

# Human Resources Dataset Analysis

## Overview

This project analyzes the Human Resources dataset using Python, SQL, and Power BI to uncover insights into employee satisfaction, performance, and retention. It also applies predictive models to forecast turnover trends, presenting results through an interactive Power BI dashboard and a concise analytical report.

## Project Objectives

- **Data preprocessing:** clean and preprocess the dataset using (SQL or Python) and Excel to ensure consistency and accuracy.
- **consistency and accuracy:** Identify all possible analytical questions from the dataset that interest the organization's decision-makers, such as the relationship between employees' ages and their satisfaction levels.
- **Analysis questions phase:** apply forecasting models using scikit-learn and pandas in python to predict ridership and demand distribution.
- **Visualization and presentation:** build Power BI dashboards and charts, write a final report and present results.

## Deliverables

- Interactive notebook containing python and SQL scripts used
- Cleaned dataset
- Visualization plots and dashboards
- Report containing all methodologies used, analysis questions and actionable insights
- Presentation for summary

## Scope

The scope of this project is to analyze Human Resources Dataset Analysis data to identify trends. The analysis will include data cleaning, descriptive statistics, and visualization.

- Analyze HR dataset to identify trends in satisfaction, performance, and retention.
- Clean and prepare data for analysis.
- Perform exploration analysis and find key patterns.
- Build predictive models to forecast employee turnover.
- Use SQL for data extraction and summarization.
- Create interactive Power BI dashboard for visualization.
- Prepare report and presentation with key insights.

## Tools Used

- Python (pandas, numpy, matplotlib, scikit-learn)
- SQL
- Microsoft excel
- Jupyter Notebook
- Github for version control
- Microsoft powerpoint
- Power BI

## Timeline

Phase	Duration
Data preprocessing	1 week
Analysis questions determination	1 week
Forecasting	1 week
Visualization & Reporting	1 week
Total weeks	4 week

## Conclusion

The project revealed key insights into employee satisfaction and turnover using Python, SQL, and Power BI. The findings support data-driven HR decisions to enhance employee retention and performance.

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