

# HR ANALYTICS DASHBOARD

## Project Overview

### **Business Problem:**

The organization is experiencing **employee attrition**, but management lacks clarity on: Why customers are leaving

- Who is leaving,
- From where they are leaving,
- Why certain roles and departments are worse than others.

### **Objective**

To analyze employee-level data and:

- Identify the key drivers of attrition,
- Detect high-risk job roles and departments,
- Uncover demographic and behavioral patterns,
- Provide actionable strategies to reduce employee turnover.

### **Scope of Analysis**

This project focuses on:

- Employee demographics
- Department & job role distribution
- Compensation
- Tenure & experience metrics
- Overtime patterns
- Performance rating impact
- Attrition trends over time

### **Tools Used**

- Python (NumPy, Pandas) → Data cleaning, transformation, EDA
- Power BI → Interactive dashboard & visualization
- Excel → Validation & structure checking

## Dataset Description

### **Source of Data:**

Files used:

- Original\_HR\_Analytics.csv (Raw data)
- cleaned\_dataset.csv (Processed and modeled data)

### **Number of Records:**

- Total records: **1,470 employees**

## Key Fields Explain:

Column	Meaning
age	Employee age
age_group	Age bucket (18–25, 26–35, etc.)
attrition	Yes / No
attrition_flag	1 = Attrition, 0 = Retained
department	HR / R&D / Sales
jobrole	Employee role
gender	Male / Female
Monthly income	Monthly salary
Years at company	Years employed
Total working years	Overall experience
overtime	Yes / No
performance_level	Derived class (Good / Excellent)
tenure_category	Buckets for years at company
income_category	Low / Medium / High salary groups

## 5. Exploratory Data Analysis (EDA) – Findings

- Overall attrition: 16.12% (237 / 1,470).
- High Risk Groups
  - Sales Representatives ( $\approx$  40% attrition)
  - 18–25 Age Group ( $\approx$  35% attrition)
  - 0–2 Years Tenure ( $\approx$  29% attrition)
  - Employees working overtime ( $\approx$  31%)
- Stable Groups
  - Employees with 10+ years at company
  - R&D department
  - Employees not doing overtime

## Insights

- Attrition is not random — it is **concentrated**.
- The first two years define retention success or failure.
- Overtime is one of the strongest churn predictors.
- Sales role design is structurally flawed.
- Younger employees lack engagement paths.
- Performance systems are failing to retain top talent.
- Money is not the main issue — culture and workload are.

## Recommendations

### Where to Invest

- Structured onboarding programs
- Sales workforce redesign
- Manager coaching
- Early career development tracks
- Work-life balance initiatives

### What to Reduce

- Chronic overtime
- Poor onboarding standards
- Undefined career progression
- Unrealistic sales targets

### What to Test

- Retention bonuses in Sales
- Flexible work hours
- Mentorship for new hires
- Manager feedback programs
- Job rotation programs

## Conclusions

- The dataset reveals concentrated, addressable attrition drivers: **early-tenure churn**, **Sales Representative departures**, and **overtime-related burnout**.
- Quick, targeted actions (onboarding, OT fixes, Sales role fixes) are expected to reduce overall attrition faster and cheaper than broad pay raises.
- Next recommended steps: run pilot experiments (onboarding & Sales), implement OT monitoring, and build a predictive risk model to operationalize interventions.