

IBM HR Analytics Employee Attrition & Performance

Prepare by: Sreemathi TS

Executive summary

Objective:

This report analyses employee attrition of a company to identify key factors influencing turnover and suggest actionable recommendations to improve employee retention.

Key Findings:

- The overall attrition rate is **16%**, with the highest turnover in the **Research and development** department.
- Employees in the **< 3k** are more likely to leave.
- **[X%]** of employees who left had **low job satisfaction scores**.
- **Work-life balance issues, overtime, and lack of career growth** are among the leading causes of attrition.

Recommendations:

- Improve work-life balance through **flexible work policies**.
- Implement **competitive salary adjustments** for high-turnover roles.
- Establish **mentorship programs** and career development opportunities.
- Enhance **employee recognition and rewards** programs.

Exploratory Data Analysis (EDA)

Overall Attrition Rate:

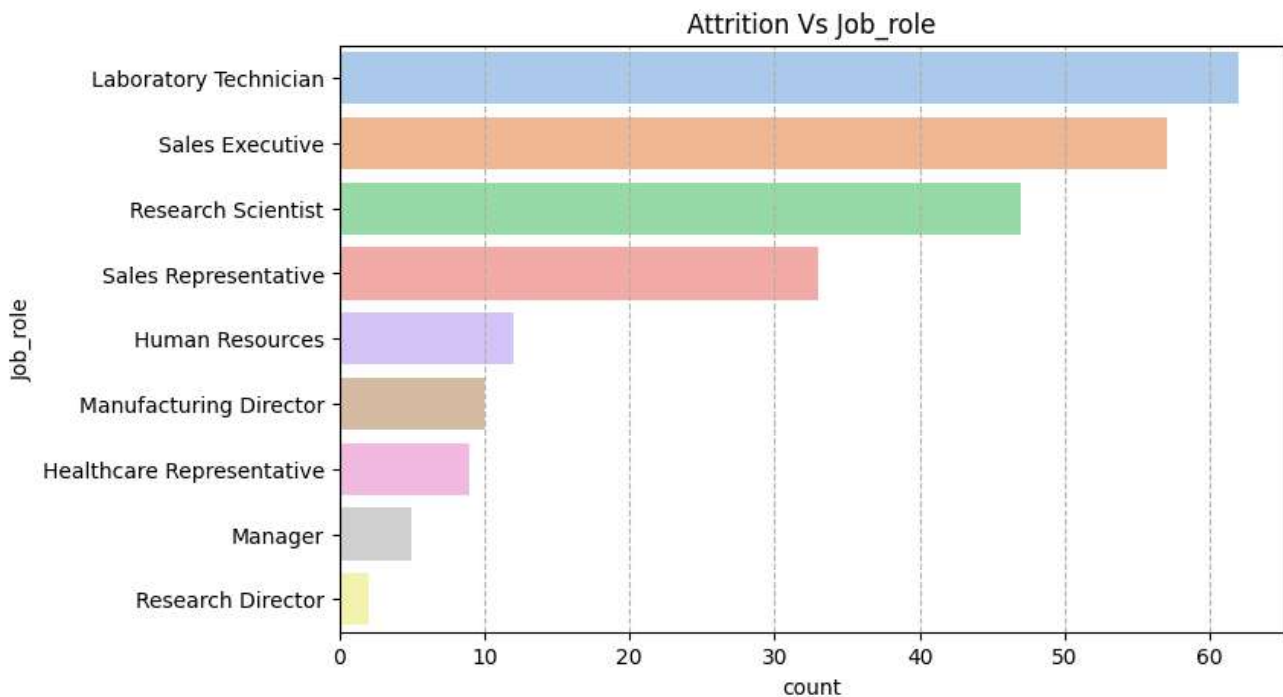
- The company's **total attrition rate is 16%** .
- Total Number of employees **1470**.

Attrition by Department:

Department	Total employee	Attrition Rate (%)
Sales	446	30%
Human Resource	63	4%
Research and development	961	65%

- High attrition rate is in research and development

Attrition Vs Job role:



People working in Laboratory Technician is most likely quit the company followed by sales Executive and Research Scientist their attrition rates are 26%, 24% and 19% respectively.

So, high attrition rate in Laboratory technician job role.

Attrition by Age Group:

Age Group	Attrition count	Attrition Rate (%)
18-20	10	4%
21-30	81	34%
31-40	89	37%
41-50	34	14%
51+	23	10%

- Highest attrition occurs in employees aged **[31-40]**.
- Lowest attrition is observed in employees aged **[18-20 and 50+]**.

Attrition by Salary Range:

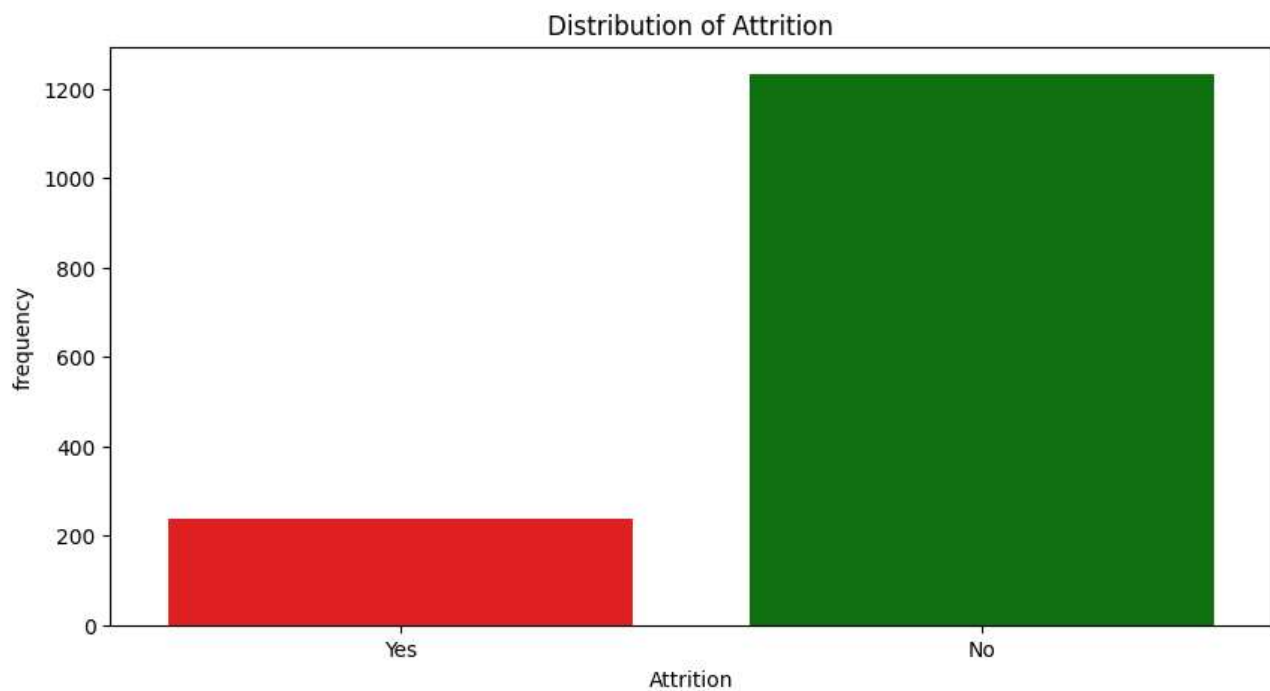
Salary Range	Attrition count	Attrition Rate (%)
<3k	113	48%
3k-6k	66	28%
6k-9k	24	10%
9k-12k	23	9%
12k-15k	6	2.5%
>15k	5	2%

Average Tenure:

The average tenure of employees before they decided to leave was **7.01 years**. With this average tenure, it can be concluded that many employees feel comfortable and have been with the company for a long time.

Data Visualization

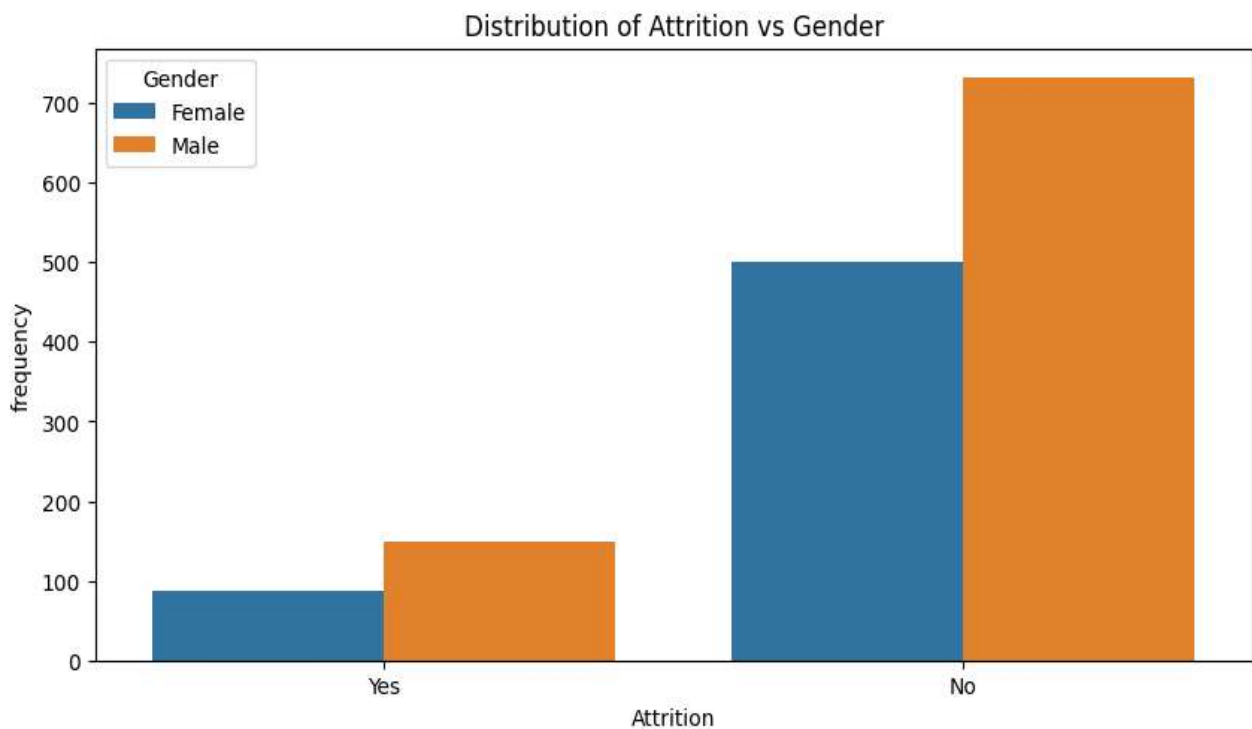
Attrition rate:



- Total employee count **1470**.
- Total number of employees left the company in given period is **237**.
- **Employee Retention Rate: 84%** of employees stays in company.
- **Overall Attrition Rate: 16%** of employees left the company.

The company has a **high retention rate**

Gender Vs Attrition:



- There is total **588** female and **882** male employees.
- Employees who left the company was **87** female and **150** males.
- Employees who stay in company was **501** female and **732** males.

Gender-Based Attrition Rate

- Female Attrition Rate: $(87/588) \times 100 = 14.8\%$
- Male Attrition Rate: $(150/882) \times 100 = 17.0\%$

Therefore, Male employees had a slightly higher attrition rate (17.0%) compared to female employees (14.8%).

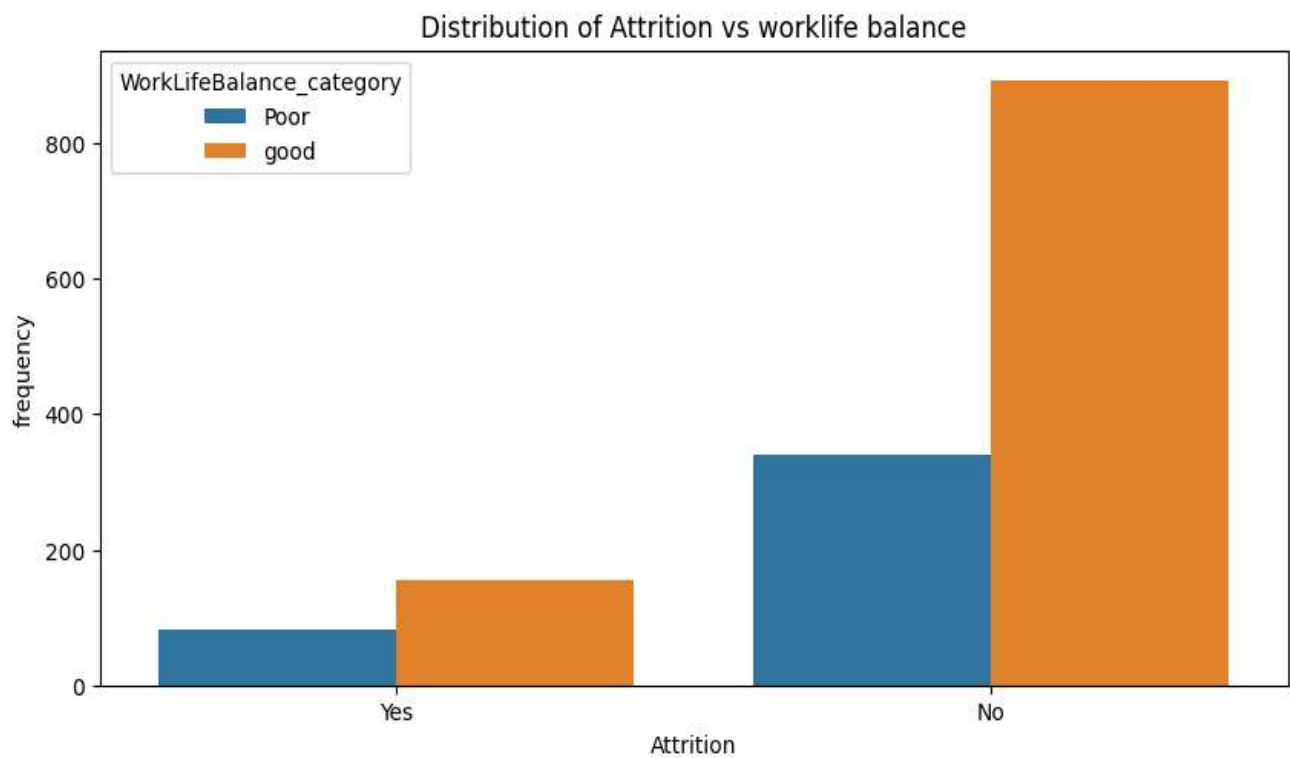
The majority of employees (83.9%) stayed in the company.

Worklife balance Vs Attrition:

This report analyses the relationship between work-life balance and employee attrition, categorizing employees into **Good** (Ratings 3 & 4) and **Poor** (Ratings 1 & 2) work-life balance groups.

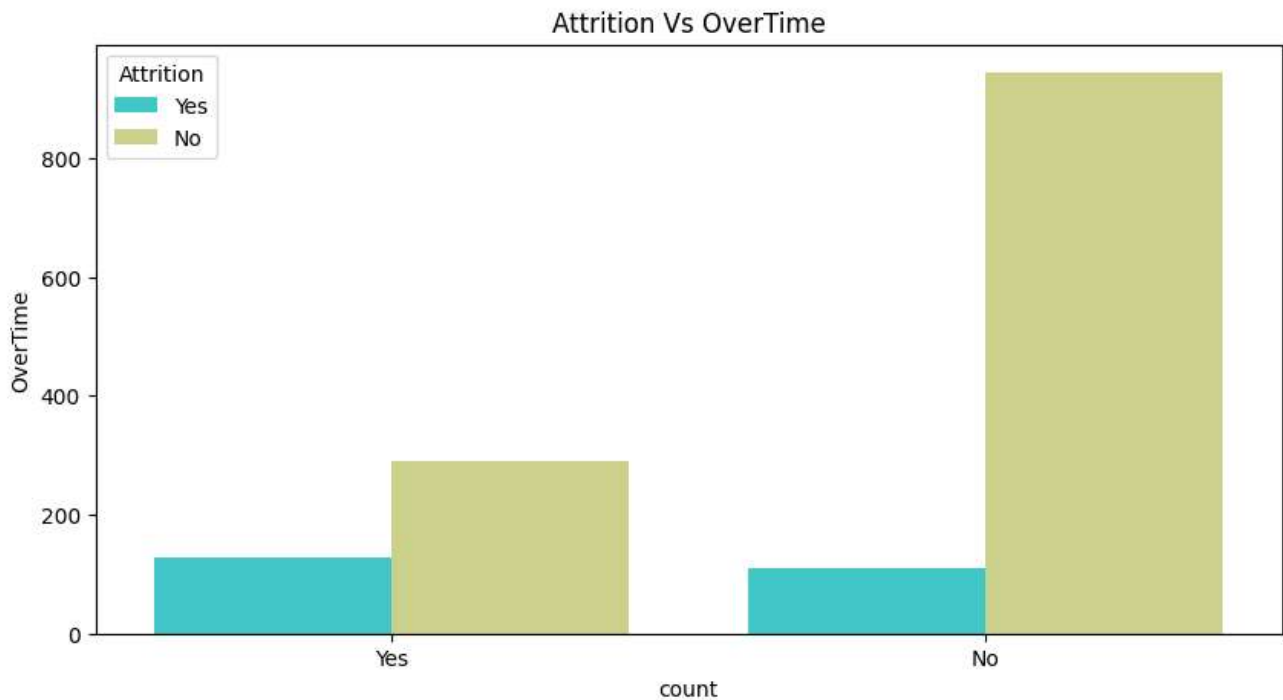
- Employees with **good work-life balance** are also likely to leave.
- A majority of those who stayed (72%) had a **good work-life balance**.

Attrition	WorkLife balance	Percentage
Yes	Good	64%
	Poor	35%
No	Good	72%
	Poor	27%



- Employees with **poor work-life balance ratings** have an attrition rate of **[35%]**.

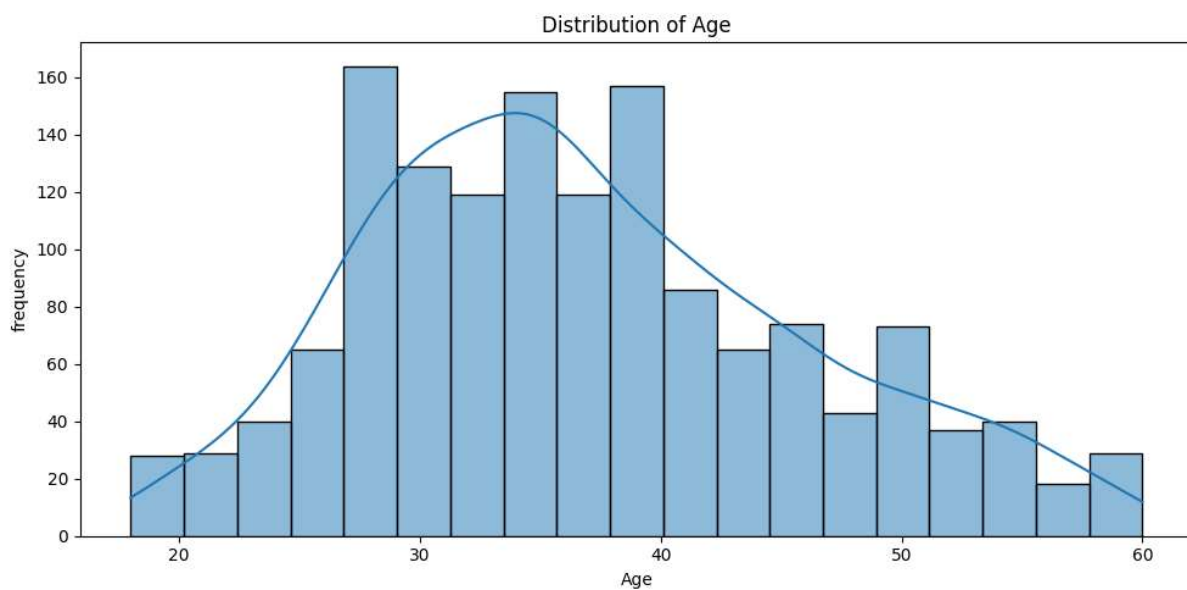
Attrition Vs Overtime:



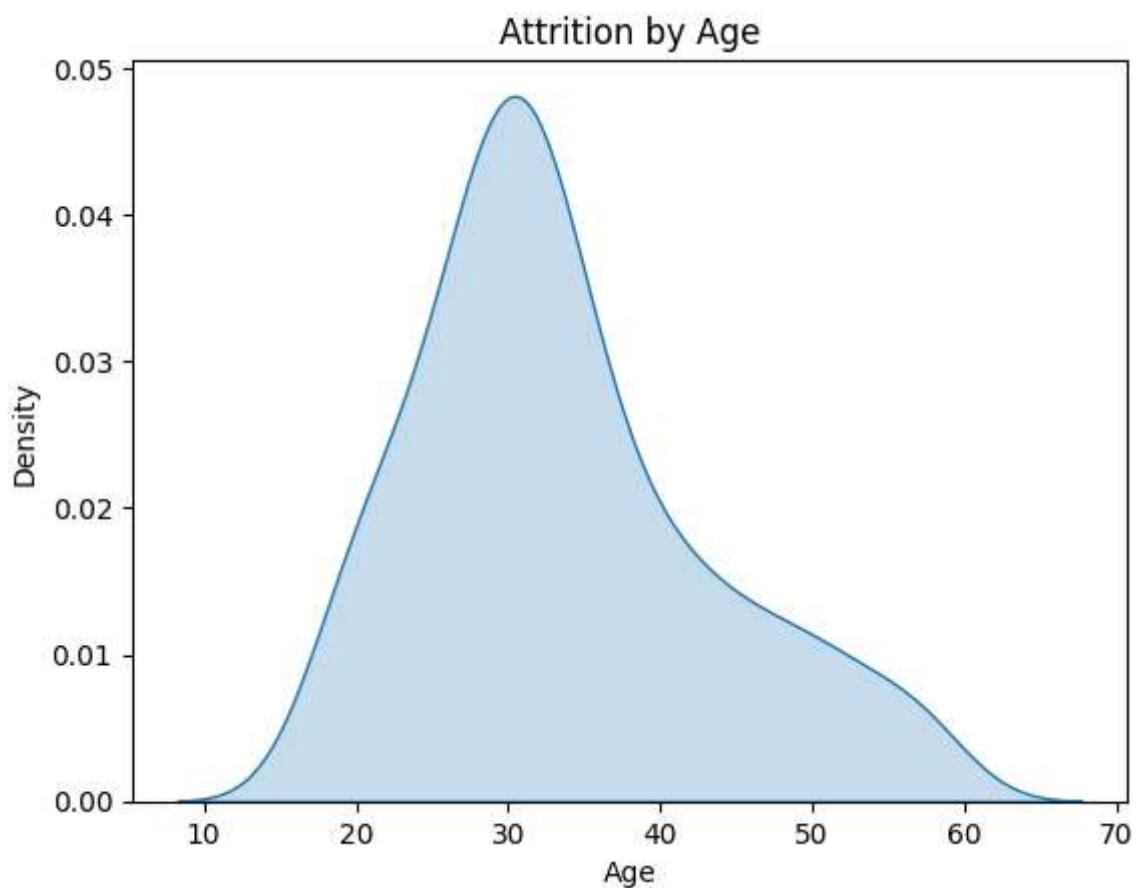
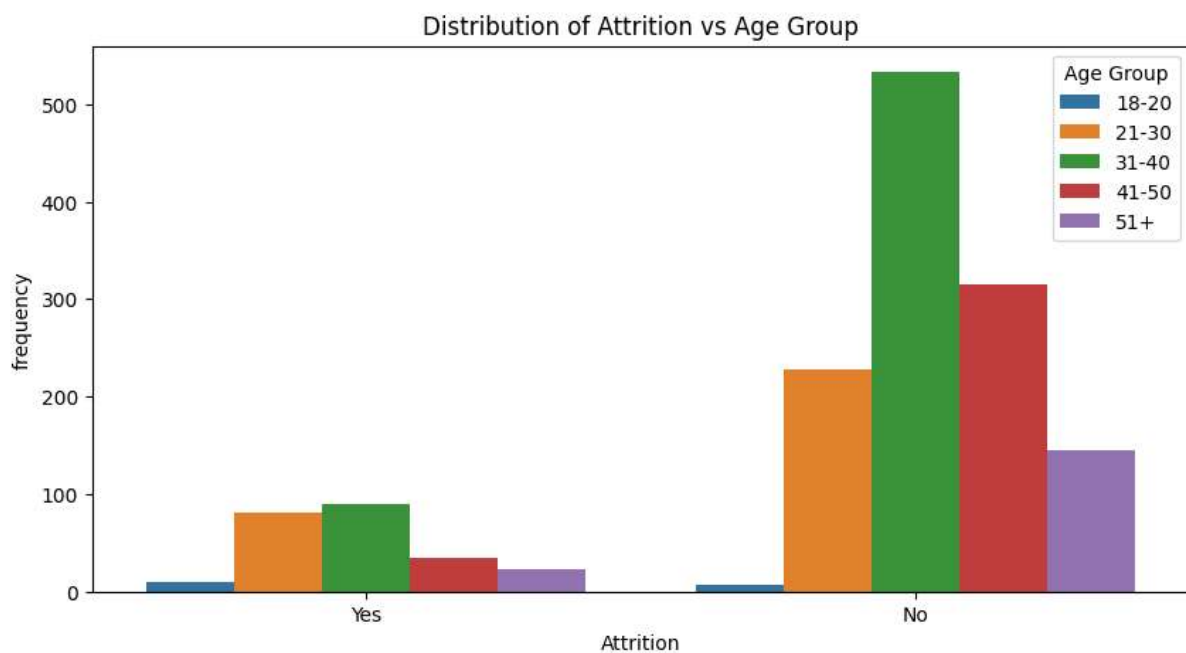
- Employees working **overtime regularly** have an attrition rate of **53%**.
- Employees not working overtime and having attrition rate of **46%**.

Therefore, this indicates that **overtime has a moderate impact** on attrition, but the difference is **not substantial**.

Age Vs Attrition:

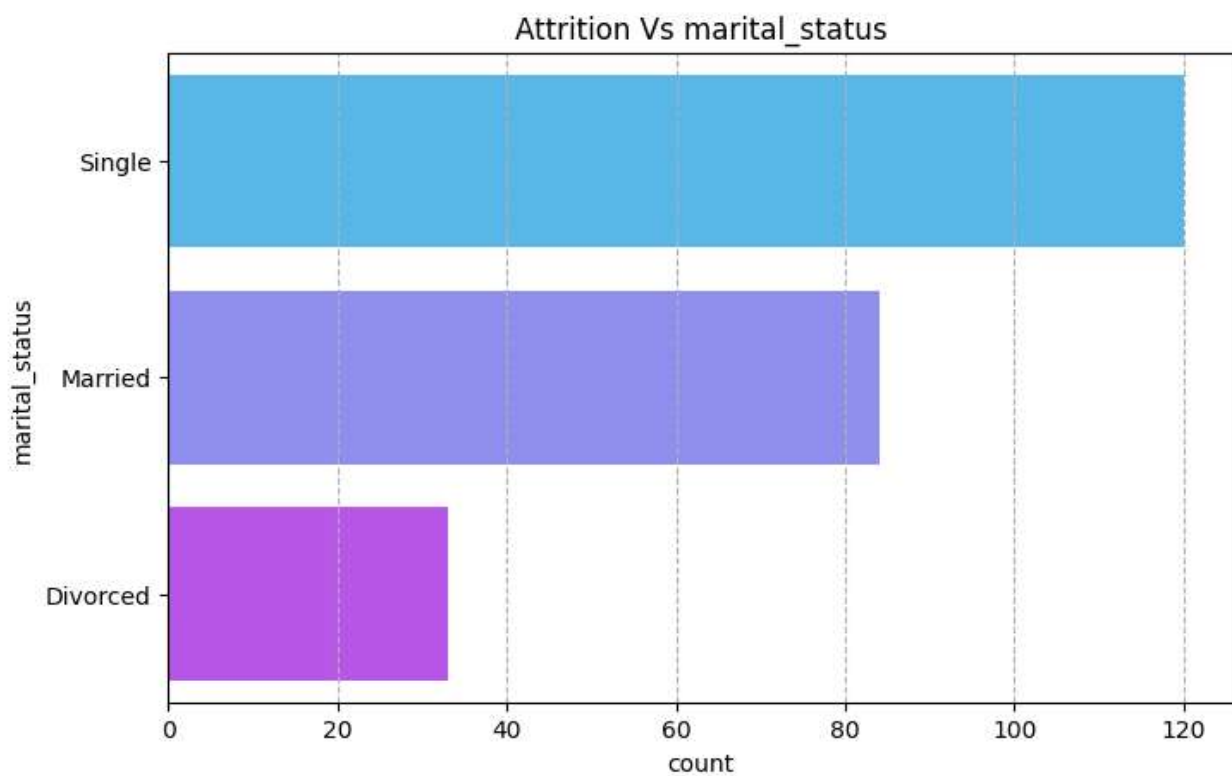
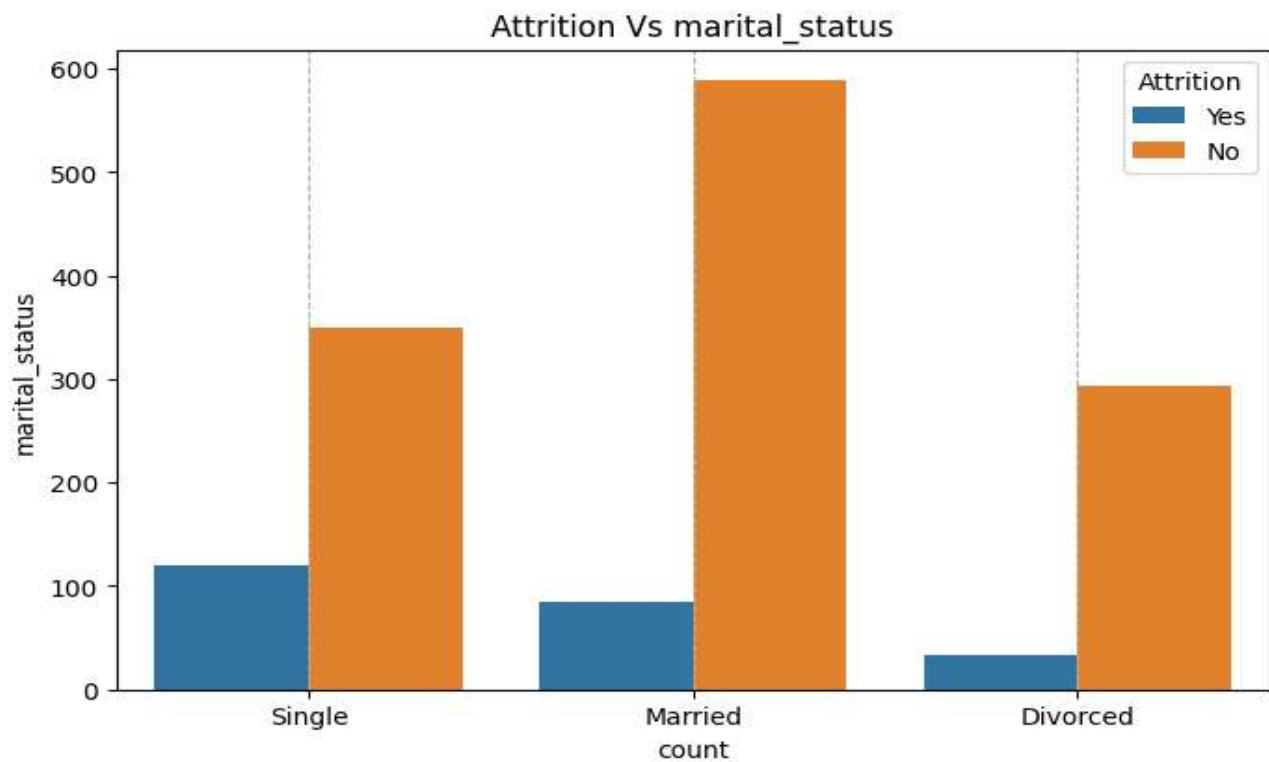


- Median age of employees in the company is 30-40. Minimum age is 18 yrs, and Maximum age is 60 yrs



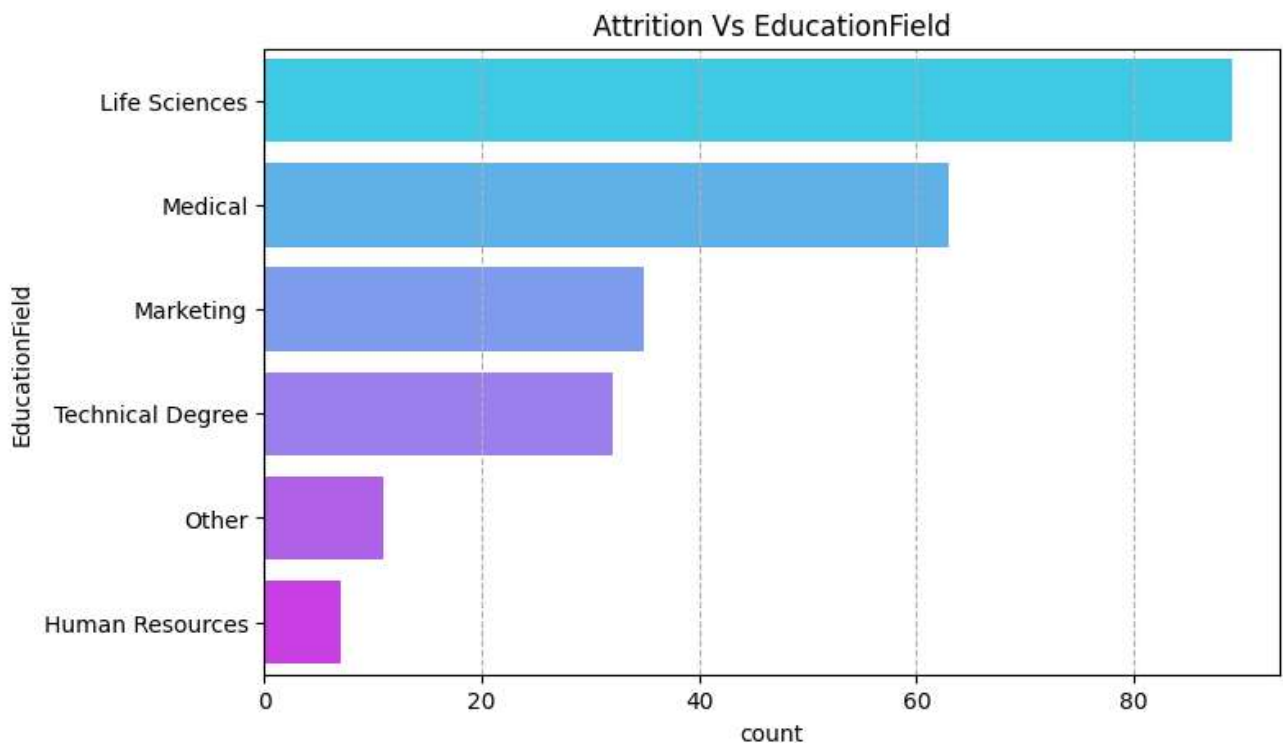
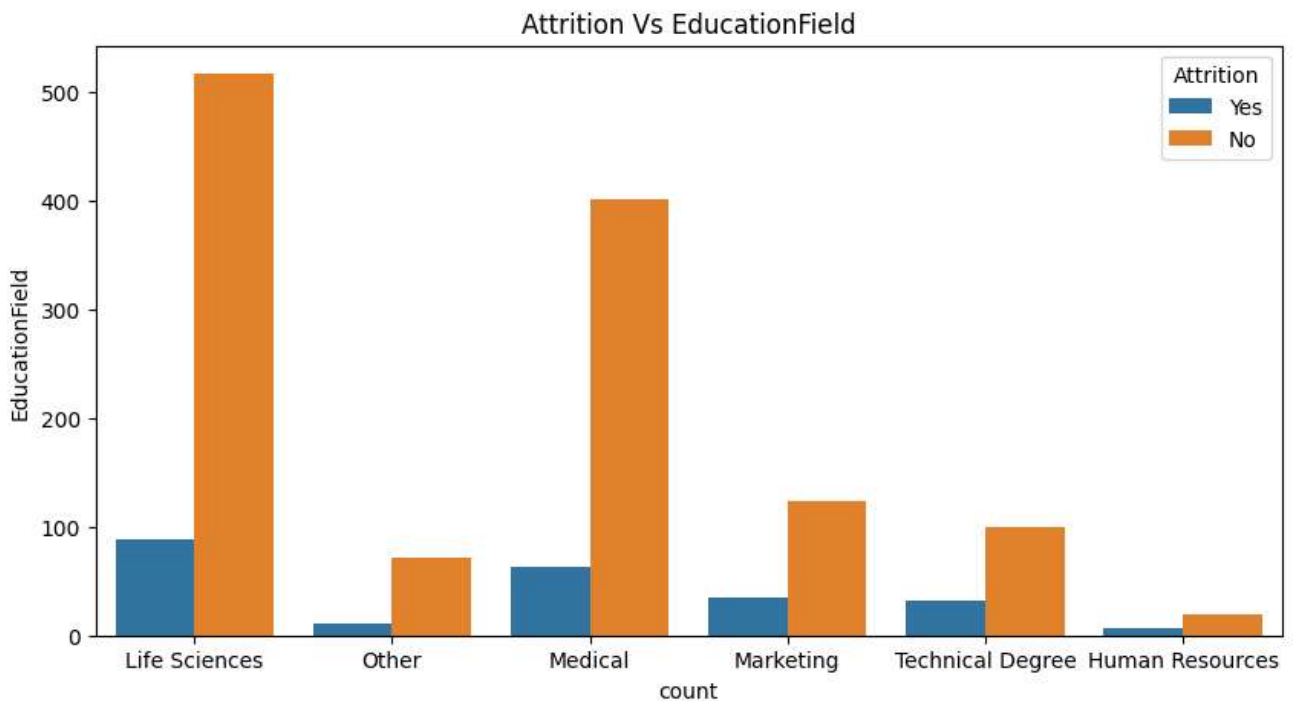
- From the comparison, majority people who **left** the company are in age group of **20 to 40 yrs** and among the people who **doesn't leave** the company are in age group of **30 to 40 yr**.

Attrition Vs Marital status:



From the plot, it is understood that irrespective of the marital status, there are large people who stay with the company and do not leave. Therefore, marital status is a weak predictor of attrition

Attrition Vs Education field:



- **Life Sciences** has the **37%** attrition.

- **Marketing, Technical Degree, and Human Resources** have moderate employee counts with visible attrition percentage of **26%, 14%, 13%**

The attrition analysis shows that the number of employees who **remain** with the company is significantly **higher** than those who have left.