

# HUMAN RESOURCES ANALYTICS



**DATA ANALYSIS AND VISUALIZATION**

**PROJECT REPORT**

*BY*

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# AGENDA

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# 1. Introduction

The Human Resources (HR) department plays a crucial role in managing the organization's human capital. It is responsible for various functions related to employees and their well-being. Here is a brief description of HR and some of the data it typically manages for the future success of the company!

The HR department is tasked with overseeing personnel management, ensuring compliance with employment laws, and fostering a positive work environment. It acts as a bridge between employees and the organization, handling recruitment, employee relations, training and development, compensation, benefits administration, and overall workforce planning.

In the dynamic landscape of human resources, a company aims to leverage HR analytics to gain insights into its workforce, particularly focusing on employee attrition and various factors contributing to job satisfaction. The dataset at hand encompasses details about employees, their roles, demographics, and the critical aspect of attrition. The HR team seeks to understand patterns and develop strategies to enhance employee satisfaction and retention.

Within the organizational landscape, our narrative centres on the meticulous examination of attrition rates, discerning patterns embedded within diverse departments, assessing employee contentment relative to job roles, and measuring the nuanced influence wielded by demographic factors such as age and gender. Employing sophisticated visualizations, our adept team endeavours to construct a comprehensive panorama of the workforce, affording stakeholders the acumen to make judicious decisions pertaining to talent management and initiatives geared towards employee engagement.

The primary objective of this narrative is to underscore the pivotal role of data-driven Human Resources practices in the cultivation of a positive work environment. Through the discerning lens of insightful visual representations, we seek to equip stakeholders with a nuanced understanding of the intricate dynamics at play within our organizational framework. This undertaking is positioned as a cornerstone in fostering an environment where informed decision-making serves as the linchpin for a workplace culture characterized by resilience, satisfaction, and sustained productivity.

The HR (Human Resources) department faces several challenges in today's dynamic job market. Here are some of the top challenges:

- **Talent Acquisition and Retention:**
  - Attracting and retaining top talent is a significant challenge, especially in competitive industries.
  - Developing effective recruitment strategies to identify and attract skilled professionals.
- **Diversity and Inclusion:**
  - Fostering a diverse and inclusive workplace is a priority, but it comes with challenges in creating an environment where all employees feel valued and included.
- **Remote Work Management:**
  - The rise of remote work presents challenges in managing remote teams, ensuring productivity, and maintaining a positive company culture.

## 2. Data Overview

The Data source has been collected from:

<https://data.world/devdataanalyst/human-resource-evaluation>

The data is focused on the various factors in a specific company regarding the various data that can be a reason for the company's Attrition rate in a csv format.

The data contains 39 rows of different data namely :

- Attrition
- Business Travel
- CF\_age band
- CF\_attrition label
- Department
- Education Field
- Emp No
- Employee Number
- Gender
- Job Role
- Marital Status
- Over Time
- Over18
- Training Times Last Year
- Age
- CF\_current Employee
- Daily Rate
- Distance From Home
- Education
- Employee Count

- Environment Satisfaction
- Hourly Rate
- Job Involvement
- Job Level
- Job Satisfaction
- Monthly Income
- Monthly Rate
- Num Companies Worked
- Percent Salary Hike
- Performance Rating
- Relationship Satisfaction
- Standard Hours
- Stock Option Level
- Total Working Years
- Work Life Balance
- Years At Company
- Years In Current Role
- Years Since Last Promotion
- Years With Current Manager

Out of all these columns we are focusing mainly on

1. Attrition
2. Gender
3. Department
4. Employee Count
5. Age Groups
6. Education Background

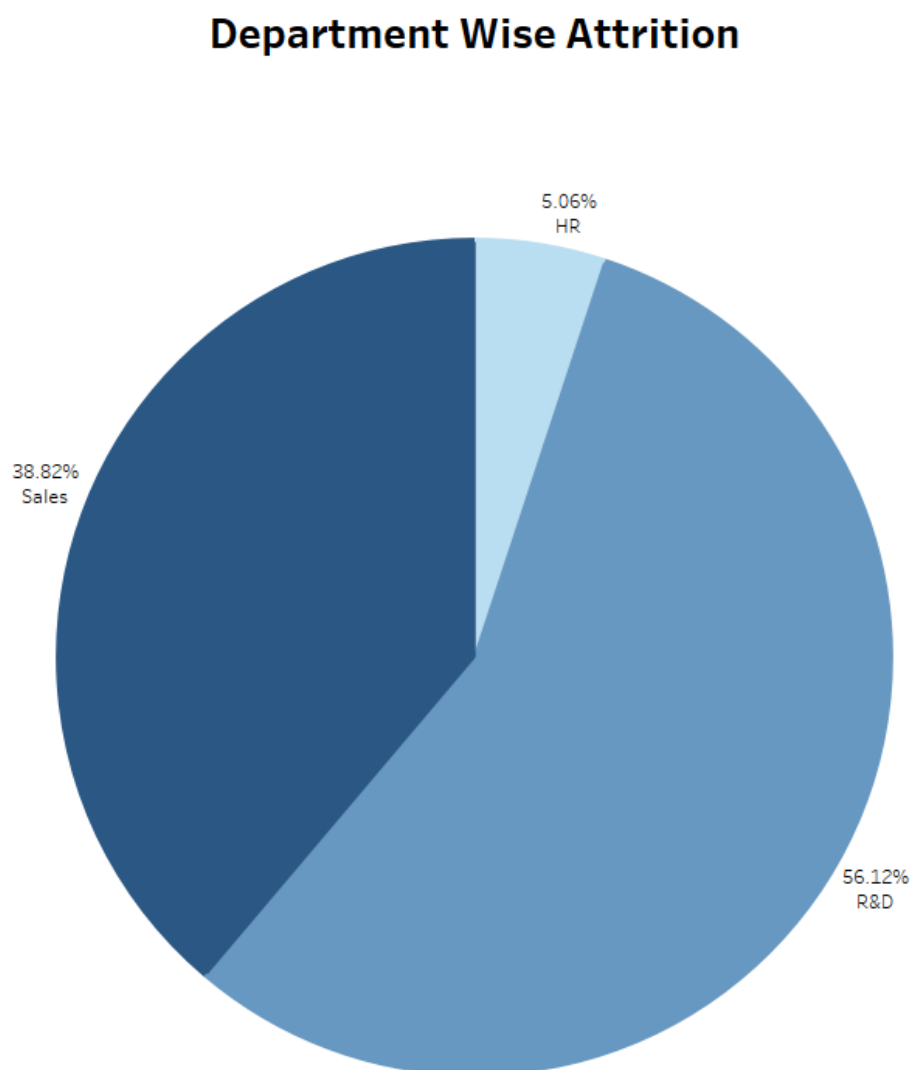
### 3. Visualizations

#### 1. Department Wise Attrition:

The gradual reduction in the number of employees within an organization over time, typically due to natural reasons such as resignations, retirements, or the completion of temporary contracts

In the following visualization we have taken the Pie Chart to show the Department wise Attrition of the Dataset that we have taken

Visual 1:

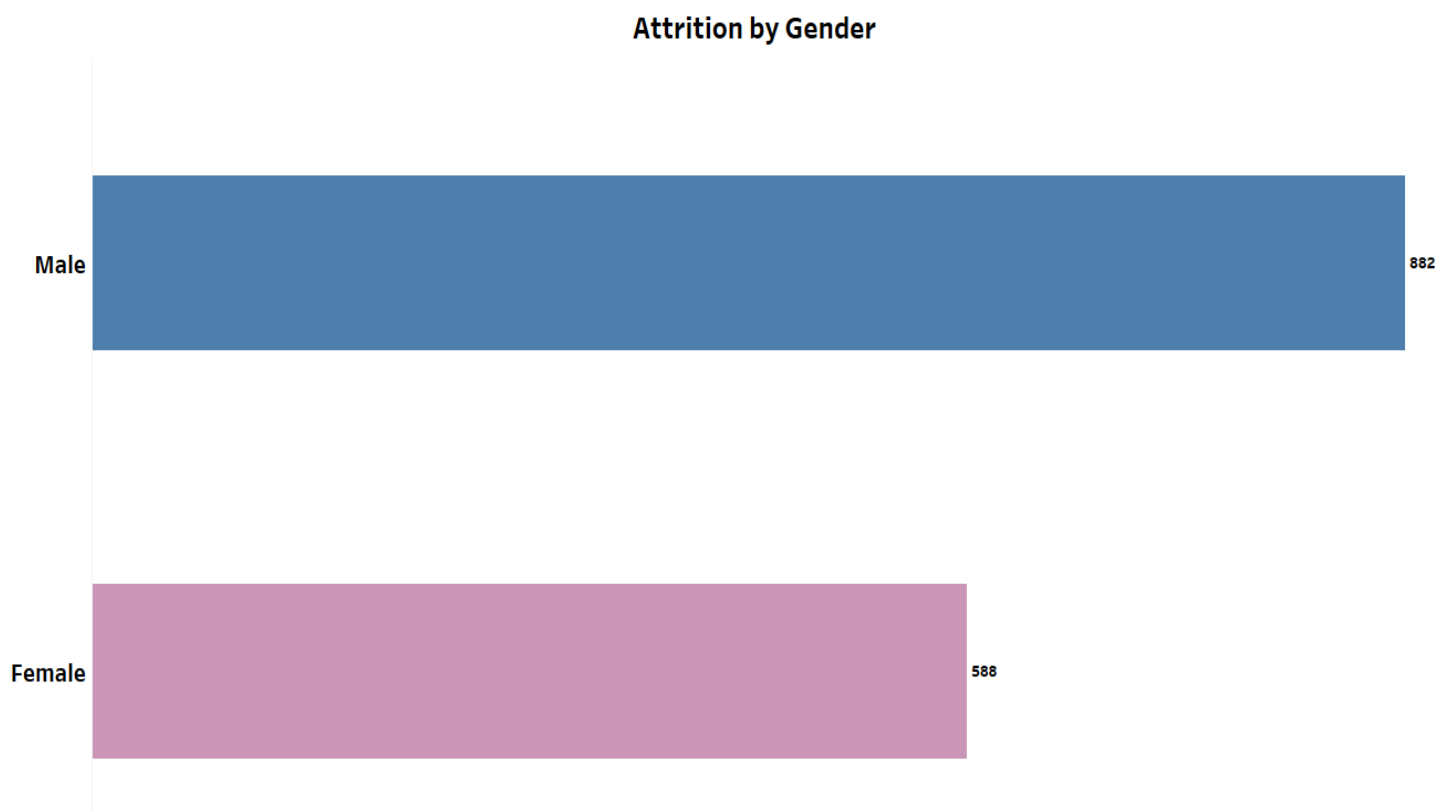


- We have taken 3 Departments namely HR, Sales and R&D which shows the Top 3 Attrition Rates by Department in the Company
- We can see that R&D Department has the Highest Rate of Attrition with 56.12% followed by Sales with 38.82% and HR with 5.06%
- It's a surprising insight that the Department responsible for People Management has the 3<sup>rd</sup> Highest Rate of Attrition according to our dataset.
- R&D Takes more than Half of the Attrition in the company.

## 2. Attrition by Gender :

The Attrition rate of Gender in which we have considered 2 genders namely Men and Women.

Visual 2:





- In the above visual we can see that the Attrition count of Male Employees is considerably higher than that of Female Employees
- Attrition Count of Male Employees is 882
- Attrition Count of Female Employees is 588
- Various Factors effect the Attrition rates in two genders namely:
  - Research often explores whether there is a correlation between gender wage gaps and attrition rates. Disparities in pay may contribute to higher turnover among one gender.
  - Studies may investigate the relationship between family-friendly policies, maternity leave, and attrition rates among female employees.
  - Some research examines how work-life balance factors differently for men and women, affecting their decisions to stay or leave an organization.

### **3. Number of Employees by Age Group:**

While researching about the Attrition we wanted to find about the Age groups which are present in the company which may be linked to the Attrition Rates

Employee Career can be categorized into different stages:

#### **1. Early Career (18-25):**

- Younger employees, especially those in entry-level positions, may experience higher attrition rates as they explore career options and seek roles that align better with their interests and skills.

#### **2. Mid-Career (26-40):**

- Attrition rates might stabilize as employees establish their careers. However, mid-career professionals may still seek new opportunities for career growth, skill development, or improved work-life balance.

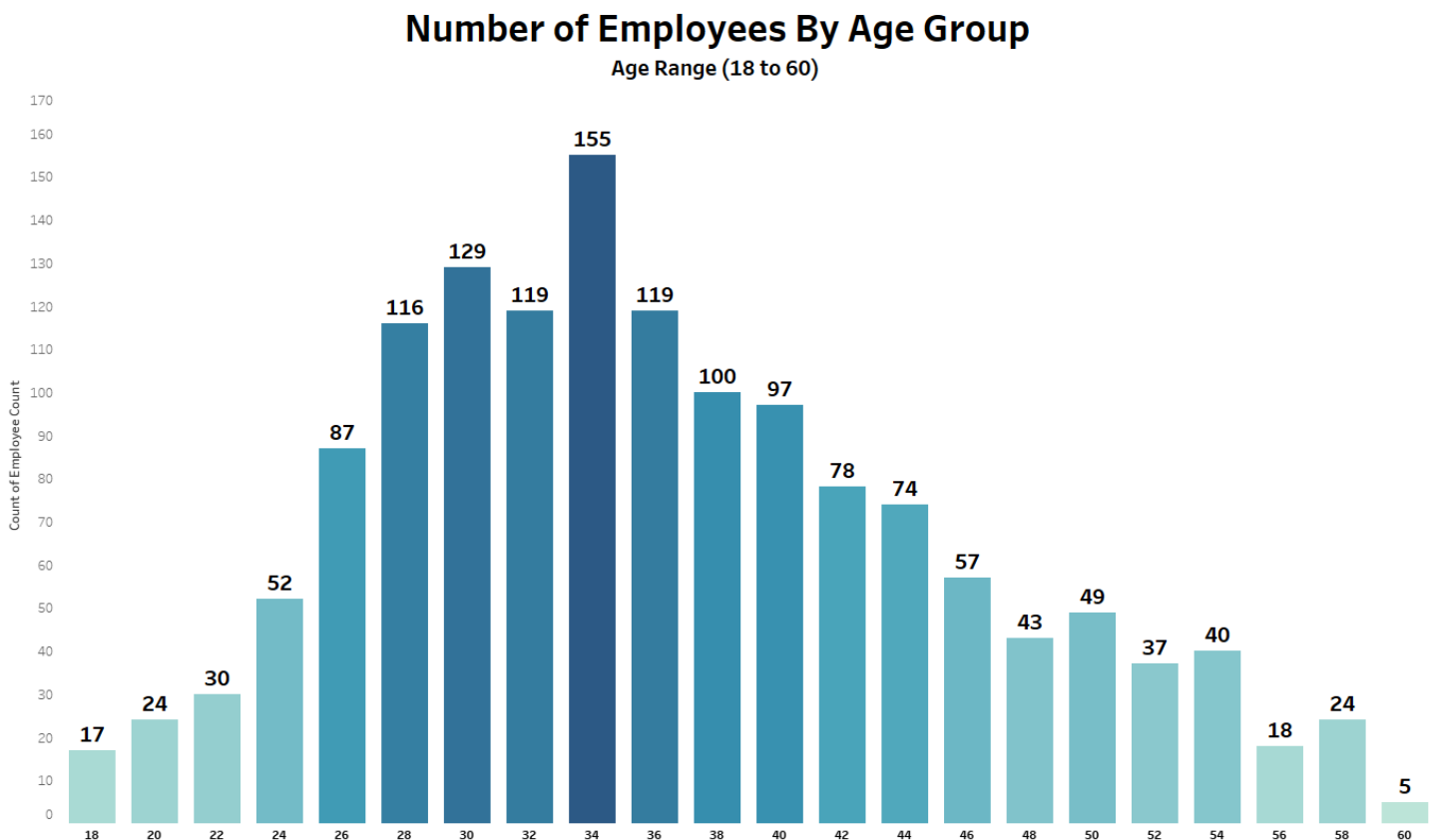
#### **3. Late Career (41-55):**

- Attrition rates in this age group may increase due to factors such as retirement, health-related decisions, or a desire for a more flexible work schedule.

#### 4. Pre-Retirement (56 and above):

- Attrition rates may rise as employees approach retirement age. Many individuals in this age group may choose to retire or reduce their working hours.

Visual 3:



- In the visual we can see that the company has employees from almost all eligible age groups
- We can infer from the Graph that in the Age 34 has the Highest Number of Employees
- We can also see that the Age 60 has the least number of Employees.
- We can suggest that the Company hires young people which may lead to High Attrition rates as younger people tend to move more across Companies for Various Factors.

## 4. Job Satisfaction:

Another factor that contributes heavily to Attrition Rates is the Job Satisfaction

Visual 4:

Job Role	JOB SATISFACTION				Grand Total
	1	2	3	4	
Healthcare Representative	18	10	26	26	80
Human Resources	8	11	8	9	36
Laboratory Technician	35	30	55	54	174
Manager	11	10	15	19	55
Manufacturing Director	9	19	25	20	73
Research Director	7	9	18	13	47
Research Scientist	32	27	52	67	178
Sales Executive	40	35	49	70	194
Sales Representative	10	11	13	11	45
Grand Total	170	162	261	289	882

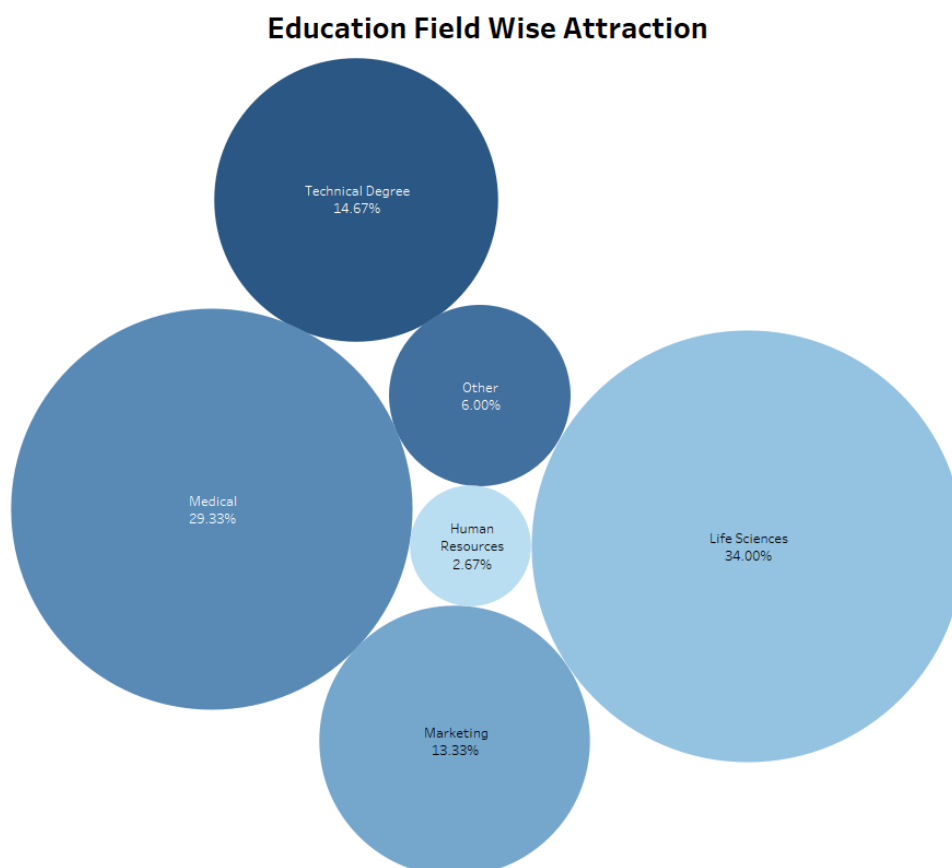
- The above Visual show the Department Wise Job Satisfaction Level in the Company
- We see that Sales Department People are the most Satisfied with 70 Employees voting for 4 in Job Satisfaction followed by Research Scientist (67) and Laboratory Technician (54).
- Also, on the Flip Side we see that Human Resources has the lowest level of Job Satisfaction with only 9 people voting for 4 in Job Satisfaction with Sales Representative (11) and Research Director (13)

- This visual gives us so many information regarding the Job Satisfaction which is one of the most important reason for Attrition.

## 5. Education Field Wise Attrition.

Looking above Attrition, we look at the Attrition rates regarding their Education Backgrounds

Visual 5:

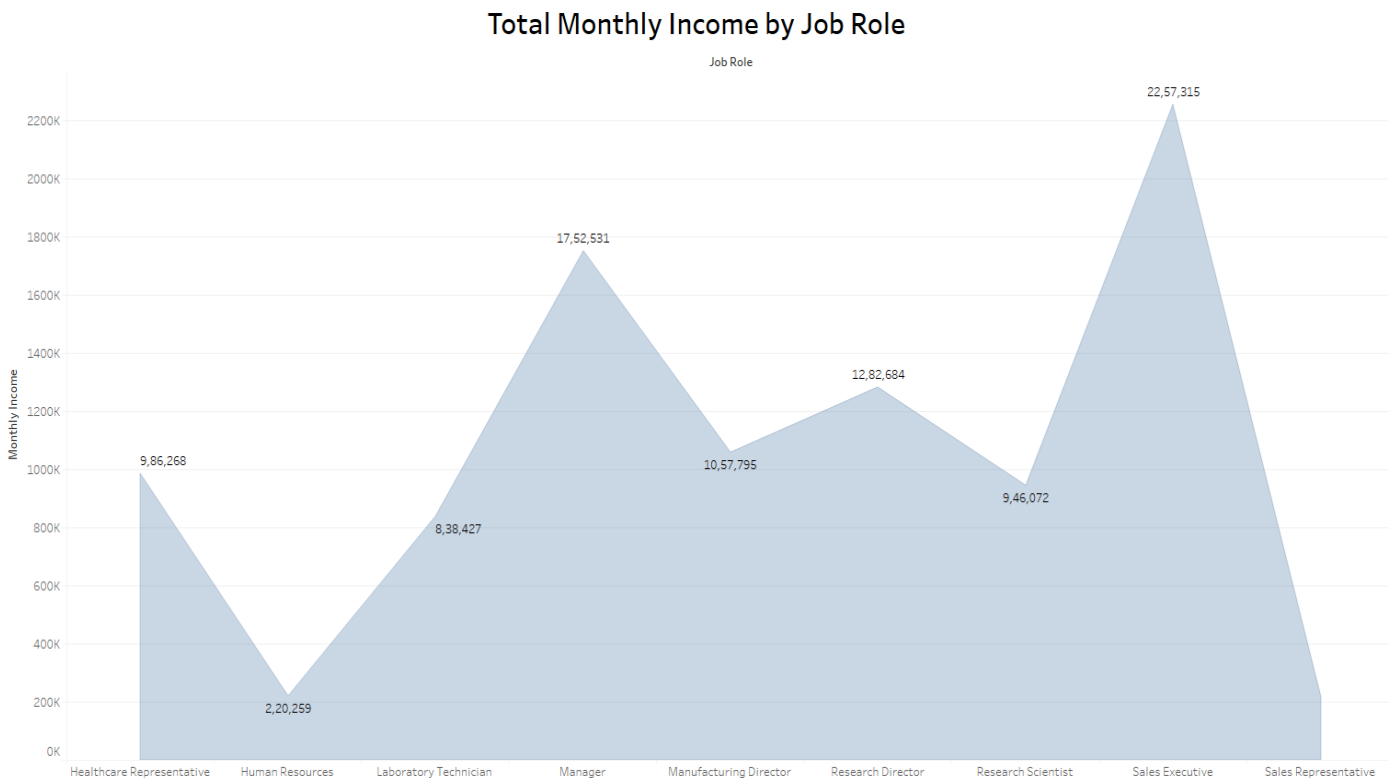


- We can see that People who have an Education Background with Life Sciences has the highest percentage of Attrition with 34%
- Life Sciences is followed by Medical Background 29.33%.
- People with Technical Degree takes the third position with 14.67%

## 6. Total Monthly Income by Job Role

Another important factor which affects the Attrition rates is Monthly Income which is the Top 3 Factors for Job Satisfaction within Employees.

Visual 6:



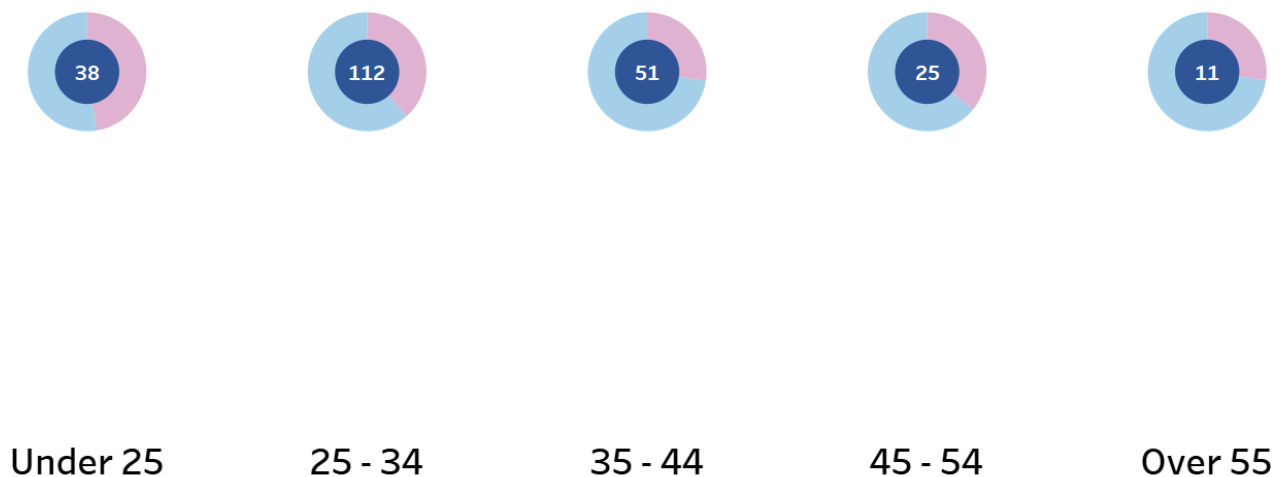
- The Sales Executives takes the most Monthly Income compared to any other Employee with any Job role.
- Sales Executive takes a sum of 225k from the Company which may Include Incentives and commissions.
- Managerial Roles demand a lot of work and hence take the second position of the most well paid with 175k .
- Research Directors takes the third Position with employees taking a sum of 128k from the company.

## 7. Attrition Rate by Gender for Different Age groups

Digging into the Attrition rate by Gender for Different Age groups we found the following insights.

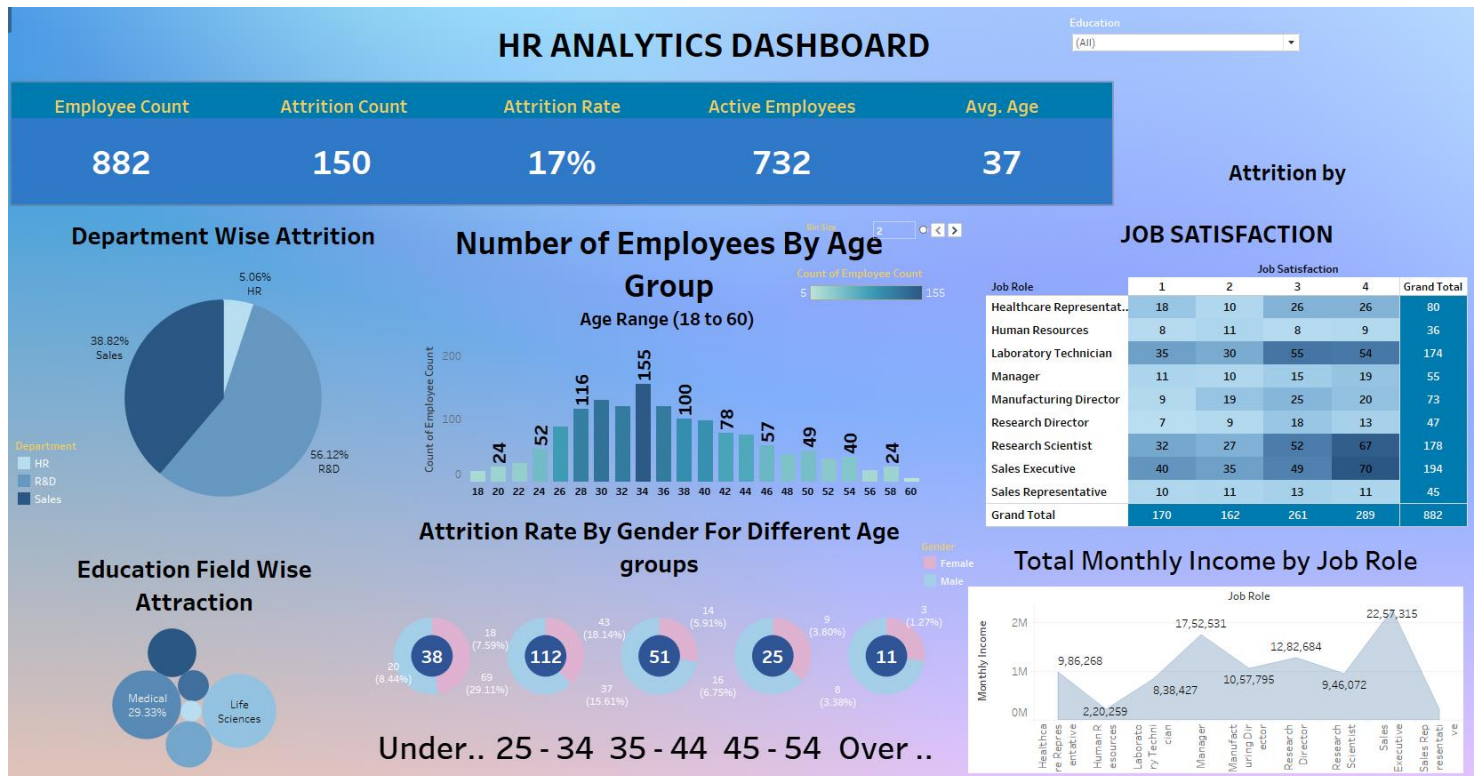
Visual 7:

Attrition Rate By Gender For Different Age groups



- We can see that the Age group 25-34 the Attrition is highest which is expected with various factors coming into picture.
- Following is the 35-44 Age group which looks for Stability within a job and may try to search for better companies to work.
- As people age the levels come down as we can see.

# 4. Insights



- All the visuals we have used can be summed in the Interactive Dashboard with all the data that we can see above.
- By Conclusion we can say that the following Company is a Medical Company which focuses on Research and Sales for their Earnings.
- R&D Department has the Highest Rate of Attrition with 56.12% followed by Sales with 38.82% and HR with 5.06%
- Attrition Count of Male Employees is higher than female with Male Employees having 882 in Attrition Count and Female Employees having 588.
- Age 34 has the Highest Number of Employees and Age 60 has the least number of Employees.
- Sales Department People are the most Satisfied with 70 Employees voting for 4 in Job Satisfaction followed by Research Scientist (67) and Laboratory Technician (54).

- Human Resources has the lowest level of Job Satisfaction with only 9 people voting for 4 in Job Satisfaction with Sales Representative (11) and Research Director (13)
- Education Background with Life Sciences has the highest percentage of Attrition with 34%
- Life Sciences is followed by Medical Background 29.33%.
- People with Technical Degree takes the third position with 14.67%
- Sales Executives takes the most Monthly Income compared to any other Employee with any Job role.
- Age group 25-34 the Attrition is highest which is expected.

Thank You !