

Human Resources Analytics Project Report

1. Project Overview:

The purpose of this project is to utilize data visualization and business intelligence techniques to uncover key insights from HR data, including employee demographics and turnover trends. The insights derived are aimed at helping HR professionals make data-driven decisions to improve retention, hiring, and workforce planning.

2. Dataset Summary:

- Dataset Name: HRDataset_v14.csv
- Records: 310 employees (approx.)
- Fields include: Name, DOB, Age (calculated), Gender, Marital Status, Department, Position, Hire Date, Termination Date, Termination Reason, Performance Score, Pay Rate, Engagement Score, Absences
- Data Source: Synthetic dataset by Dr. Carla Patalano and Dr. Rich Huebner

3. Business Questions & KPIs:

Key Questions:

- What is the demographic composition of employees?
- Which departments experience the most turnover?
- What are the main reasons for employee terminations?
- When do terminations tend to occur over time?

KPIs:

- Total Employees
- Active vs Terminated Ratio
- Department-wise Turnover Count
- Monthly Turnover Trend

4. Data Cleaning & Preparation:

- Converted DOB, Hire Date, and Termination Date to proper date formats
- Created calculated fields:
 - Age = DATEDIFF('year', [DateOfBirth], TODAY())
 - Age Group = Binned into ranges (Under 30, 30-39, etc.)
 - Employment Status = IF ISNULL([DateofTermination]) THEN "Active" ELSE "Terminated"
 - Termination Flag = IF [EmploymentStatus] != "Active" THEN 1 ELSE 0
- Filtered out rows with missing values in key fields
- Verified unique employee IDs and normalized field names

5. Dashboards Created:

A. Demographics Dashboard

Charts Included:

- Gender Distribution (Pie Chart)
- Age Group Distribution (Bar Chart)
- Department-wise Employee Count (Bar Chart)
- Marital Status by Gender (Stacked Bar Chart)

B. Turnover Dashboard

Charts Included:

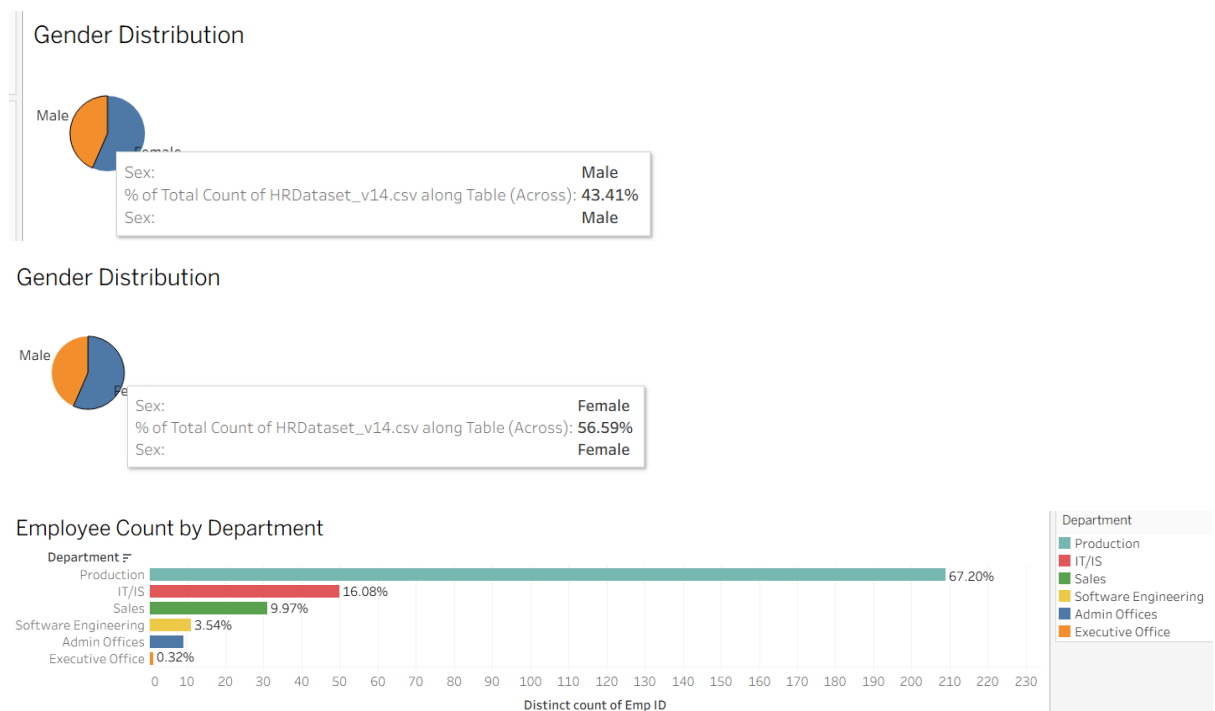
- Termination Reason Breakdown (Bar Chart)
- Turnover Over Time (Line Chart)
- Turnover by Department (Bar Chart)
- Terminations by Position (Bubble Chart)

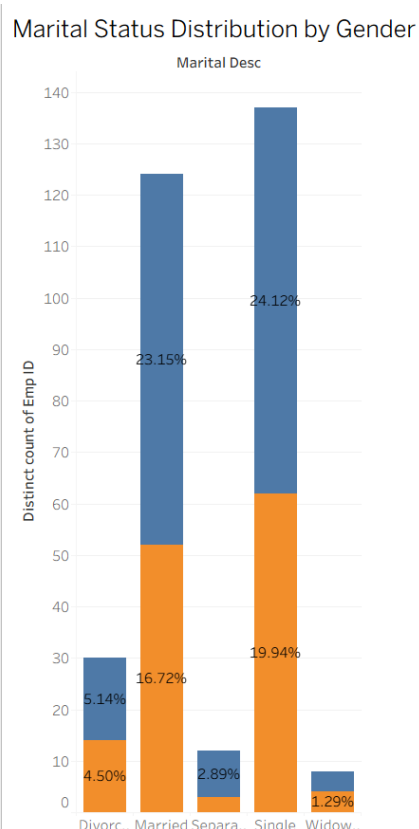
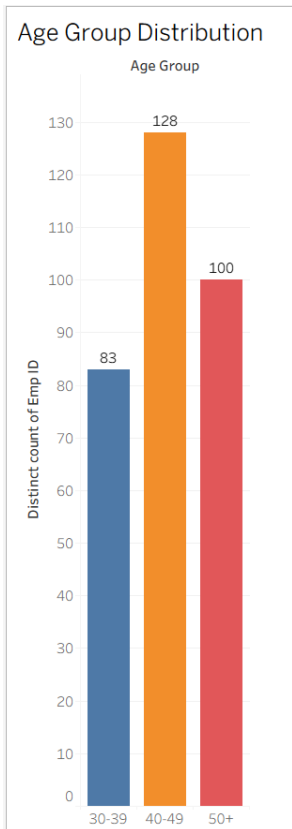
6. Key Insights:

- **Gender Split:** Balanced gender representation across departments
- **Age Trends:** Majority of workforce falls in 30–39 and 40–49 range
- **Departments with High Turnover:** Sales and Production had highest terminations
- **Top Termination Reasons:** Voluntary resignations and terminations for cause
- **Turnover Timing:** Spikes seen in specific months, indicating seasonal trends
- **Positions Most Affected:** Entry-level roles had higher attrition

7. Visual Outputs:

- Demographics Dashboard Screenshot:



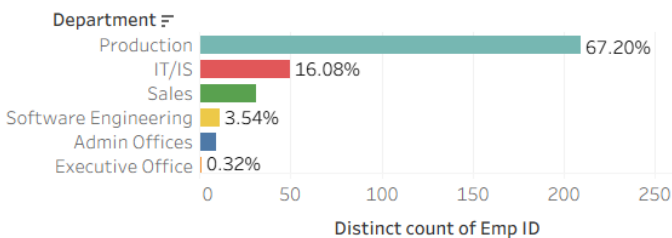


Demographics Dashboard

Gender Distribution



Employee Count by Department



Sex

- Female
- Male

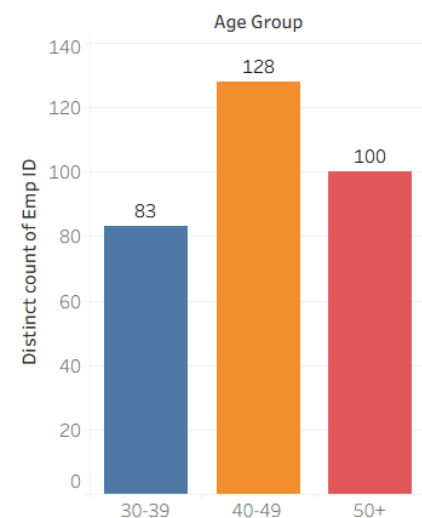
Age Group

- 30-39
- 40-49
- 50+

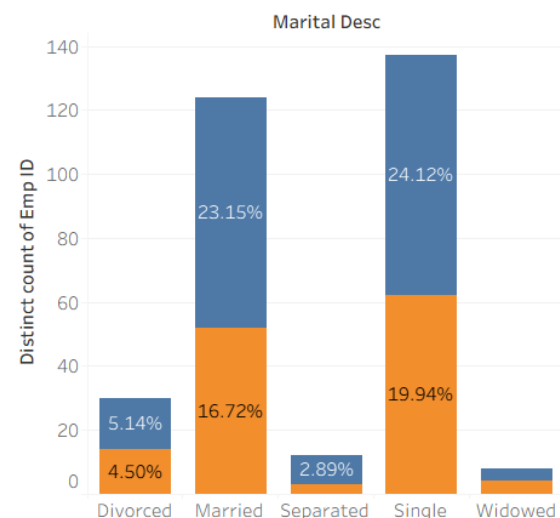
Department

- Production
- IT/IS
- Sales
- Software Engin..
- Admin Offices
- Executive Office

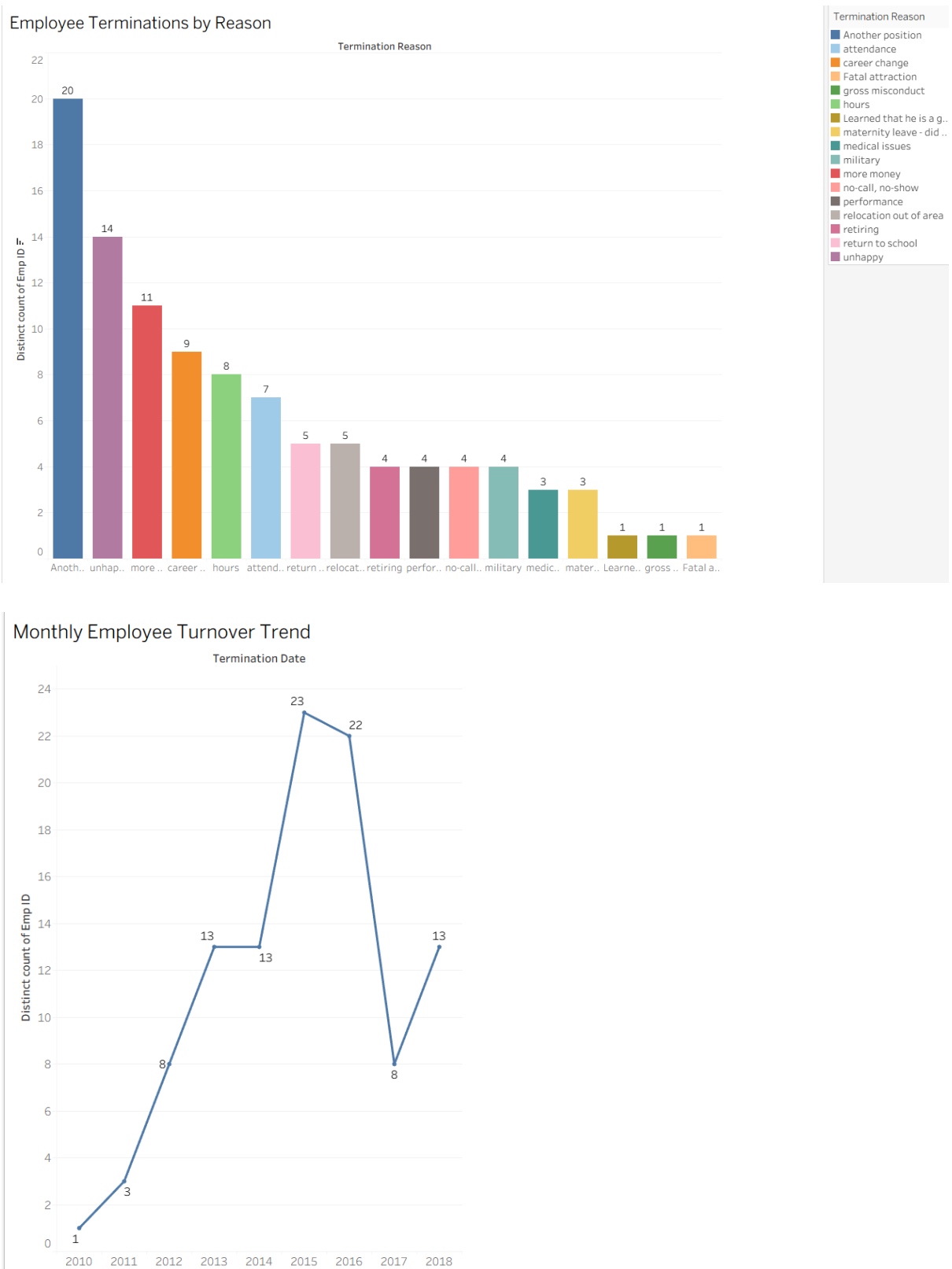
Age Group Distribution



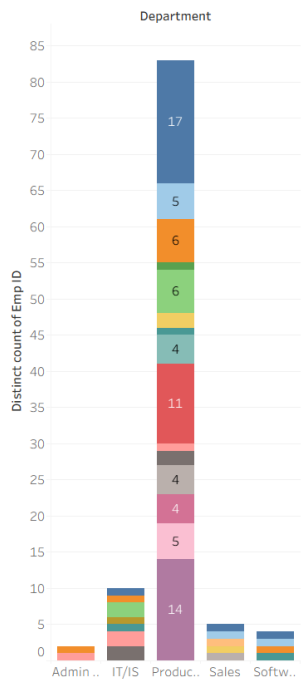
Marital Status Distribution by Gender



• Turnover Dashboard Screenshot:

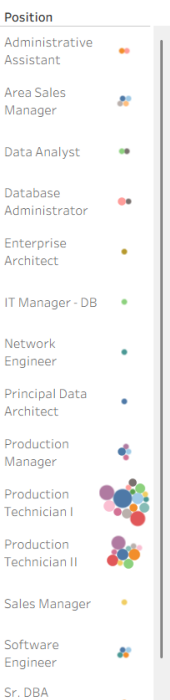


Department-wise Employee Turnover

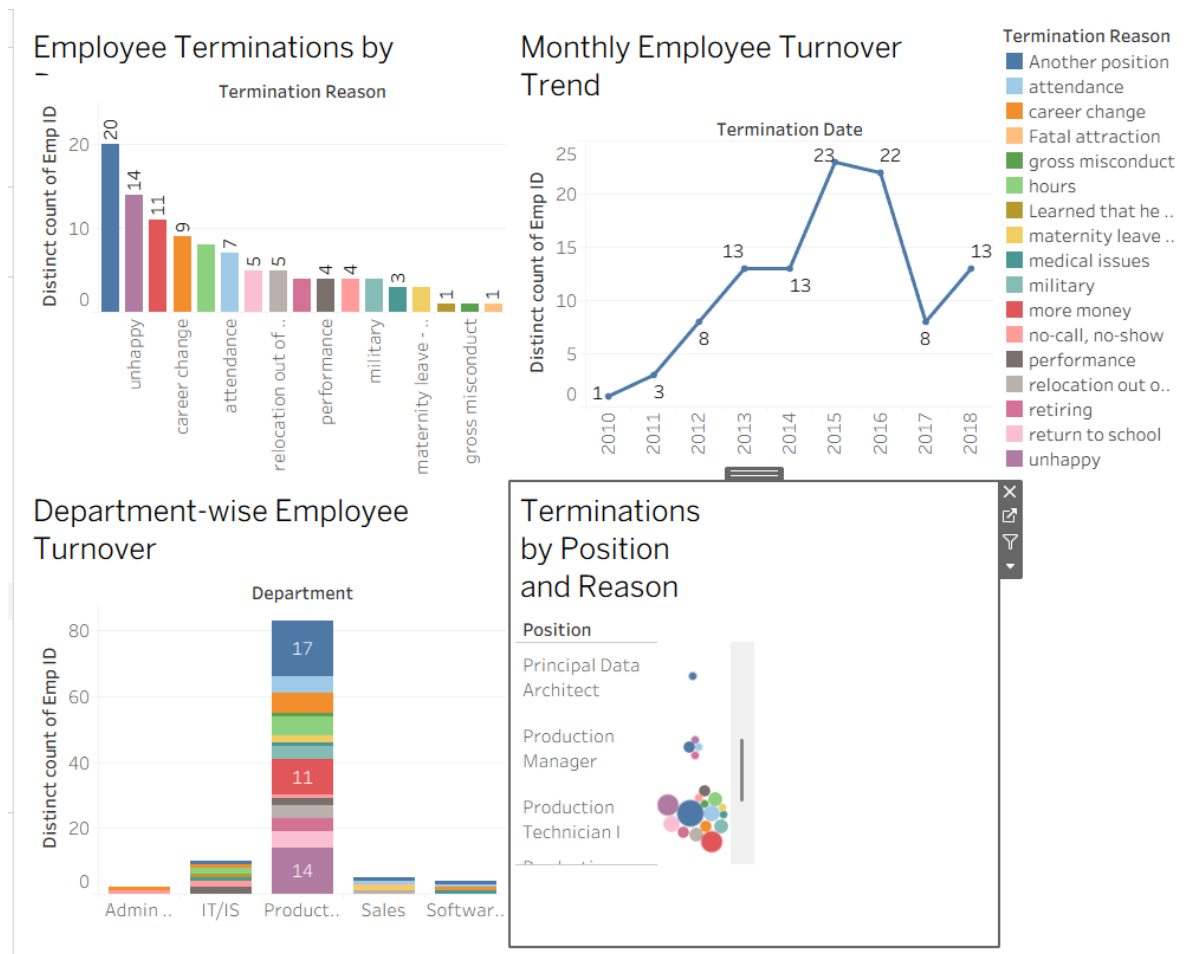


Termination Reason
Another position
attendance
career change
Fatal attraction
gross misconduct
hours
Learned that he is a g..
maternity leave - did ..
medical issues
military
more money
no-call, no-show
performance
relocation out of area
retiring
return to school
unhappy

Terminations by Position and Reason



Termination Reason
Another position
attendance
career change
Fatal attraction
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hours
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8. Conclusion:

This HR Analytics project effectively leveraged Tableau to visualize employee lifecycle patterns, identify at-risk departments, and summarize workforce diversity. The dashboards created allow HR managers to filter and drill down into important HR metrics in real time. Future steps could include predictive analysis for employee attrition and performance benchmarking.

Prepared by: Anusi Patel

Tools Used: Tableau Desktop, Microsoft Excel