Internship Report on

“ Data Analysis “

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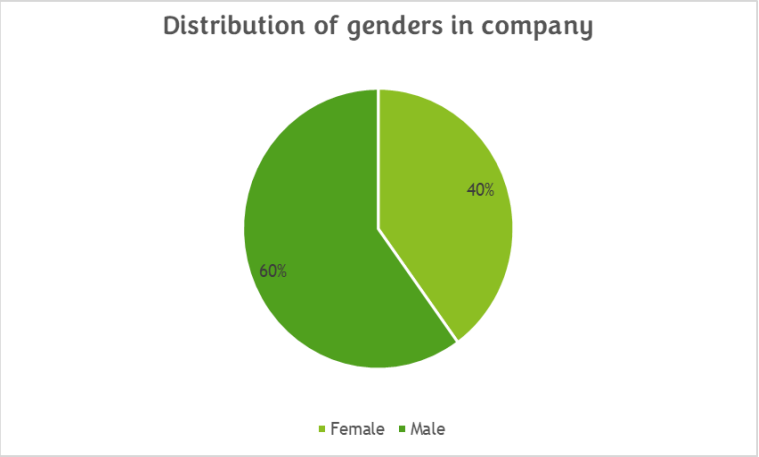

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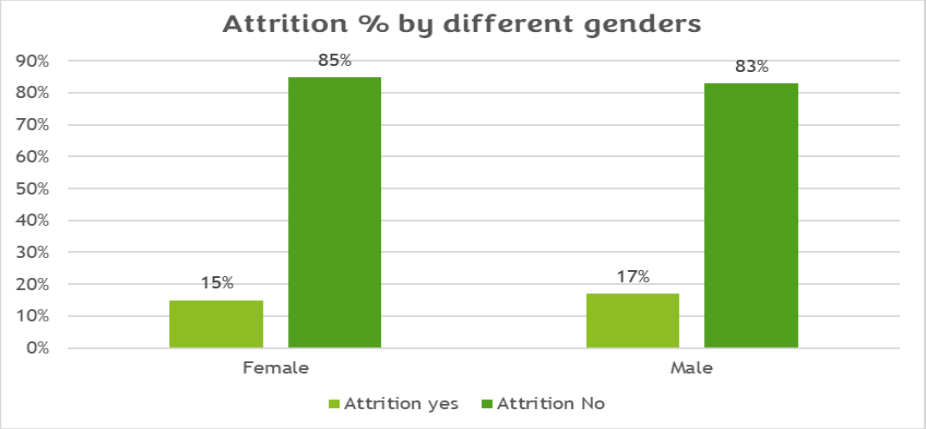

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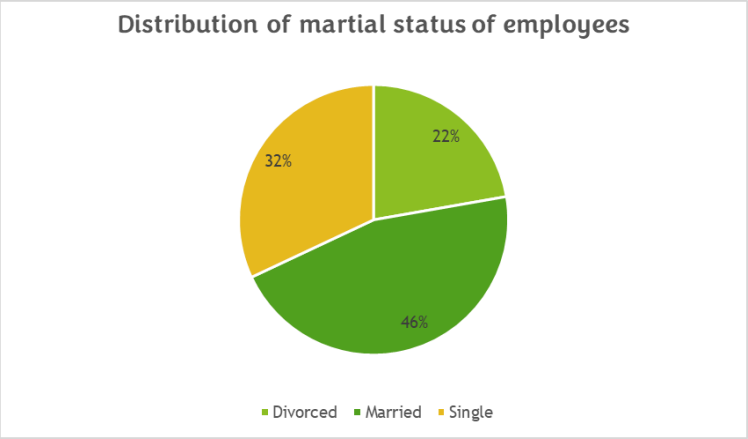

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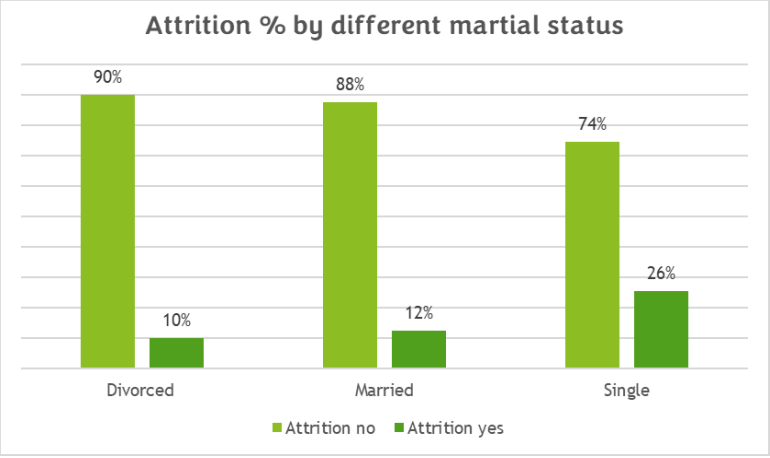

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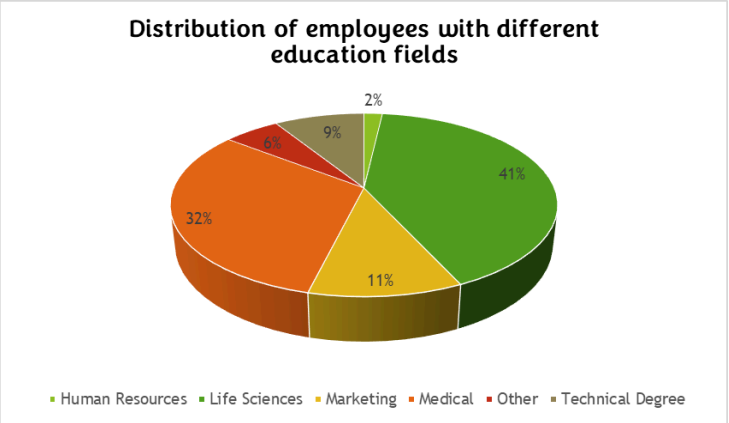

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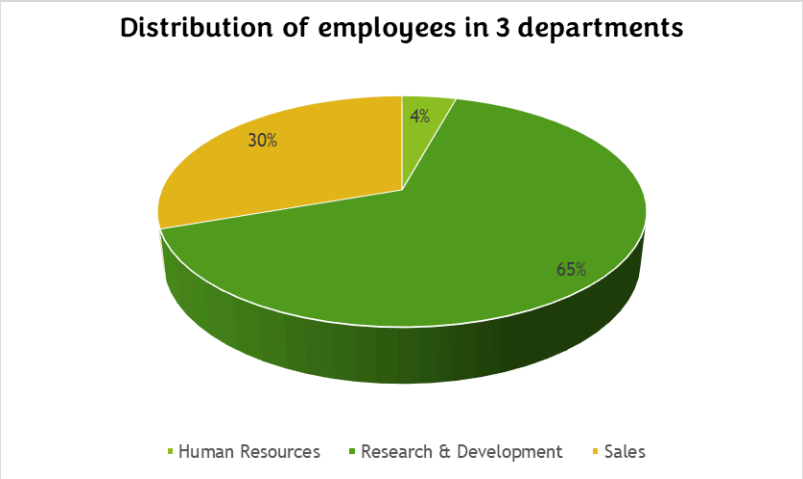

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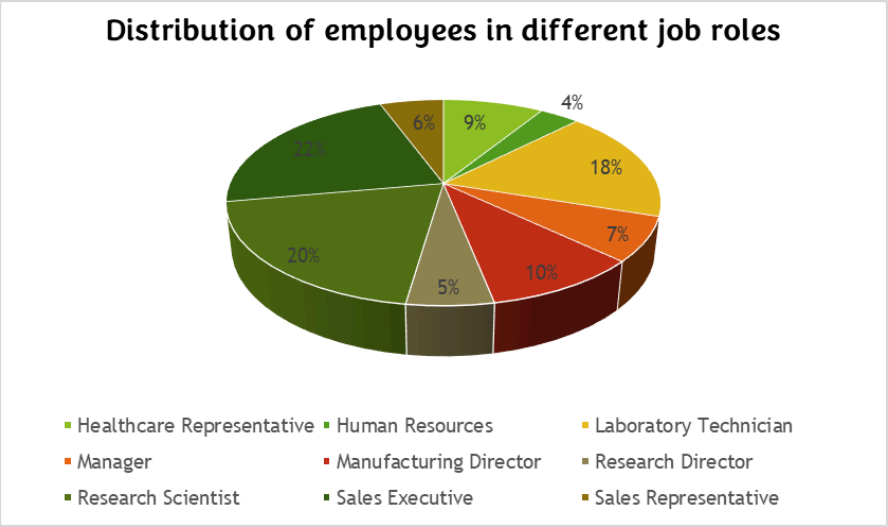

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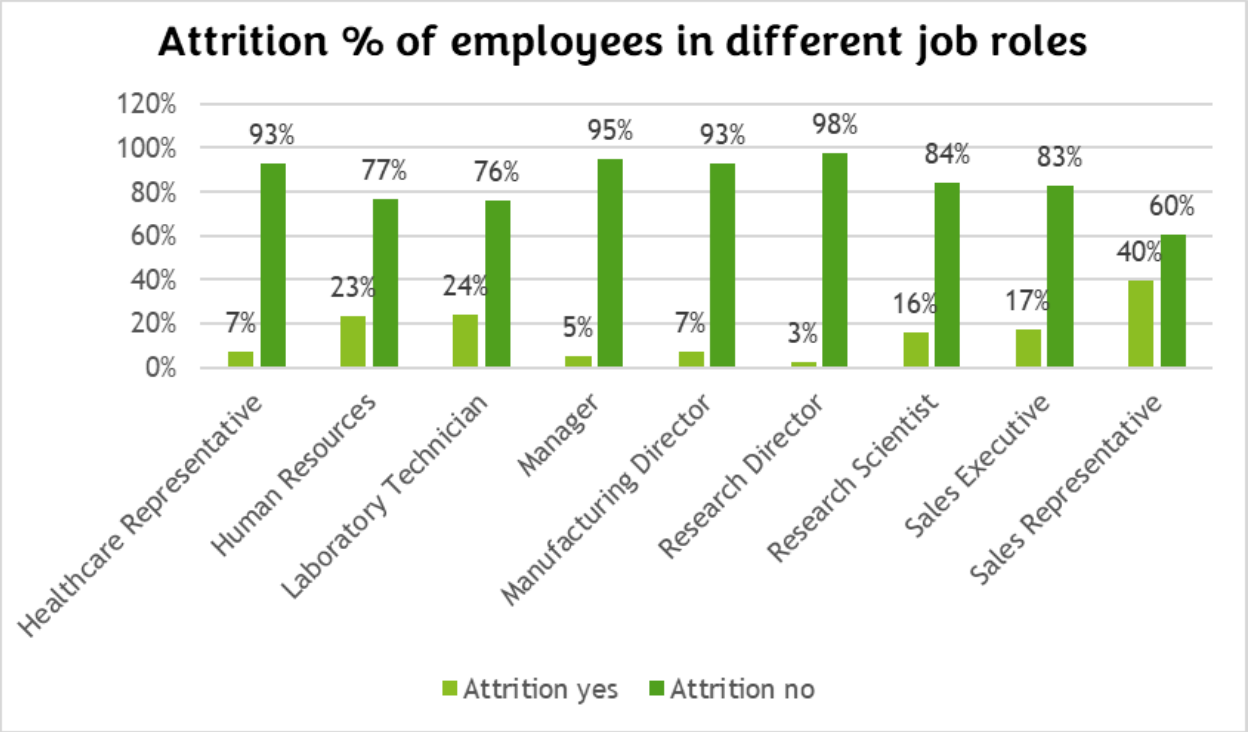

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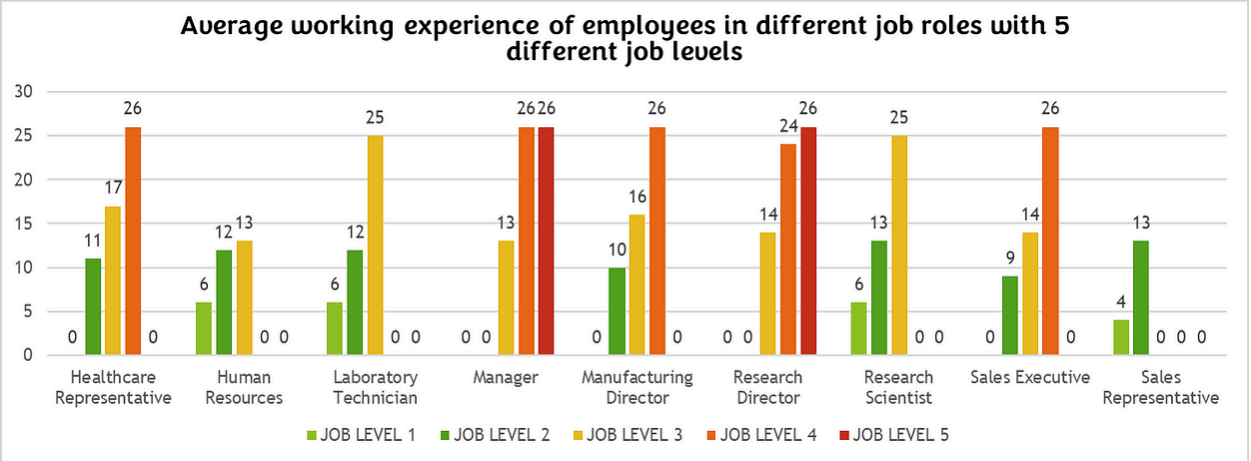

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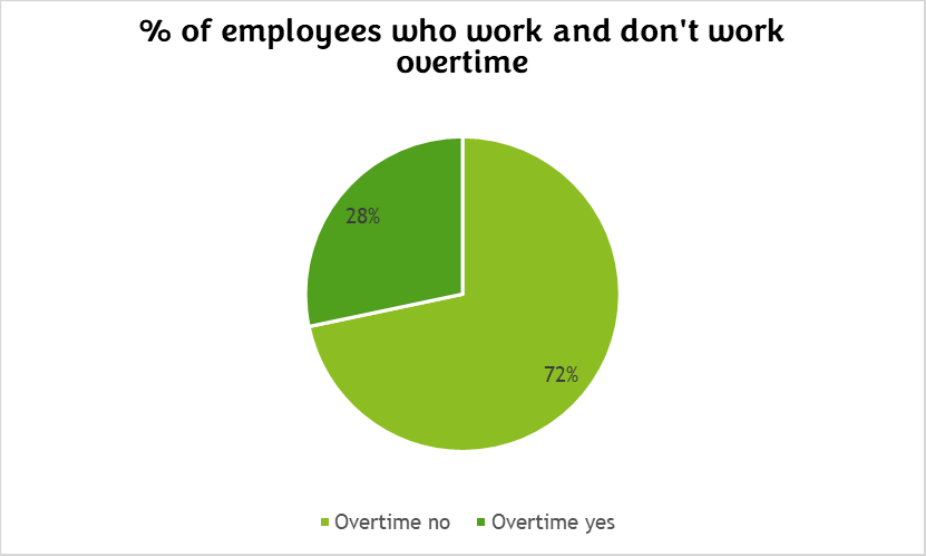

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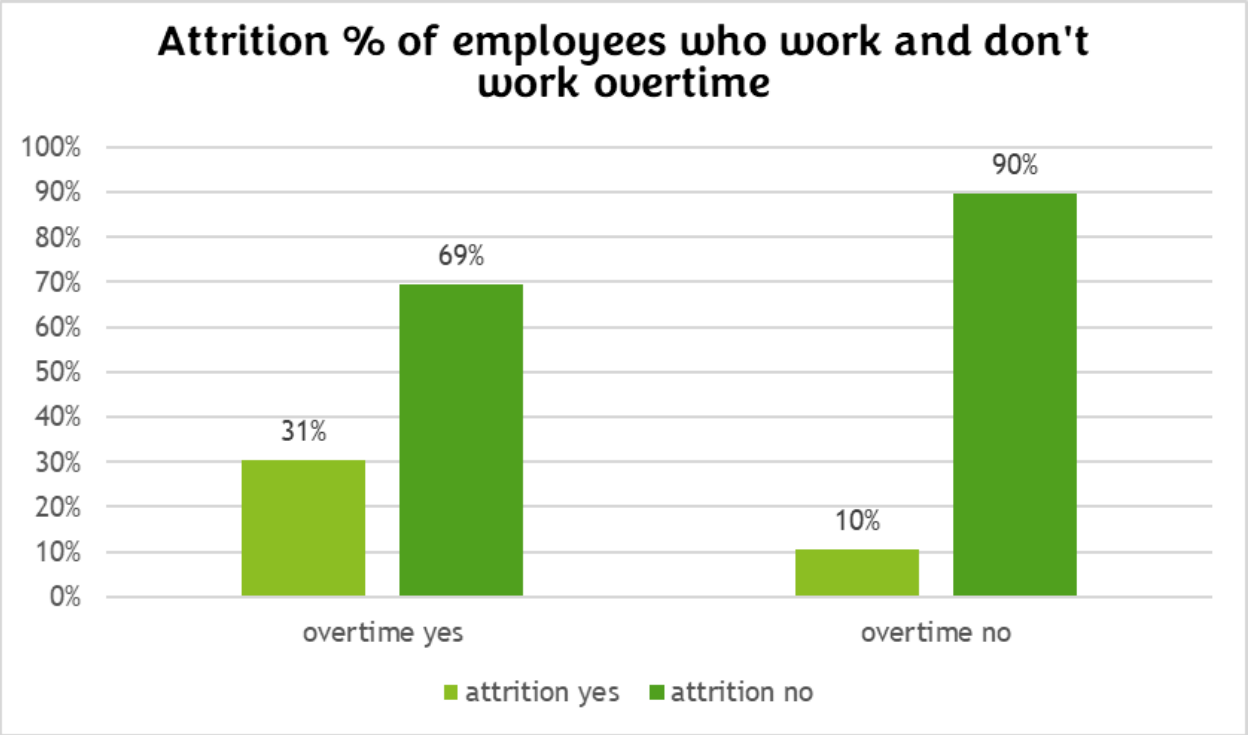

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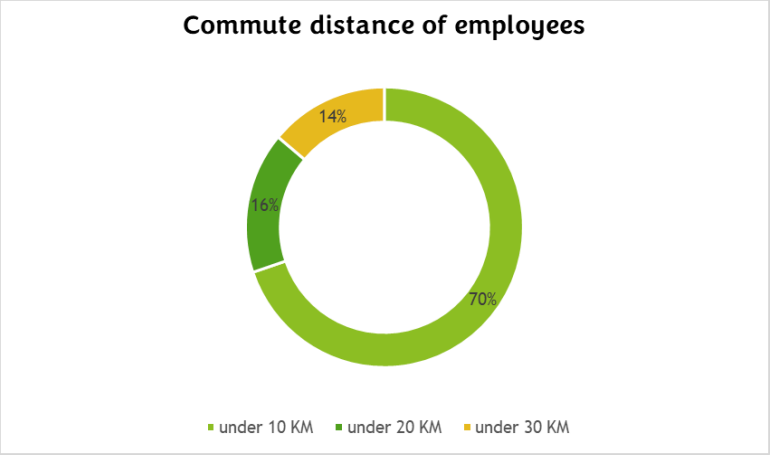

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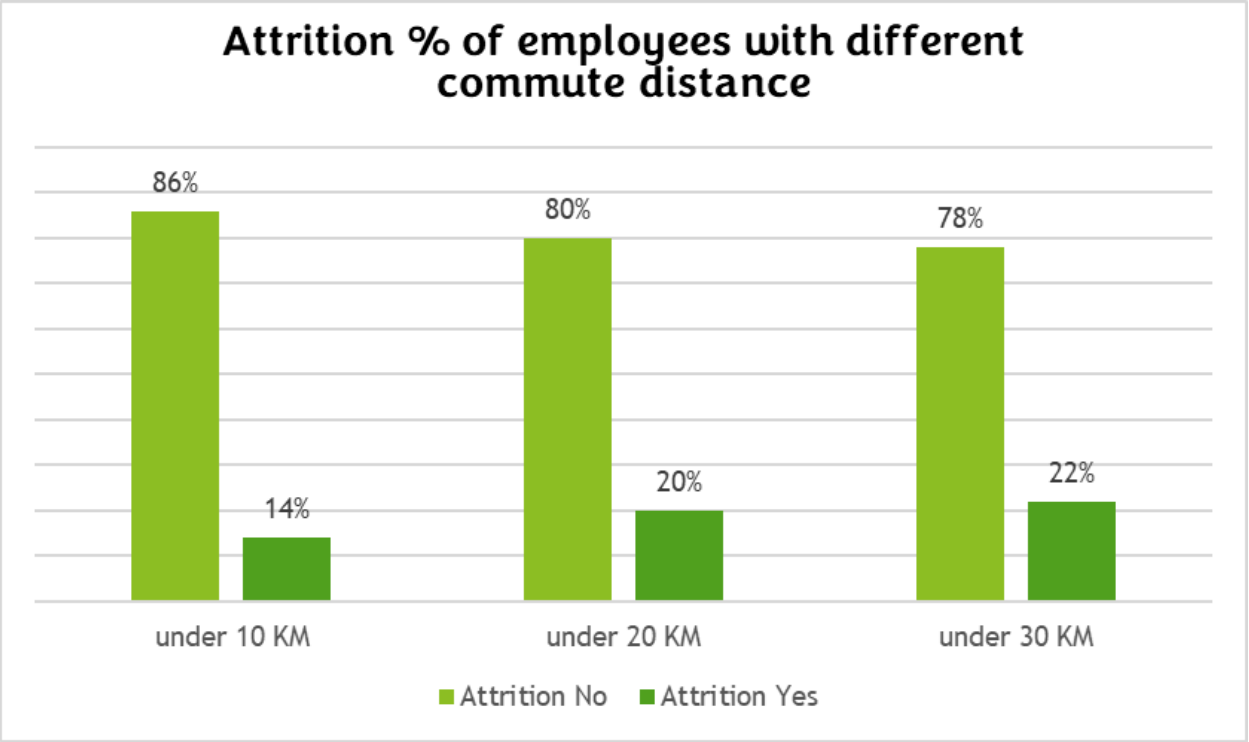

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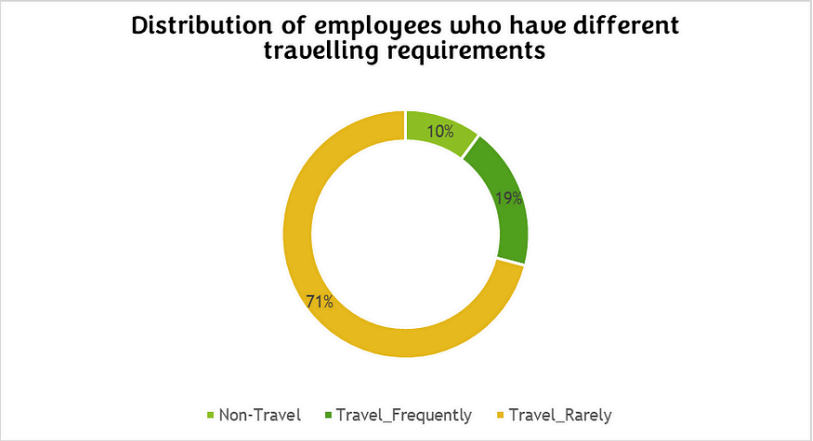

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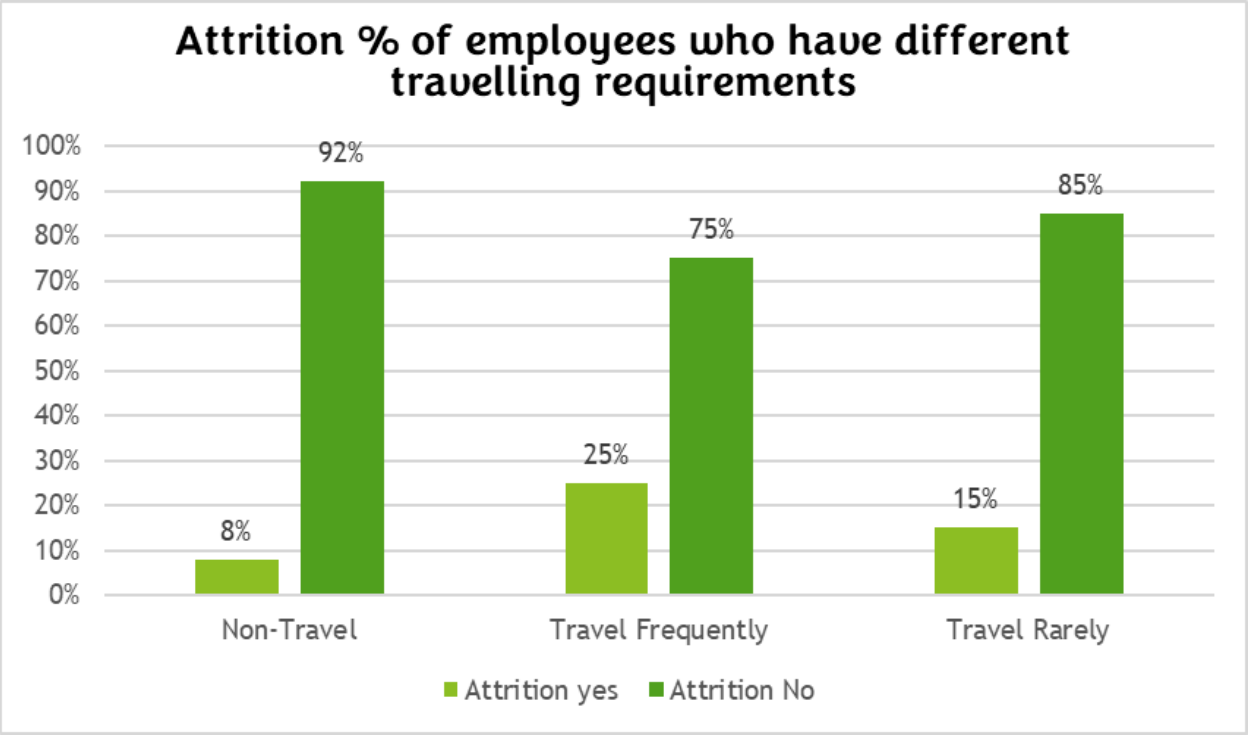
Attrition % of employees who have different travelling requirements
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
92%
8%
75%
25%
85%
15%
Non-Travel
Travel Frequently
Travel Rarely
Attrition yes
Attrition No

List of Tables

Chapter 1

INTRODUCTION

Dataset =
https://drive.google.com/file/d/168Nr6RHDlPKHbhQVHfzuZ4KUUZwKLle6/view

1.1 Introduction

Overview of Data Analytics in HR

Data analytics has become an indispensable tool across various domains, including Human Resources (HR). As organizations seek to optimize their workforce management and improve employee retention, data-driven insights provide a powerful means to understand underlying trends, behaviors, and factors contributing to employee attrition. By leveraging data analytics, HR departments can make informed decisions that foster a productive and satisfied workforce, ultimately reducing turnover rates and associated costs.

Context of the Internship

During my internship at MeriSkill's firm, I was assigned to a data analytics task focused on analyzing employee data to generate actionable insights for the HR department. The primary objective was to help the HR team identify patterns and factors contributing to employee attrition, allowing them to implement strategies to retain talent more effectively.

Objective and Scope

The objective of this internship project was to understand and analyze employee data and provide insights that could help decrease the attrition rate within the organization. This involved multiple stages, including data preparation, data cleaning, data analysis, and the visualization of results through graphs and diagrams, each of which played a crucial role in ensuring the accuracy and reliability of the findings.

Data Preparation

Data preparation is a critical first step in any analytics project. The data for this analysis was provided by MeriSkill's firm, which included comprehensive employee records in a structured format. The original data was received in a compressed file format, which was extracted and reviewed for the next steps in the data preparation process.

Data Cleaning

The data cleaning process involved several steps to ensure the dataset was ready for analysis. The key tasks included:

- **Null Value Check**: The dataset was checked for any missing values (nulls), and none were found, indicating a complete dataset.
- **Duplicate Check**: The data was examined for duplicates, and no duplicate records were identified, ensuring the uniqueness of each employee entry.
- **Consistency Check**: All columns were reviewed for consistency in data types and formatting, ensuring uniformity across the dataset.
- **Column Renaming**: Some columns were renamed to improve clarity and relevance for the analysis phase.
- **Irrelevant Data Removal**: Columns that were not pertinent to the analysis objectives were deleted, streamlining the dataset.
- **Creation of New Columns**: Additional columns were created to facilitate deeper analysis and generate more specific insights.

Data Analysis

With the cleaned and prepared dataset, the data analysis phase utilized advanced Excel formulas and functions to extract meaningful patterns and insights. The following methods were employed:

- **Pivot Tables**: Used to summarize and categorize data, allowing for quick identification of trends and correlations.
- **XLOOKUP/VLOOKUP Functions**: Employed to cross-reference data from different columns or sheets, ensuring accurate data retrieval.
- **SUMIFS/COUNTIFS/IFS Functions**: Utilized to perform conditional summation, counting, and logical evaluations, providing precise calculations based on specified criteria.
- **Basic Functions (AVERAGE, COUNT, SUM)**: Applied to calculate fundamental statistics and provide a baseline understanding of the data.
- **Nested Formulas (e.g., IF+AND)**: Implemented for more complex logical operations, enabling multi-condition evaluations within a single formula.
- **Graphs and Diagrams**: To enhance the interpretation of the analysis, various graphs and diagrams were created, visually representing the data trends and insights. These visualizations played a crucial role in making the findings more accessible and actionable for the HR department.

Chapter 2

INTERNSHIP DETAILS

2.1 Title

Data Analytics Task for Employee Attrition Analysis

2.2 Problem Statement

Employee attrition is a critical challenge faced by many organizations, leading to significant costs associated with hiring, training, and lost productivity. High attrition rates can also negatively impact employee morale and organizational culture. The HR department at MeriSkill's firm recognized the need to understand the factors contributing to employee turnover and sought data-driven insights to implement effective retention strategies. The problem was to analyze the existing employee data to identify patterns, trends, and potential predictors of attrition, enabling the HR team to make informed decisions to reduce employee turnover.

2.3 Objectives

The objectives of the internship were as follows:

1. **Data Collection and Preparation**:
    - To gather employee data provided by MeriSkill's firm and prepare it for analysis.
    - Ensure the data is clean, consistent, and ready for analysis by performing necessary data cleaning tasks, such as removing duplicates, handling null values, and standardizing formats.
2. **Data Analysis**:
    - To analyze the employee data using advanced Excel formulas and functions to identify key patterns and trends related to employee attrition.
    - Utilize pivot tables, XLOOKUP/VLOOKUP functions, and other relevant Excel tools to extract meaningful insights from the data.
3. **Visualization of Insights**:
    - To create graphs and diagrams that visually represent the findings from the data analysis, making the insights more accessible and actionable for the HR department.
    - Provide visualizations that clearly highlight critical areas of concern, such as departments or roles with high attrition rates.
4. **Report Generation and Presentation**:
    - To compile the analysis and insights into a comprehensive report for the HR department.
    - Present the findings in a structured manner, including recommendations based on the data, to assist the HR team in implementing effective employee retention strategies.
5. **Support HR Decision-Making**:

- To provide actionable insights that the HR department can use to address and reduce employee attrition.
- Assist the HR team in identifying and prioritizing areas for intervention, such as specific roles, departments, or employee demographics with higher attrition rates.

Chapter 3

MOTIVATION

Scope of the Study

The scope of this study revolves around the application of data analytics in Human Resources (HR), specifically focusing on employee attrition analysis. The study encompasses the following key areas:

1. **Data Collection and Preparation**:
    - The study involves gathering comprehensive employee data provided by MeriSkill's firm, ensuring that the data is prepared for accurate and meaningful analysis.
    - This includes data cleaning processes, such as handling missing values, removing duplicates, and standardizing data formats, to maintain the integrity of the dataset.
2. **Data Analysis**:
    - The core of the study focuses on analyzing the employee data using advanced Excel techniques. The analysis aims to uncover patterns, trends, and potential predictors of employee attrition within the organization.
    - By leveraging tools like pivot tables, XLOOKUP/VLOOKUP functions, and other Excel formulas, the study seeks to identify the critical factors influencing employee turnover.
3. **Visualization and Interpretation**:
    - The study extends to the visualization of the analyzed data through graphs and diagrams. These visualizations are crucial for making the findings more comprehensible and actionable for the HR department.
    - The visual representations help in highlighting key insights, such as which departments or employee demographics are most affected by attrition.
4. **Recommendation and Reporting**:
    - The study concludes with the generation of a comprehensive report that includes the findings, visualizations, and actionable recommendations for the HR department.
    - The recommendations aim to assist the HR team in formulating effective strategies to reduce employee attrition and improve overall retention rates.

Rationale of the Study

The rationale behind this study is rooted in the growing importance of data-driven decision-making within organizations, particularly in the HR domain. Employee attrition is a significant concern for companies as it directly impacts operational efficiency, morale, and financial stability. High turnover rates can lead to increased recruitment costs, loss of organizational knowledge, and disruptions in workflow, all of which can harm a company's competitive edge.

Given the strategic importance of retaining talent, this study aims to provide MeriSkill's HR department with valuable insights derived from their employee data. By identifying the factors contributing to employee attrition, the HR team can implement targeted interventions to retain key employees, reduce turnover, and foster a more stable and motivated workforce.

Moreover, the study demonstrates the practical application of data analytics in solving real-world HR challenges. It highlights how data, when properly analyzed and visualized, can offer powerful insights that drive organizational improvements. The findings from this study not only benefit MeriSkill's firm but also contribute to the broader understanding of how data analytics can be effectively utilized in the HR domain to address common challenges like employee attrition

Chapter 4

METHODOLOGICAL DETAILS

VISUALIZATION AND INSIGHTS

GENDER

In the company there are more males than females, female constitute 40%, while male constitute 60% of the overall employees. shown in **figure 1.0**

The attrition rate of male employees is 17% and female is 15%, this shows females are little less likely to leave the company. But, there's not much difference in attrition rate of both genders. shown in **figure 1.2**

MARTIAL STATUS

Out of the total employees, 46% are married, 22% are divorcees and 32% are single employees.shown in **figure 2.1**

Divorcee's are least likely to leave our company followed by married people. Single employees have the highest rate of attrition. There's not much difference between the attrition rate of married and divorced employees, but the attrition rate of single's is really high. Almost 1 out 4 single employees are leaving our company. This could be because, married and divorced employees look for stability, while single employees look for career change or they tend to explore more by joining other companies or they just are after hike which they can get after switching companies.

Single’s can also take the risk of being unemployed for a while while searching for another company as they don’t have a family to feed like married or divorced employees. Thus, their attrition rate is more. shown in **figure 2.2**

EDUCATION FIELDS

Majority of employees in the company are from Life sciences and medical background. Remaining are from Marketing, Tech and human resources. This shows that we generally hire employees from this education background as their educational qualifications match our need. shown in **figure 3.1**

DEPARTMENTS

Most of our employees work in R & D department , followed by for sales department. The least number of employees are present in human resources department. This explains why we hire most candidates who are from Life sciences, medical, technical and marketing background. shown in **figure 4.1**

JOB ROLES

We hire mostly for Sales representative(22%), research scientist(20%) and laboratory technicians (18%) roles. So, 60% of our total employees work within this 3 profiles. This shows that our company needs those candidates who are mostly from technology, sales and research background. Comparatively, there's less requirement for other job roles in our company. shown in **figure 5.1**

In the above graph we can see the attrition rate in different job roles in our company. Sales representative are leaving the company most. Almost 4 in 10 sales representatives are leaving the company. We can also see huge employee attrition in job roles such as Human Resources and Lab Technician, in this job roles around 25% of employees are leaving the company. Following that research scientists and sales executives have attrition rate of around 15%. Remaining job roles have less than 10% attrition rate which is comparatively less concerning.

There could be various reasons for the higher attrition rate in certain job roles such as employees were having problem with certain managers, lower wages, poor work-life balance, overtime, less job satisfaction etc. We can work on this factors to decrease the attrition rate of employees. shown in **figure 5.2**

The above graph shows, the **average years of experience** our employees have for different job roles and their job levels. **Job Levels** indicate levels of position available in different job roles and generally higher job level require more experience . Level 1 is entry level position within any particular job role and level 5 means the top position in that particular job role. It's not surprising to see that in an MNC even entry level(level 1) positions in certain job roles require some amount of experience shown in **figure 5.3**

0 indicates that in our company we don't have that job level in a particular job role. Eg. We hire research directors only for high level positions and we can't let anyone with negligible experience to become research director, thus we don't have have job level 1 & 2 available for research directors. Similarly, sales representatives is not a higher position and thus, we hire candidates with less on an average experience for sales representative position.

This gives an idea to recently joined HR's on how much on an average experience to look for while hiring a candidate in this company.

OVERTIME WORK

72% of employees don't work overtime and only 28% employees work overtime. This shows majority of employees aren't required by the company to work overtime. shown in **figure 6.1**

It's common sense and obvious from the graph that those who are required to work overtime are more likely to leave the company. Thus the attrition rate of overtime workers is 3 times higher than employees who aren't required to work overtime. So to decrease attrition, we should try to to eliminate overtime work if possible or at least we should reduce the overtime hours. shown in **figure 6.2**

DISTANCE FROM HOME

Majority of our employees home(70%) is present under 10KM distance from their office. While around 15% employees live under 20 KM or 30 KM distance from their office. shown in **figure 7.1**
As guessed, there's slight positive correlation between attrition rate and distance from home ,

employees who live within 10 KM have half the attrition rate as compared to employees who live under 20KM or 30KM from office. This shows that we should focus on hiring candidates who are near to our office location first. This will not only decrease the attrition rate but also, this will ensure that our candidates don't have too face much of their time and energy in travelling. The less they commute, the more energetic they will be in the office. shown in **figure 7.2**

TRAVELLING REQUIREMENTS

71% of our employees have to travel in rare instances as required by the company. 19% of employees have to travel frequently and only 10% employees don't need to travel in their work at all. shown in **figure 8.1**

As obvious, there's high attrition rate among employees who have to travel frequently in their jobs. Travelling all the time for official work is not only boring but also takes a lot of our energy. Literally, 1 out of every 4 employee who needs to travel frequently for official work leave the company. The attrition rate of those who have to travel on rare occasion is less comparatively and those who don't have to travel at all are least likely to leave the company. So, we should try to find ways to reduce the travelling hours whenever possible to decrease the attrition rate. shown in **figure 8.2**

Chapter 5

CONCLUSION

Summary of Findings

During my internship at MeriSkill's firm, I undertook a comprehensive data analytics project focused on understanding and mitigating employee attrition. The project involved several critical phases, including data collection and preparation, detailed analysis using advanced Excel techniques, and the creation of visualizations to communicate insights effectively. Each step of the process was carefully executed to ensure that the HR department received actionable recommendations based on accurate and meaningful data.

The data analysis revealed key patterns, such as specific departments and roles experiencing higher attrition rates, correlations between employee satisfaction and turnover, and trends in employee tenure related to attrition. These insights were crucial for identifying risk factors and developing targeted strategies to reduce employee turnover.

Impact and Contribution

The findings from this study provided the HR department with a deeper understanding of the factors contributing to employee attrition. By implementing the recommendations derived from the data analysis, MeriSkill's firm can proactively address areas of concern, improve employee retention, and foster a more stable and motivated workforce. The project also highlighted the practical application of data analytics in solving real-world HR challenges, demonstrating the value of data-driven decision-making.

Personal Learning and Growth

This internship has significantly enhanced my skills in data analytics, particularly in the context of HR. I gained hands-on experience in using advanced Excel tools, visualizing data, and interpreting complex datasets to provide actionable insights. The project also developed my ability to communicate technical findings to non-technical stakeholders effectively, which is a critical skill in any data-driven role.

Overall, this experience has deepened my understanding of how data analytics can drive organizational improvements and has prepared me for future challenges in the field of data analysis and beyond.

References

In this section, list all the sources and tools you used throughout your internship project. This includes:

- **Books and Articles**: Any books, research papers, or articles that informed your understanding of data analytics and HR management.
- **Online Resources**: Tutorials, documentation, and courses related to Python, Excel, or data visualization tools that you used.
- **Software and Tools**:
    - **Python**: Mention the specific libraries and packages you used, such as Pandas for data manipulation, Matplotlib or Seaborn for data visualization, and Jupyter Notebook for documenting your code and analysis.
    - **Excel**: Highlight any advanced functions or techniques used in Excel, even though the primary project was done in Python.
- **Reports and Documentation**: Include any internal documents or reports from MeriSkill's firm that guided your analysis.

Github: https://github.com/DARVINDROLE

PLAGIARISM REPORT

ATTACH PLAGIARISM REPORT OF SMALL SEO (Free Online Available) TOOL ONLY