

## HR Analytics



### Project objective:

HR analytics has become increasingly important in modern organizations due to its ability to provide valuable insights into various aspects of human resources management. Analyzing recruitment data helps in identifying the most effective sourcing channels, assessing candidate quality, and improving the recruitment process. Similarly, analyzing turnover data can uncover patterns and factors contributing to employee attrition, allowing organizations to take preventive measures to retain talent.

HR analytics can provide insights into employee performance, identifying top performers, areas for improvement, and factors influencing productivity. This information is valuable for performance evaluations, training programs, and career development initiatives. By analyzing workforce demographics, skills inventory, and performance data, HR analytics helps organizations forecast future workforce needs and plan accordingly. This includes identifying skill gaps, succession planning, and workforce restructuring.

### Data Cleaning and Preprocessing:

- All duplicate datapoints were deleted from the dataset.
- Rows having at least one NULL value were also deleted as it might affect the overall analysis process through imbalance of values in columns.
- Data types of all columns were also verified before applying any measures or calculated columns.

- **Calculated fields**, namely, “age group” and “salary slab” were created from “age” and “monthly-income” column, respectively.
- **Conditional Column** named “attrition logic” was added from “Attrition column” where 1 and 0 in former replaced “yes” and “no” in later column, respectively.

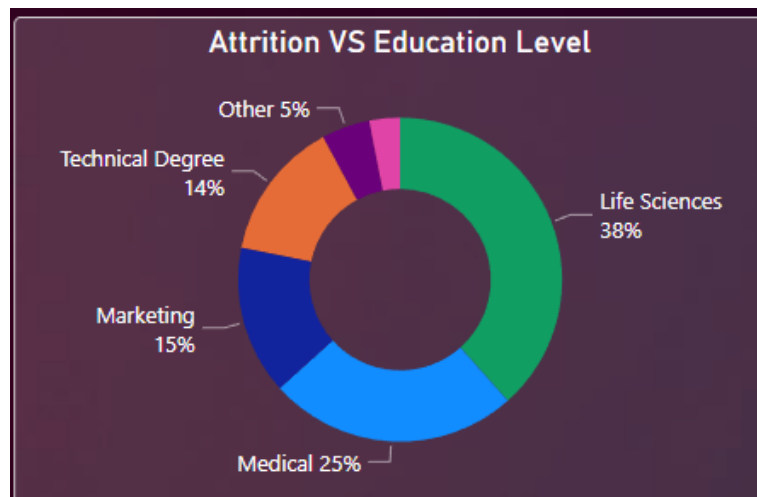
### Problems and Solution Approaches:

#### 1. Attrition VS Education Level:

Employees with higher education levels may feel that their skills and qualifications are not being fully utilized in their current roles. This could lead to dissatisfaction and higher turnover rates as these employees seek positions that better match their educational background and expertise.

Method: Graphing attrition and education level through donut chart.

Resulted Chart:



### Result:

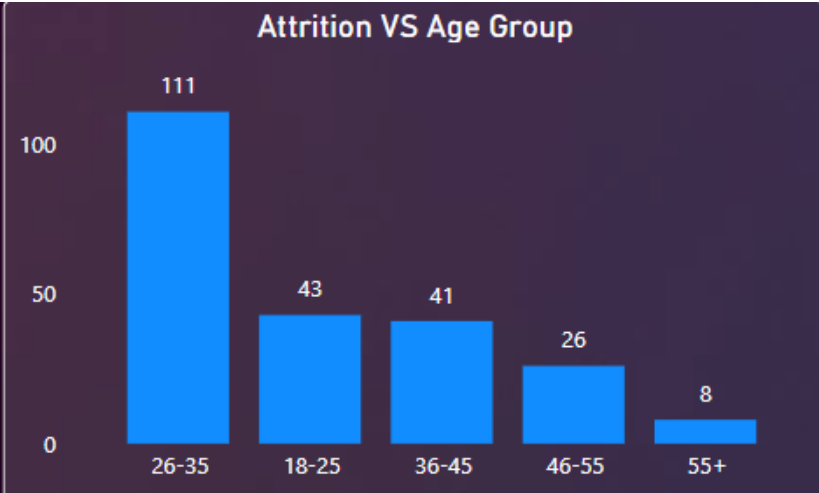
Employees who belong to Life Sciences and medical Streams are more likely to leave the company in future.

#### 2. Attrition VS Age Group:

Attrition rates tend to be higher among younger employees exploring career options and older workers nearing retirement age, while mid-career professionals may leave due to burnout or lack of advancement opportunities. Tailoring retention strategies to address the needs of different age groups can help organizations mitigate turnover and ensure continuity of knowledge and expertise.

**Method:** Visualization of attrition VS Age group through bar plot.

**Resulted Chart:**



**Result:** Employees from the age range 26-35 are more prone to attrite the organization compared to other age group. A possible reason might include their exploratory nature to learn more skills.

**3. Job Satisfaction VS Job Role:**

Job satisfaction can be significantly influenced by job role due to several factors including the level of autonomy, responsibility, task variety, and alignment with individual skills and interests.

**Method:** Create a table which indicates the job dissatisfaction by number of attired employees leaving the organization and their scores given to corresponding position.

**Resulted Table:**

Job Satisfaction VS Job Role					
JobRole	1	2	3	4	Total
Healthcare Representative	2	2	1	4	9
Human Resources	5	2	3	2	12
Laboratory Technician	18	8	21	13	60
Manager	1	2	1	1	5
Manufacturing Director	2	2	3	2	9
Research Director	0	1	1	0	2
Research Scientist	11	10	14	9	44
Sales Executive	16	9	18	12	55
Sales Representative	7	10	9	7	33
Total	62	46	71	50	229

## Result:

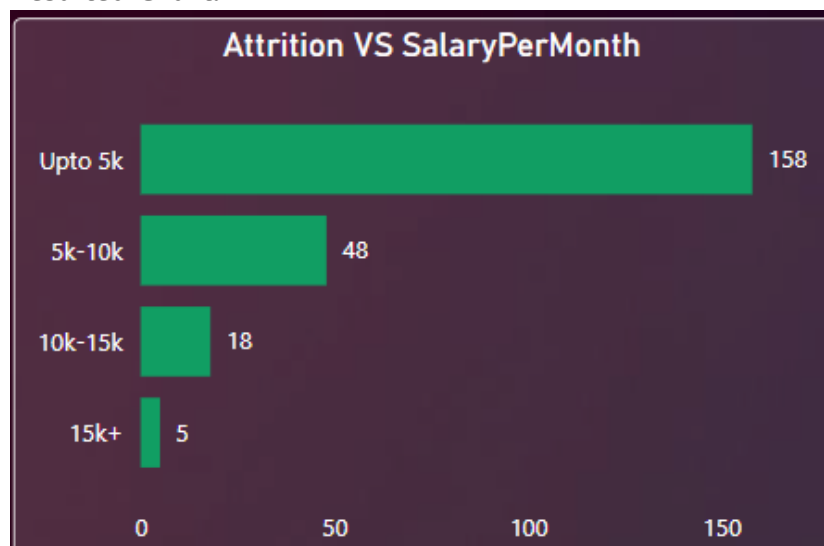
Maximum employee who attritioned from the organization belong to laboratory technician and Sales Executive.

### 4. Attrition VS Monthly Salary

Employees often leave organizations in search of better-paying opportunities. If a company's salaries are not competitive within the industry or region, employees may be more likely to seek employment elsewhere, leading to higher attrition rates.

**Method:** Plotting a bar graph between attrition vs Monthly salary.

#### Resulted Chart:



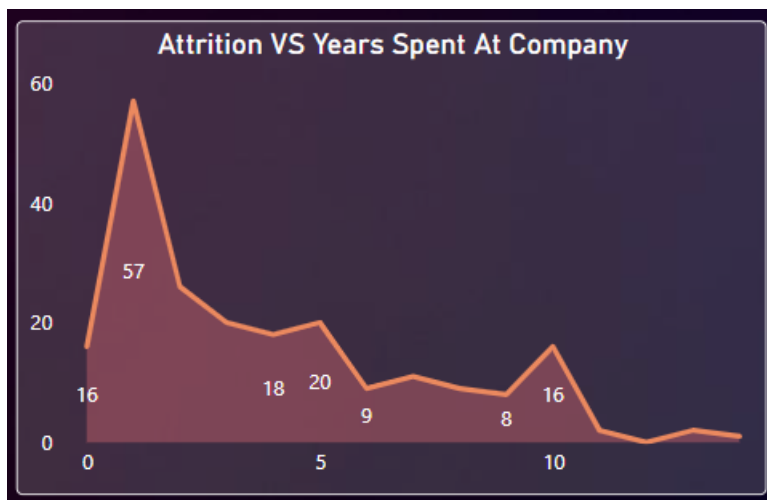
## Result:

Employees whose monthly salary is less than 5k are more prone to quit the company compared to other salary range.

### 5. Attrition Variation By Years Spent By Employees

Employee attrition tends to be higher in the early and mid-career stages due to factors such as job dissatisfaction and limited growth opportunities. Long-term attrition may occur due to retirement or personal reasons, highlighting the importance of implementing retention strategies tailored to different career stages.

### Resulted Chart:



### Result:

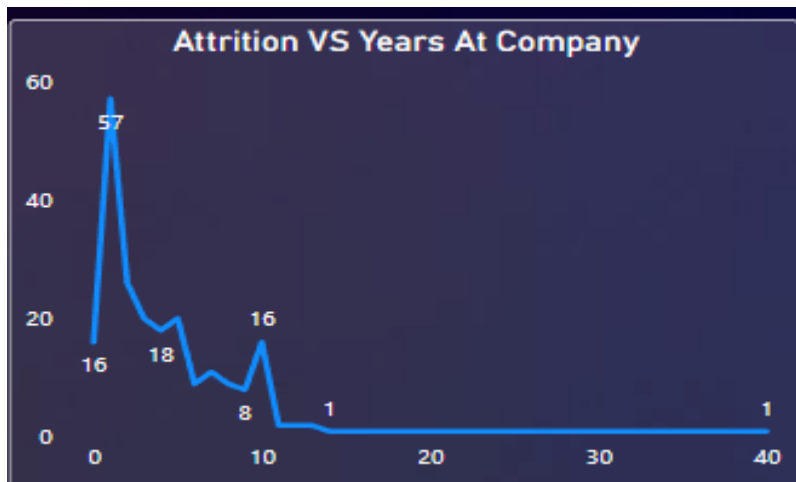
Attrition number was high at first and ten years of time spent at company.

### 6. Number Of Employees Quit In After Joining Job Role

The number of employees quitting can vary significantly across different job roles within an organization, influenced by factors such as job satisfaction, workload, career advancement opportunities, and market demand for specific skills.

**Method:** Bar chart between employee number and job role.

### Resulted Chart:



### Result:

Maximum number of employees leave the organization after spending a year in corresponding job role.

## Future Recommendations to Stake Holders:

1. **Retention Programs:** Implement retention programs specifically targeted at employees who have completed one year in their job roles. This could include mentorship programs, career development opportunities, and regular check-ins to ensure their needs are being met.
2. **Long-Term Engagement Strategies:** Develop strategies to increase engagement and satisfaction among employees who have been with the company for ten years or more. This could involve offering new challenges, opportunities for advancement, or revisiting compensation and benefits packages.
3. **Salary Adjustments:** Conduct a thorough review of salaries, particularly for employees earning less than \$5,000 per month. Ensure that compensation is competitive within the industry to reduce the likelihood of employees leaving for better-paying positions elsewhere.
4. **Focus on Key Roles:** Pay special attention to roles with high attrition rates, such as laboratory technicians and sales executives. Investigate the reasons behind the attrition and implement measures to address any underlying issues, such as workload, career progression, or workplace culture.
5. **Development Opportunities for Mid-Career Employees:** Recognize the propensity for attrition among employees aged 26-35 who may be seeking new challenges and skills development. Provide opportunities for continuous learning, career advancement, and skill enhancement to keep them engaged and motivated.
6. **Retention Strategies for Life Sciences and Medical Streams:** Given the likelihood of attrition among employees in life sciences and medical streams, tailor retention strategies specifically for these departments. This could involve offering specialized training, career paths, or benefits that cater to the unique needs and interests of employees in these fields.

By addressing these areas, stakeholders can proactively mitigate attrition and foster a more stable and engaged workforce for the future.

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