

Project Report:

# Human Resources Analyst



## Introduction

Human resources (HR) analytics is becoming increasingly vital for organizations that aim to optimize workforce efficiency and employee satisfaction. This project seeks to analyze and interpret employee data to highlight key workforce trends within the organization. By leveraging data-driven insights, organizations can address issues such as employee attrition, absenteeism, and low engagement, while also identifying strengths such as diversity and high performance. The dataset used in this project contains details of 311 employees with 40 variables capturing demographic attributes, employment history, engagement surveys, salaries, tenure, and termination records. Through this project, we aim to provide a holistic view of employee dynamics and develop recommendations for organizational improvement.

---

## Dataset Overview

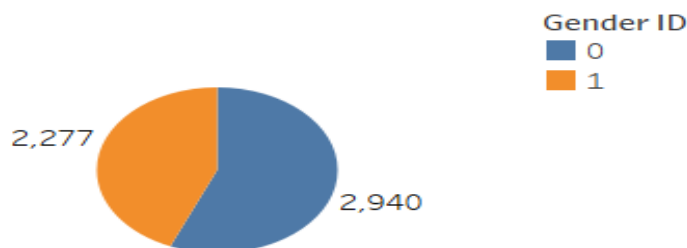
The HR dataset consists of 311 employee records and 40 variables, providing a comprehensive view of employees across different departments and positions. The dataset includes demographic fields such as gender, race, age, and marital status, along with work-related variables including department, salary, tenure, engagement survey results, and performance scores. Termination data is also included, with details on whether the employee left the organization and the reason for termination. Missing data was minimal, with only *Date of Termination* showing expected null values for currently active employees. After cleaning and preprocessing, the dataset was ready for visualization and deeper analysis.

---

## Workforce Demographics

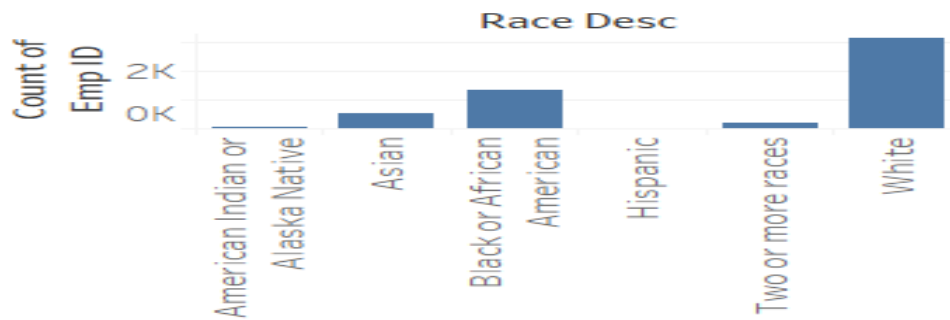
A major part of HR analytics involves understanding the workforce composition. The gender distribution shows that there are 2,940 male employees compared to 2,277 female employees, translating to approximately 56% male and 44% female representation. The racial composition indicates that the majority of employees identify as White, followed by Black, Asian, Hispanic, and other minority groups. The marital status distribution also highlights a balance among married, single, and divorced employees. This demographic profile reflects a workforce that is moderately diverse but still skewed towards White employees. Ensuring inclusivity in recruitment could further strengthen organizational diversity.

### Gender Distribution



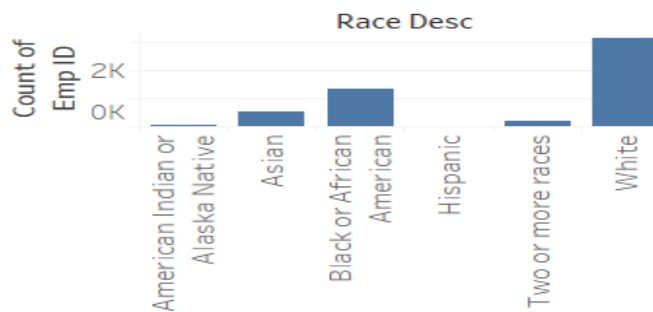
Sum of Number of Records. Color shows details about Gender ID. The marks are labeled by sum of Number of Records. The data is filtered on Action (Position), Action (Department), Action (Term Reason), Action (Race Desc), Action (Attrition, Performance Score), Race Desc and Emp Status ID. The Action (Position) filter keeps 31 members. The Action (Department) filter keeps 6 members. The Action (Term Reason) filter keeps 18 members. The Action (Race Desc) filter keeps 6 members. The Action (Attrition, Performance Score) filter keeps 8 members. The Race Desc filter keeps 6 of 6 members. The Emp Status ID filter keeps 1, 2, 3, 4 and 5. The view is filtered on Gender ID, which keeps 0 and 1.

## Race Distribution



Count of Emp ID for each Race Desc. The data is filtered on Action (Position), Action (Department), Action (Term Reason), Action (Gender ID), Action (Attrition,Performance Score), Emp Status ID and Gender ID. The Action (Position) filter keeps 31 members. The Action (Department) filter keeps 6 members. The Action (Term Reason) filter keeps 18 members. The Action (Gender ID) filter keeps 2 members. The Action (Attrition,Performance Score) filter keeps 8 members. The Emp Status ID filter keeps 1, 2, 3, 4 and 5. The Gender ID filter keeps 0 and 1. The view is filtered on Race Desc, which keeps 6 of 6 members.

## Race Distribution



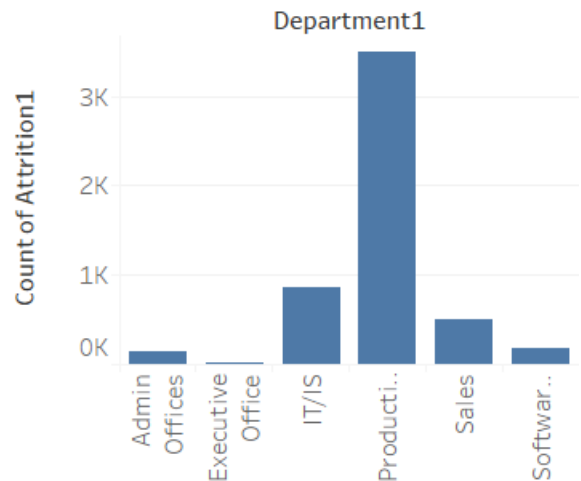
Count of Emp ID for each Race Desc. The data is filtered on Action (Position), Action (Department), Action (Term Reason), Action (Gender ID), Action (Attrition,Performance Score), Emp Status ID and Gender ID. The Action (Position) filter keeps 31 members. The Action (Department) filter keeps 6 members. The Action (Term Reason) filter keeps 18 members. The Action (Gender ID) filter keeps 2 members. The Action (Attrition,Performance Score) filter keeps 8 members. The Emp Status ID filter keeps 1, 2, 3, 4 and 5. The Gender ID filter keeps 0 and 1. The view is filtered on Race Desc, which keeps 6 of 6 members.

---

## Departmental Analysis

The dataset reveals that the organization employs a total of 311 individuals across multiple departments. The Production department is the largest, accounting for the highest proportion of employees. IT/IS, Sales, and Administrative Offices follow in size. The analysis of departmental trends shows that Production also experiences the highest attrition rate, with IT/IS being the second most affected. The average engagement score across the company is 4.09 out of 5, indicating that most employees are satisfied with their workplace experience. The average salary is \$68,900, but significant variation exists between departments. Overall, Production contributes the most to employee numbers but also faces the greatest retention challenges.

### Attrition by Department



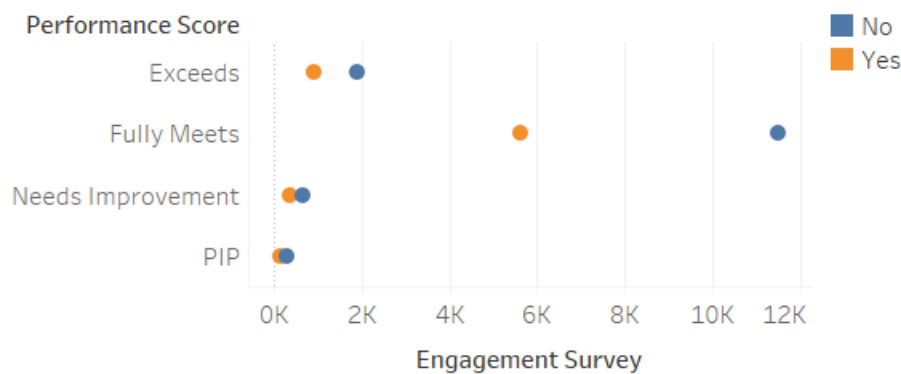
Count of Attrition1 for each Department1. The data is filtered on Action (Position), Action (Term Reason), Action (Race Desc), Action (Attrition,Performance Score), Gender ID, Emp Status ID and Race Desc. The Action (Position) filter keeps 31 members. The Action (Term Reason) filter keeps 18 members. The Action (Race Desc) filter keeps 6 members. The Action (Attrition,Performance Score) filter keeps 8 members. The Gender ID filter keeps 0 and 1. The Emp Status ID filter keeps 1, 2, 3, 4 and 5. The Race Desc filter keeps 6 of 6 members. The view is filtered on Department1, which keeps 6 of 6 members.

---

## Attrition and Termination Analysis

Attrition is a key area of concern for HR professionals. In this dataset, Production and IT/IS departments show the highest levels of employee turnover. The analysis of termination reasons highlights that the largest portion of employees remain active, as indicated by the “N/A – Still Employed” category. Among those who left the organization, the primary reasons include career change, long working hours, relocation, return to school, and voluntary resignation. These findings suggest that attrition is largely voluntary rather than performance-related, pointing to opportunities for the company to enhance career growth opportunities, provide flexible working arrangements, and reduce stressors such as excessive working hours.

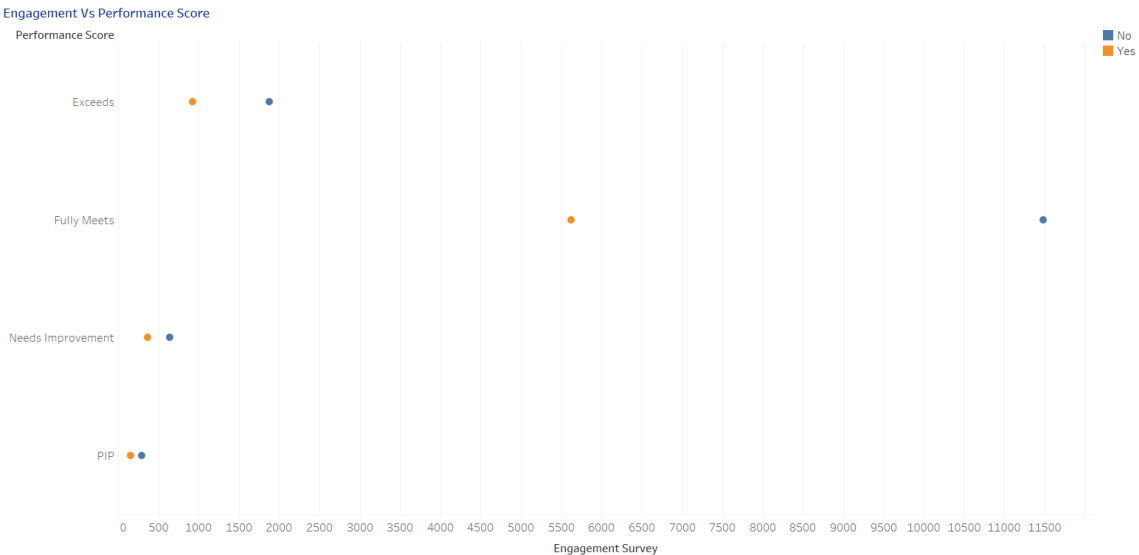
### Engagement Vs Performance Score



Sum of Engagement Survey for each Performance Score. Color shows details about Attrition1. The data is filtered on Action (Position), Action (Department), Action (Term Reason), Action (Gender ID), Action (Race Desc), Action (Attrition,Performance Score), Race Desc, Emp Status ID and Gender ID. The Action (Position) filter keeps 31 members. The Action (Department) filter keeps 6 members. The Action (Term Reason) filter keeps 18 members. The Action (Gender ID) filter keeps 2 members. The Action (Race Desc) filter keeps 6 members. The Action (Attrition,Performance Score) filter keeps 8 members. The Race Desc filter keeps 6 of 6 members. The Emp Status ID filter keeps 1, 2, 3, 4 and 5. The Gender ID filter keeps 0 and 1.

## Engagement and Performance Analysis

Engagement surveys play an important role in understanding employee motivation and satisfaction. In this organization, higher engagement scores are positively associated with better performance ratings. Employees who scored “Exceeds” in performance evaluations generally reported higher engagement survey scores, while those who “Need Improvement” or are placed on “PIP” (Performance Improvement Plan) reported lower engagement. The average engagement score of 4.09 across the workforce is encouraging, but departments with higher attrition and absenteeism also tend to report lower engagement. This confirms that engagement is not just a reflection of satisfaction but also a predictor of employee performance and retention.



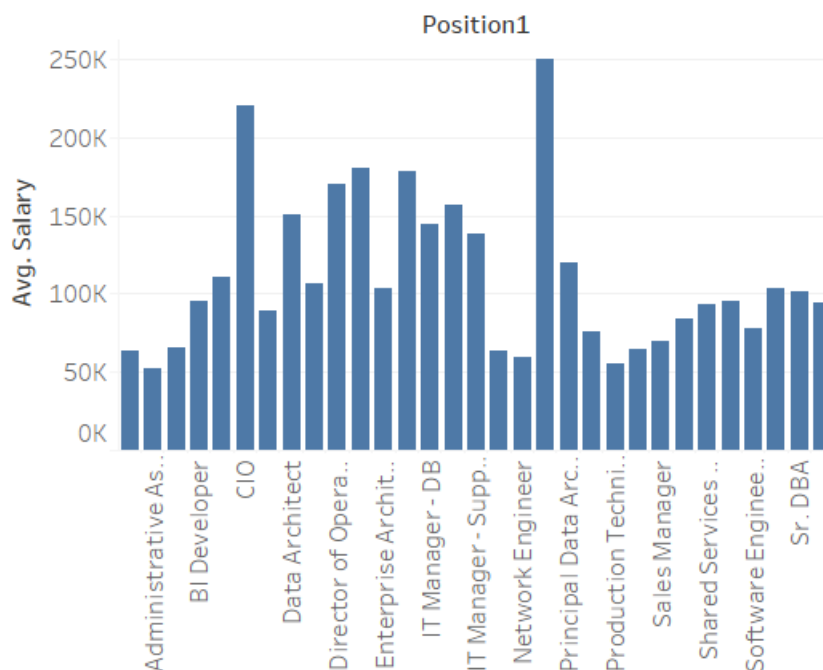
Sum of Engagement Survey for each Performance Score. Color shows details about Attrition1. The data is filtered on Action (Position), Action (Department), Action (Term Reason), Action (Gender ID), Action (Race Desc), Action (Attrition, Performance Score), Race Desc, Emp Status ID and Gender ID. The Action (Position) filter keeps 31 members. The Action (Department) filter keeps 6 members. The Action (Term Reason) filter keeps 18 members. The Action (Gender ID) filter keeps 2 members. The Action (Race Desc) filter keeps 6 members. The Action (Attrition, Performance Score) filter keeps 8 members. The Race Desc filter keeps 6 of 6 members. The Emp Status ID filter keeps 1, 2, 3, 4 and 5. The Gender ID filter keeps 0 and 1.

---

## Salary Analysis

Salary structures within the organization reveal significant variation across departments and positions. The Production department, despite being the largest in terms of headcount, offers lower average salaries compared to IT/IS and leadership roles. On the other hand, specialized technical and managerial roles such as Principal Data Architect, Chief Information Officer (CIO), and Business Intelligence Developers receive the highest salaries, often exceeding \$200,000 annually. This disparity highlights the concentration of compensation in roles that demand specialized skills and strategic decision-making. However, this wide salary gap can also create dissatisfaction among employees in lower-paying roles, suggesting the need for better compensation benchmarking and internal pay equity assessments.

Avg Salary by Position



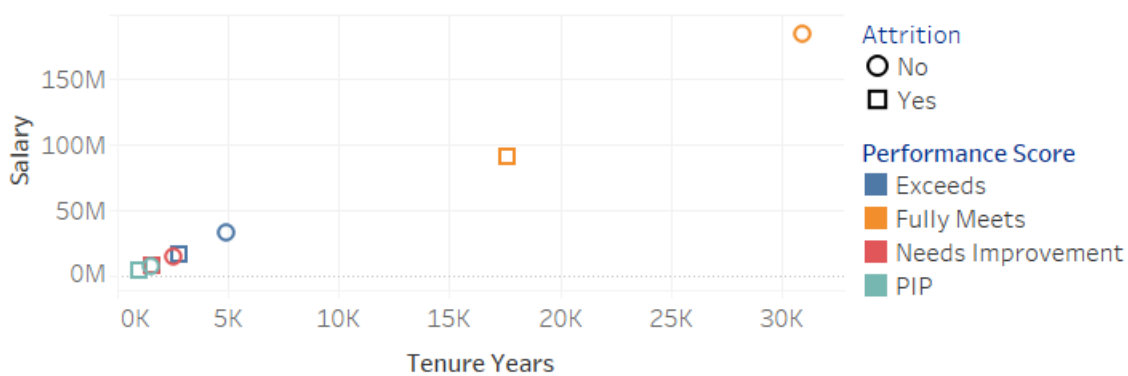
Average of Salary for each Position1. The data is filtered on Action (Department), Action (Term Reason), Action (Gender ID), Action (Race Desc), Action (Attrition,Performance Score), Race Desc, Emp Status ID and Gender ID. The Action (Department) filter keeps 6 members. The Action (Term Reason) filter keeps 18 members. The Action (Gender ID) filter keeps 2 members. The Action (Race Desc) filter keeps 6 members. The Action (Attrition,Performance Score) filter keeps 8 members. The Race Desc filter keeps 6 of 6 members. The Emp Status ID filter keeps 1, 2, 3, 4 and 5. The Gender ID filter keeps 0 and 1.



## Absenteeism and Tenure Trends

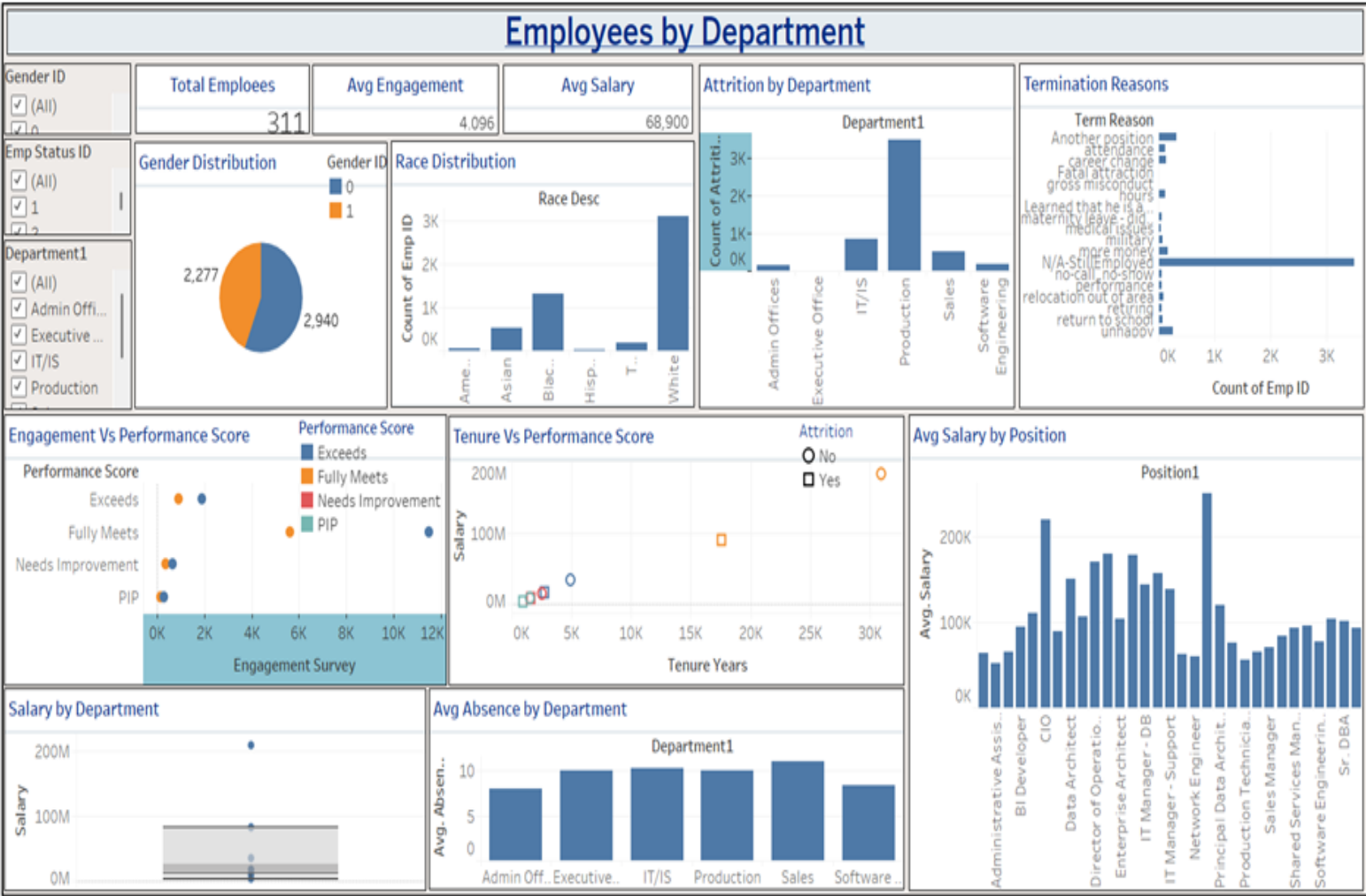
Absenteeism is another critical area of workforce management. The average number of absences across departments ranges from 6 to 10 days annually, with Production and Sales reporting the highest absenteeism rates. A closer look at tenure and performance shows that employees with longer tenure tend to perform better, although exceptions exist. This indicates that experience and organizational familiarity generally enhance productivity and performance outcomes. However, absenteeism undermines efficiency, particularly in labor-intensive departments such as Production, where frequent absences can disrupt operations. Addressing absenteeism through wellness programs, flexible scheduling, and attendance incentives may help improve workforce reliability.

Tenure Vs Performance Score



Sum of Tenure Years vs. sum of Salary. Color shows details about Performance Score. Shape shows details about Attrition1. The data is filtered on Action (Position), Action (Department), Action (Term Reason), Action (Gender ID), Action (Race Desc), Action (Attrition,Performance Score), Race Desc, Emp Status ID and Gender ID. The Action (Position) filter keeps 31 members. The Action (Department) filter keeps 6 members. The Action (Term Reason) filter keeps 18 members. The Action (Gender ID) filter keeps 2 members. The Action (Race Desc) filter keeps 6 members. The Action (Attrition,Performance Score) filter keeps 8 members. The Race Desc filter keeps 6 of 6 members. The Emp Status ID filter keeps 1, 2, 3, 4 and 5. The Gender ID filter keeps 0 and 1.

DASHBOARD



Engagement Vs Performance Score

Performance Score

Exceeds

Fully Meets

Needs Improvement

PIP

Engagement Survey

0K

2K

4K

6K

8K

10K

12K

Tenure Vs Performance Score

Salary

200M

100M

0M

0K

5K

10K

15K

20K

25K

30K

Tenure Years

Attrition

No

Yes

Avg Salary by Position

Position1

Avg. Salary

200K

100K

0K

Administrative Assis...

BI Developer

CIO

Data Architect

Director of Operatio...

Enterprise Architect

IT Manager - DB

IT Manager - Support

Network Engineer

Principal Data Archit...

Production Technicia...

Sales Manager

Shared Services Man...

Software Engineerin...

Sr. DBA

Salary by Department

Salary

200M

100M

0M

Avg Absence by Department

Department1

Avg. Absen...

10

5

0

Admin Off..

Executive..

IT/IS

Production

Sales

Software..

---

## Conclusion and Recommendations

In conclusion, this analysis of employee data provides a holistic view of the workforce. The organization demonstrates moderate diversity but has a skew toward White employees. The Production department is both the largest and the most problematic in terms of attrition and absenteeism. Engagement levels are generally positive, but differences across departments affect performance outcomes. Salary distributions reveal significant disparities, with top management and specialized roles earning disproportionately higher salaries.

To address these issues, several recommendations are proposed. First, the organization should focus on improving retention in Production through career development initiatives, mentorship, and performance-based incentives. Second, diversity hiring practices can be strengthened to enhance inclusivity across racial and gender categories. Third, targeted engagement programs should be introduced to sustain high levels of motivation, particularly in departments with high turnover. Fourth, absenteeism should be addressed with flexible work policies, wellness initiatives, and attendance-based rewards. Finally, salary structures should be reviewed to ensure fair compensation practices while maintaining competitiveness in the labor market. These steps will help build a stronger, more engaged, and more productive workforce.

