# **Tableau Project Documentation**

## **1. Project Overview**

### **1.1 Project Title**

* HR Analytics Dashboard

### **1.2 Objective**

* This dashboard will help the HR department to track the reasons for employee attrition and performance of employees

### **1.3 Scope**

* The Human Resources Dataset is taken from Kaggle.
* Dataset contain 1470 rows and 30 fields
* Each row of the dataset represents an individual employee’s information including their job role, salary, work experience, satisfaction level and other employee-related details
* Age: The age of the employee.
* Attrition: Indicates whether the employee has left the company ('Yes') or is still working ('No').
* Business Travel: Frequency of business travel (e.g., Travel\_Rarely, Travel\_Frequently).
* DailyRate: Daily income rate of the employee.
* Department: Department where the employee works (e.g., Sales, Research & Development).
* DistanceFromHome: Distance between the employee's home and workplace.
* Education: Education level (e.g., 1 = 'Below College', 2 = 'College', 3 = 'Bachelor', 4 = 'Master', 5 = 'Doctor').
* EducationField: Field of education (e.g., Life Sciences, Medical, Other).
* EmployeeCount: Number of employees (constant value, possibly a placeholder).
* EmployeeNumber: Unique identifier for each employee.
* EnvironmentSatisfaction: Satisfaction level with the work environment (1 to 4, with 4 being the highest).
* Gender: Gender of the employee (Male/Female).
* HourlyRate: Hourly wage rate.
* JobInvolvement: Level of involvement in the job (1 to 4, with 4 being the highest).
* JobLevel: Job level or rank within the organization.
* JobRole: Specific role of the employee (e.g., Sales Executive, Research Scientist).
* JobSatisfaction: Satisfaction level with the job (1 to 4, with 4 being the highest).
* MaritalStatus: Marital status (e.g., Single, Married, Divorced).
* MonthlyIncome: Monthly salary of the employee.
* MonthlyRate: Monthly rate (possibly total compensation or cost to the company).
* NumCompaniesWorked: Number of companies the employee has worked for in the past.
* Over18: Indicates if the employee is over 18 (constant value, possibly a placeholder).
* OverTime: Whether the employee works overtime ('Yes' or 'No').
* PercentSalaryHike: Percentage increase in salary.
* PerformanceRating: Performance rating (1 to 4, with 4 being the highest).
* RelationshipSatisfaction: Satisfaction with personal relationships at work (1 to 4).
* StandardHours: Standard working hours (constant value, possibly a placeholder).
* StockOptionLevel: Stock option level granted to the employee (0 to 3).
* TotalWorkingYears: Total years of work experience.
* TrainingTimesLastYear: Number of training sessions attended last year.
* WorkLifeBalance: Work-life balance satisfaction (1 to 4, with 4 being the highest).
* YearsAtCompany: Total number of years worked at the current company.
* YearsInCurrentRole: Number of years in the current role.
* YearsSinceLastPromotion: Number of years since the last promotion.
* YearsWithCurrManager: Number of years with the current manager.

### **1.4 Timeline**

Provide an estimated timeline for different phases of the project, such as data collection, cleaning, modeling, visualization, and final review.

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| --- | --- | --- |
| **Phase** | **Description** | **Estimated Duration** |
| Data Collection | Gathering relevant datasets | 1 days |
| Data Cleaning | Handling missing values, removing duplicates | 1/2 days |
| Data Modeling | Defining relationships, creating measures | 1/2 days |
| Visualization | Designing dashboard and visual elements | 3 days |
| Final Review | Testing and refining dashboard | 1 days |

## **2. Data Collection & Preparation**

### **2.1 Data Sources**

The datasets are provided in a CSV file.

### **2.2 Data Cleaning & Transformation**

**Removing Duplicates:**

* Removed complete duplicates to ensure data consistency and prevent double counting.

**Dropping Irrelevant Columns:**

Remove the following columns from the dataset: **Business Travel, Education, Education Level, Distance From Home, Daily Rate, Hourly Rate, Job Level, Marital Status, Monthly Rate, Number of Companies Worked, Over 18, Percent Salary Hike, Total Working Years, Standard Hours, and Stock Option Level.**

## **3. Dashboard Development**

### **3.1 Mockup Designs**

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### **3.2 Key Visualizations**

* + What is the total number of employees?
  + What is the total attrition count?
  + How many active employees are there?
  + What is the attrition rate?
  + What is the average age of employees?
  + Is there any relationship between gender and attrition?
  + Which department has the highest attrition?
  + What age range has the highest attrition?
  + Does overtime have any impact on attrition?
  + How does monthly income relate to attrition?
  + What is the relationship between job satisfaction and attrition?
  + How is the performance rating distributed among employees?
  + What is the impact of overtime on performance?
  + Are highly performing employees more likely to leave?
  + Which department shows the highest performance?
  + Does training lead to any improvement in performance?

### **3.3 Measures and Calculations**

* + **Attrition Count**: The total number of employees who have left the company (where Attrition = yes).
  + **Attrition Rate**: The proportion of employees who have left, calculated as (Attrition Count / Employee Count).
  + **Active Count**: The number of employees currently working, calculated as (Employee Count - Attrition Count).
  + **Average Age**: The mean age of all employees.
  + **Rating**: Categorize employees with a performance rating of 3 as "Average" and those with a performance rating of 4 as "Excellent."
  + **Overtime Count**: The number of employees who have worked overtime (where Overtime = Yes).
  + **Overtime Rate**: The proportion of employees who worked overtime, calculated as (Overtime Count /Employee Count).
  + **Average Performers**: The total count of employees with an "Average" rating.

###  **Excellent** **Performers:** The total count of employees with an "Excellent" rating.

### **3.4 Filters and Slicers**

* **Department Filter**: Allows users to filter employee data based on the department they belong to
* **Job Role Filter**: Enables users to filter data based on specific job roles within a department

**4. Insights & Findings**

* + **Higher Attrition Among Males**: More males have left the company compared to females, indicating potential gender-based factors affecting retention. This insight can help HR develop targeted retention strategies for male employees.
  + **Salary as a Contributing Factor to Attrition**: Compensation may be influencing employee departures. A competitive salary benchmarking analysis could help in adjusting pay structures to improve retention.
  + **Overtime and Attrition Relationship**: Employees who do not work overtime have a higher attrition rate than those who do. This suggests that engagement and workload distribution might impact retention, prompting HR to explore work-life balance initiatives.
  + **Age Group 27-36 Has the Highest Attrition**: Employees in this age range are leaving at a higher rate, possibly due to career growth opportunities elsewhere. Implementing career development programs and mentorship initiatives may help improve retention.
  + **Dissatisfaction in Research & Development and Sales Departments**: Higher attrition rates in these departments indicate potential job dissatisfaction. Conducting employee feedback surveys and improving department-specific policies could address underlying concerns.
  + **Majority of Employees Receive an "Average" Rating**: A large proportion of employees have been rated as "Average," which may indicate a need to reassess performance evaluation criteria or enhance employee development programs.
  + **Attrition is Higher Among ‘Average’ Performers**: Employees with an "Average" rating are leaving more frequently than those with an "Excellent" rating. This suggests a need to better support and develop average performers to boost engagement and performance.
  + **High Concentration of ‘Average’ Performers in R&D and Sales**: Research & Development and Sales departments have a larger share of employees with an "Average" rating. Targeted training and performance improvement plans in these departments can help boost productivity and reduce attrition.

## **5. Challenges & Limitations**

* Navigating Tableau’s interface and understanding its various features was challenging.

## **6. Future Enhancements**

* Optimize data extracts and **use Tableau’s Level of Detail (LOD) expressions** to improve calculation efficiency.
* Implement **dashboard actions** to allow smooth transitions between different views without performance lag.

## **7. Conclusion**

* The **HR Analytics Dashboard** provides a comprehensive view of **employee attrition trends and performance metrics**, helping HR professionals make data-driven decisions.
* **Identifies Key Attrition Factors**: By analyzing employee demographics, job roles, overtime trends, and department-wise attrition, HR can pinpoint the primary reasons for employee turnover.
* **Monitors Employee Performance**: The dashboard tracks **performance ratings**, highlighting the proportion of "Average" and "Excellent" performers, helping HR assess workforce productivity.
*  **Department & Role-Based Insights**: Understanding attrition and performance by department and job role helps HR develop **targeted retention strategies** and improve job satisfaction.

## **8. Appendix (If Required)**

I utilize online assistance through **Tableau forums, Kaggle datasets, and YouTube tutorials** to enhance my learning and project development