Overview:

This document outlines the key steps taken during the development of the **Human Resources Dashboard** in **Tableau**, including data preparation, creating visualizations, adding interactivity, and resolving any challenges. The dashboard includes various insights related to employee demographics, department distribution, performance, and salary information.

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1. Data Preparation:

- **Dataset Used**: HumanResources.csv
    - **Fields** included:
        - **Personal Details**: First Name, Last Name, Gender, Birthdate.
        - **Job Information**: Department, Job Title, Hiredate, Termdate, Performance Rating.
        - **Education**: Education Level.
        - **Salary** and **Location** (State, City).
- **Data Cleaning**:
    - **Age Calculation**: We derived the age of employees by subtracting their birth year from the current year.
    - **Full Name Calculation**: A calculated field was created to concatenate First Name and Last Name into a single “Full Name” field for easier reference.
    - **Employment Status**: We created a calculated field to identify employees as either "Hired" or "Terminated" based on the existence of a Termdate.

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2. Visualizations:

A. Active and Terminated Employees Over Time (Top Left Chart):

- **Chart Type**: Line chart (Active Employees) and Area chart (Terminated Employees).
- **Purpose**: This visualization shows the number of active and terminated employees over time.
- **Key Interaction**: A filter was added to allow users to drill down by year of hire.

B. Department Breakdown (Top Center Chart):

- **Chart Type**: Bar chart.
- **Purpose**: This bar chart visualizes the number of employees by department.

- **Interactivity**: Departments are clickable, allowing users to filter other visualizations based on department selection.

C. Demographic Breakdown (Top Right Charts):

- **Pie Chart**: Shows gender distribution in the company (Male vs. Female).
- **Stacked Bar Chart**: Combines age groups with education levels to show how education levels are distributed across different age ranges.

D. Education and Performance Ratings (Right Side Chart):

- **Chart Type**: Bar chart with a trend line.
- **Purpose**: This chart shows the correlation between **education levels** (Bachelor, Master, PhD) and **performance ratings** (Excellent, Good, Satisfactory, Needs Improvement).
- **Trend Line**: A linear trend line was added to highlight any upward or downward trends in performance based on education.

E. Income Distribution (Bottom Left and Center Charts):

- **Chart Type**: Bar charts.
- **Gender and Salary Comparison**: This compares the salary of males and females across different education levels.
- **Department and Salary Distribution**: The average salary is shown for each department, categorized by different age groups.

F. Location Breakdown (Bottom Left Map):

- **Chart Type**: Geographic map.
- **Purpose**: This map visualizes the employee distribution across different states, with HQ and branch representation.
- **Interactivity**: Users can click on a state to filter the dashboard by location.

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3. Detailed Employee List (Second Dashboard):

- **Purpose**: Provides a comprehensive list of employees, including:
    - **ID**: Unique identifier for each employee.
    - **Demographic Information**: Gender, Age, and Education Level.
    - **Role and Salary**: Job title, department, and salary.
    - **Location and Hire Date**: Employee's location and tenure.
- **Interactive Filters**: Users can click on columns such as role, department, or hire date to filter the list.

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4. Adding Interactivity:

- **Global Filters**:
    - **Gender**, **HQ/Branches**, and **Status** filters are applied across the dashboard, allowing users to refine the data being displayed.
- **Dynamic Hover Details**: Hovering over any data point (such as departments, locations, or salary bars) brings up additional details related to that specific selection.
- **Clickable Visualizations**: Many charts (Department, Location, etc.) were made interactive, so users can click on a specific segment to filter other charts dynamically.

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5. Challenges and Resolutions:

- **Calculating Age**:
    - **Challenge**: Birthdates needed to be formatted correctly to calculate age dynamically.
    - **Resolution**: We used Tableau's DATEDIFF function to subtract the year of the birthdate from the current year.
- **Performance Ratings as Text**:
    - **Challenge**: Performance ratings were in text form (Excellent, Good, etc.), making it difficult to calculate averages or trends.
    - **Resolution**: A numerical scale was assigned to the text ratings, allowing us to add trend lines and perform meaningful comparisons.
- **Combining Multiple Fields (Full Name)**:
    - **Challenge**: The dataset only had First Name and Last Name in separate fields.
    - **Resolution**: We created a calculated field in Tableau to concatenate First Name and Last Name for easier display in the employee list.
- **Responsive Filters**:
    - **Challenge**: Ensuring all filters worked across multiple sheets in the dashboard.
    - **Resolution**: Global filters were implemented to ensure all visualizations responded to user interactions.

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6. Conclusion:

The Human Resources dashboard effectively visualizes key metrics such as gender ratio, department distribution, performance trends, and salary comparisons. By implementing filters and interactivity, users can explore the data in more depth, providing valuable insights into employee demographics, salary discrepancies, and performance across departments.

This dashboard enables HR managers to make data-driven decisions by giving them a comprehensive, interactive view of their workforce.