**🧾 HR Data Analytics Project Summary**

**Created by :- Gangadhar Tiwari**

*Comprehensive Analysis of Workforce, Performance, Salary & Termination Trends*

**Built with Python (Jupyter Notebook) + Power BI**

**Dataset Overview:**

* **Total Records**: 311 employees
* **Fields Analysed**: Salary, Demographics, Department, Tenure, Performance, Engagement, Absences, Termination
* **New Features Created**: Age, Tenure, Termination Label, Salary Benchmarking, Absence Grouping

**Tools Used:**

* Python (Pandas, Seaborn, Matplotlib)
* Power BI (5 Interactive Pages, Advanced Visuals)
* DAX (for custom measures and KPIs)

**Key Highlights & Insights**

**🔹 1. Workforce Composition:**

* **Total Employees**: 311
* **Female Employees**: 176 (56.6%)
* **Male Employees**: 135 (43.4%)
* **Highest Citizenship Group**: U.S. Citizens
* **Marital Status**: Majority Single

**🔹 2. Termination Trends:**

* **Total Terminated**: 104 (33.4%)
* **Active Employees**: 207 (66.6%)
* **Termination Type**:
  + Voluntary: ~75–90
  + For Cause: <25
* **Highest Termination Dept**: **Production**
* **Most Affected Age Range**: **45–55 years**
* **Median Tenure at Termination**: **13 years**

**🔹 3. Salary Overview:**

* **Total Salary Paid**: ₹21,465,433
* **Average Salary**: ₹69,020
* **Avg Salary (Terminated vs Active)**: Compared via Donut + Gauge Chart
* **Waterfall Analysis**: Production & R&D major salary contributors

**🔹 4. Performance & Satisfaction:**

* Most terminations among those rated **“Fully Meets”**
* **Lower engagement/satisfaction** among terminated employees
* Strong correlation:  
  Engagement ↔ Satisfaction = **+0.19**

**🔹 5. Engagement & Departmental Trends:**

* **Lowest Avg Satisfaction**: Executive Office
* **Highest Engagement**: Admin Office
* **Low Engagement**: Sales Team

**🔹 6. Absenteeism Patterns:**

* **Terminated employees** had **slightly higher absences**
* High absences could be **early disengagement signal**

**🔹 7. Visuals Used Across 5 Power BI Pages:**

| **Visuals** | **Usage Areas** |
| --- | --- |
| Treemap | Salary & Engagement by Department |
| Gauge | Salary vs Benchmark |
| Waterfall | Salary Breakdown |
| Funnel | Dept-wise Headcount |
| Donut | Gender, Termination, Salary Disparity |
| Line | Satisfaction vs Tenure |
| Scatter | Satisfaction vs Salary / Engagement |
| Matrix Heatmap | Absenteeism vs Satisfaction |
| KPI Cards | Total Emp, Avg Salary, Tenure, % Terminated |

**Deliverables:**

* Python .ipynb analysis with 20+ visualizations
* Power BI .pbix dashboard (5 themed pages)
* PDF export for offline presentation
* Project screenshots for LinkedIn / Resume
* GitHub-ready README