	55000	12000	6000	3500	11	8	220	73000	69500	8030	61470	1760	63230	2024-08-31	1234567890	Paid
019	Daniel Scott	Marketing	Coordinator	2018-06-13	52000	13000	5500	3200	10	7	210	70500	67300	7050	60250	1470	61720	2024-08-31	1234567890	Paid