

# Data Analytics: Employee Attrition Insights

Discover how data analytics can transform HR strategies and significantly reduce employee turnover.



# Why Employee Attrition Matters



## Staggering Costs

Losing employees costs U.S. companies an estimated **\$1 trillion annually**, impacting productivity and profitability.



## Crucial Understanding

Understanding the core drivers of attrition is key to reducing turnover and enhancing overall workforce productivity.



## Rich Data Source

Kaggle's "Employee Attrition" dataset (<https://www.kaggle.com/datasets/stealthtechnologies/employee-attrition-dataset>) provides a comprehensive foundation for powerful predictive analytics.



# Dataset Overview: What's Inside?

The "Employee Attrition" dataset from Kaggle offers a deep dive into employee behavior and characteristics.

Access the dataset here:

<https://www.kaggle.com/datasets/stealthtechnologies/employee-attrition-dataset>

It contains:

**1,470 employee records:** A substantial sample size for robust analysis.

**35+ features:** Covering demographics, job roles, satisfaction levels, and performance metrics.

**Significant Attrition Rate:** Approximately **16.1%** of employees within the dataset have left the company, highlighting the need for intervention.

**Diverse Data:** Information spans various departments, salary levels, and work environments, providing a holistic view of the organization.

This rich data allows us to identify patterns and build models to predict and prevent future attrition.

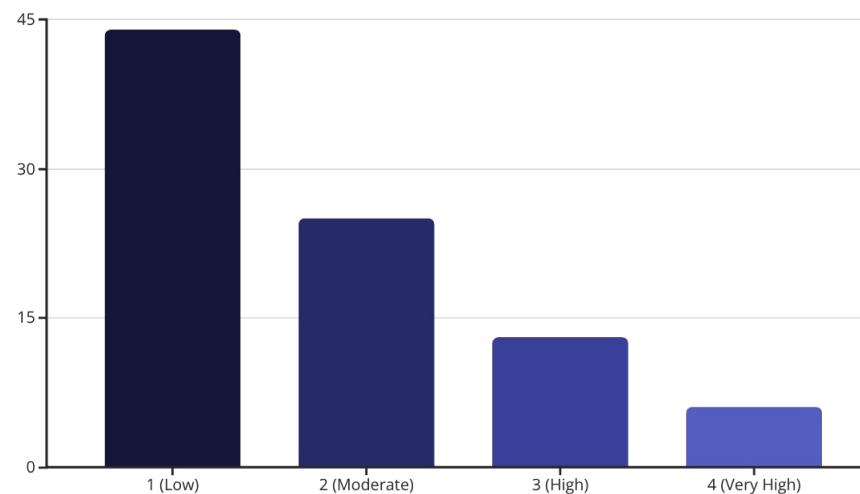


# Job Satisfaction & Attrition Connection

Our analysis reveals a powerful correlation: employees with low job satisfaction are **four times more likely** to leave the company.

This highlights job satisfaction as a critical factor in employee retention.

## Visualization: Attrition by Job Satisfaction Score



The chart clearly shows how attrition significantly decreases as job satisfaction increases from a score of 1 (low) to 4 (very high).

### Implication:

Prioritize and invest in employee engagement programs, feedback mechanisms, and initiatives that directly boost job satisfaction to retain valuable talent.

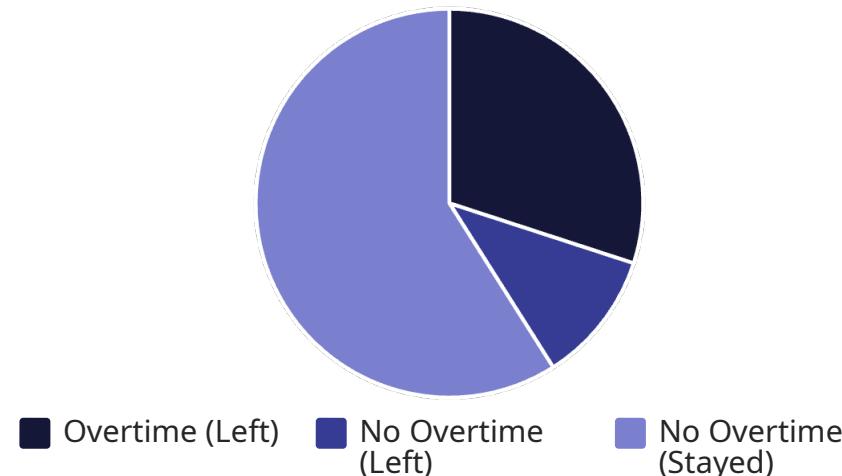


# Overtime Work & Attrition Risk

A significant finding is the impact of overtime on employee retention. Data shows that **30% of employees working overtime left** the company, compared to only 11% of those who did not work overtime.

Overtime is often a precursor to burnout and directly correlates with higher turnover intentions and actual departures.

## Visualization: Attrition by Overtime Status



### Actionable Takeaway:

Implement strategies to balance workloads, monitor overtime trends proactively, and ensure employees maintain a healthy work-life balance to mitigate attrition risks.

# Predictive Analytics: Identifying At-Risk Employees

Leveraging the insights, we developed a predictive model to identify employees at high risk of attrition.



## Random Forest Model

Built a robust Random Forest model for high prediction accuracy.



## 88% Accuracy

The model achieved a significant 88% accuracy in predicting employee attrition.



## Top Predictors Identified

Key factors include job satisfaction, overtime hours, tenure at the company, and work-life balance.



## Proactive Retention

Enables organizations to implement targeted retention strategies for high-risk employees before they decide to leave.



# Business Impact & Cost Savings

Translating analytical insights into tangible business value.

**5%**

## Attrition Reduction

Even a 5% reduction in attrition can lead to millions in savings on hiring and training costs.

## Improved

## Morale & Productivity

Data-driven HR policies foster a positive work environment, improving employee morale and productivity.

## \$ Savings

## Projected Cost Savings

Targeted retention efforts, informed by our model, offer significant financial benefits.

The financial and cultural benefits of a data-driven approach to HR are immense.





# Conclusion: Harnessing Data to Keep Your Best Talent

## → Predictable & Manageable

Employee attrition, once a complex challenge, becomes predictable and manageable through advanced analytics.

## → Empowering Insights

Kaggle datasets provide the foundation for organizations to uncover hidden patterns and drive strategic HR decisions.

## → Next Steps for Sustainable Growth

Integrate predictive insights into your HR decision-making processes for long-term talent retention and sustainable organizational growth.

Invest in data-driven HR to build a more stable, productive, and satisfied workforce.