# Employee Workforce Analysis

## **Executive Summary**

This analysis provides insights into the educational qualifications, length of service, correlation between payment tier and experience, gender distribution, and patterns in leave-taking behavior among employees. The key findings indicate that a majority of employees hold Bachelor's degrees, and there's a slight difference in the median joining years across cities, with New Delhi having more recent hires on average. There is no significant linear correlation between Payment Tier and Experience Years. The workforce has a higher proportion of males. Furthermore, significant patterns in leave-taking behavior were observed across different educational backgrounds, cities, payment tiers, and gender, which can inform targeted HR strategies.

## **Introduction**

The objective of this analysis is to explore the provided employee dataset to understand various demographic and employment-related aspects. The analysis aims to answer specific questions related to employee education, tenure, compensation-experience relationship, gender representation, and factors influencing leave-taking behavior, ultimately providing actionable insights.

## **Data Overview**

The dataset comprises 2,764 entries and 9 columns, including Education, Joining Year, City, Payment Tier, Age, Gender, EverBenched, Experience Years, and LeaveOrNot. All columns are complete, with no missing values, ensuring a robust basis for analysis. The data types are appropriate for their respective variables, including categorical, numerical, and boolean types.

## **Key Findings & Analysis**

### **1. Distribution of Educational Qualifications**

The distribution of educational qualifications among employees is as follows:

* **Bachelors**: 1971 employees (approximately 71.3%)
* **Masters**: 637 employees (approximately 23.0%)
* **PHD**: 156 employees (approximately 5.7%)

The majority of the workforce holds a Bachelor's degree, followed by Master's and then PhDs. This suggests a significant reliance on undergraduate-level qualified professionals within the organization.

### **2. Length of Service (Joining Year) Variation Across Different Cities**

The length of service, indicated by Joining Year, shows slight variations across cities.

* **Bangalore**: Average Joining Year is around 2014.92, with the earliest hires from 2012.
* **Pune**: Average Joining Year is around 2015.06, with the earliest hires from 2012.
* **New Delhi**: Average Joining Year is around 2015.37, with the earliest hires from 2012.

While all cities show employees joining as early as 2012, New Delhi has a slightly more recent average joining year (2015.37) compared to Bangalore (2014.92) and Pune (2015.06), suggesting a potentially newer average workforce or more recent expansion in New Delhi. The median joining year is 2015 for Bangalore and Pune and 2016 for New Delhi.

### **3. Correlation between Payment Tier and Experience Years**

There is no linear correlation between an employee's payment tier and their years of experience. In simpler terms, there is no clear linear trend where higher experience consistently leads to a higher payment tier, or vice-versa, based on this dataset. Other factors likely influence the payment tier more significantly.

### **4. Gender Distribution within the Workforce**

The gender distribution within the workforce is:

* **Male**: 1529 employees (approximately 55.3%)
* **Female**: 1235 employees (approximately 44.7%)

The workforce has a higher proportion of male employees compared to female employees.

### **5. Patterns in Leave-Taking Behavior Among Employees**

Overall, approximately **39.36%** of employees took leave (LeaveOrNot = 1), while **60.64%** did not (LeaveOrNot = 0).

Further analysis reveals patterns across different categories:

* **By Education**:
  + **Bachelors**: Approximately 37.5% took leave.
  + **Masters**: Approximately 48.5% took leave.
  + **PHD**: Approximately 25.6% took leave.
  + Employees with Master's degrees show a notably higher propensity to take leave compared to those with Bachelor's or PhD degrees. PhD holders have the lowest leave-taking rate.
* **By City**:
  + **Bangalore**: Approximately 35.0% took leave.
  + **New Delhi**: Approximately 34.1% took leave.
  + **Pune**: Approximately 50.9% took leave.
  + Pune stands out with a significantly higher percentage of employees taking leave compared to Bangalore and New Delhi.
* **By Payment Tier**:
  + **Tier 1**: Approximately 35.3% took leave.
  + **Tier 2**: Approximately 60.2% took leave.
  + **Tier 3**: Approximately 33.8% took leave.
  + Employees in Payment Tier 2 have a substantially higher leave-taking rate compared to Tier 1 and Tier 3, where the rates are much lower and similar to each other.
* **By Gender**:
  + **Female**: Approximately 49.7% took leave.
  + **Male**: Approximately 31.0% took leave.
  + Female employees show a considerably higher tendency to take leave than male employees.
* **By EverBenched**:
  + **False (Never Benched)**: Approximately 38.7% took leave.
  + **True (Ever Benched)**: Approximately 44.0% took leave.
  + Employees who have EverBenched (been on the bench) show a slightly higher rate of leave-taking compared to those who have never been benched.

## **Actionable Insights & Recommendations**

Based on these findings, here are some actionable insights and recommendations:

1. **Talent Acquisition and Retention (Education)**: Given the high proportion of Bachelor's degree holders, the organization should consider if this aligns with long-term strategic needs. For Master's degree holders, the higher leave-taking rate warrants further investigation into potential stressors or work-life balance issues that might be more prevalent in this group. For PhD holders, their low leave-taking might indicate higher job satisfaction or a different work culture, which could be studied further to replicate across other groups.
   * **Recommendation**: Conduct a survey or focused group discussions with Master's degree holders to understand reasons behind higher leave-taking. Develop targeted well-being or work-life balance initiatives if needed.
2. **Regional HR Strategies (City)**: The significantly higher leave-taking rate in Pune requires immediate attention. There might be localized issues contributing to this, such as work environment, management styles, project pressure, or even external factors unique to that city.
   * **Recommendation**: Investigate the reasons for higher leave-taking in Pune through local HR assessments, employee feedback, and comparison with other cities. Implement localized interventions to improve employee well-being and reduce unscheduled absences.
3. **Compensation and Career Progression (Payment Tier & Experience)**: The lack of correlation between Payment Tier and Experience Years suggests that the compensation structure might not heavily emphasize tenure or directly translate experience into higher pay tiers. This could be a deliberate strategy or an area for review if experience is a desired factor for higher tiers. The high leave rate among Payment Tier 2 employees is a concern.
   * **Recommendation**: Review the compensation and career progression framework to ensure it aligns with organizational goals regarding experience and employee motivation. Investigate specific factors contributing to the higher leave-taking in Payment Tier 2, as this could indicate dissatisfaction or burnout among a critical segment of employees.
4. **Diversity and Inclusion (Gender)**: The imbalance in gender distribution suggests an opportunity for fostering a more diverse workforce. The higher leave-taking rate among female employees might indicate unique challenges or needs that need to be addressed.
   * **Recommendation**: Implement strategies to promote gender diversity in hiring and retention. Conduct exit interviews or surveys to understand reasons for higher leave-taking among female employees and implement supportive policies (e.g., flexible work arrangements, improved maternity/paternity benefits, enhanced childcare support) if required.
5. **Employee Engagement and Workload Management (EverBenched)**: Employees who have been benched show a slightly higher tendency to take leave. This might be linked to feelings of disengagement, uncertainty about their role, or perceived lack of opportunities while on the bench.
   * **Recommendation**: Develop proactive strategies for managing benched employees, including assigning meaningful tasks, providing upskilling opportunities, and ensuring regular communication and engagement to mitigate feelings of stagnation or disengagement.

## **Conclusion**

This comprehensive analysis has revealed important patterns and insights within the employee dataset. By addressing the identified areas related to educational demographics, city-specific trends, the relationship between compensation and experience, gender distribution, and crucial factors influencing leave-taking behavior, the organization can develop targeted HR strategies and interventions. These actions can lead to improved employee satisfaction, better retention rates, and overall organizational effectiveness.