

# HR DATASET ANALYSIS



MARCH  
2025

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# Project Overview

This project aims to analyze a human resources dataset to extract meaningful insights that can enhance HR decision-making. The study will involve data preprocessing, visualization, and statistical analysis to uncover trends related to employee retention, performance, and workforce diversity.

# Objectives and scope

## → Objectives

- Identify key factors influencing employee retention and turnover.
- Analyze workforce diversity and its impact on company performance.
- Develop predictive models to forecast employee attrition.
- Provide actionable insights for HR optimization.

## → Scope

- Dataset: The analysis will be conducted using an HR dataset containing employee records, including demographic information, performance metrics, and employment history.
- Tools & Technologies: Python, Excel, Power BI, Tableau, and SQL.
- Key Deliverables:
  - Data Cleaning and Preprocessing Report
  - Exploratory Data Analysis (EDA) Report
  - Predictive Model for Employee Attrition
  - Final Presentation & Documentation

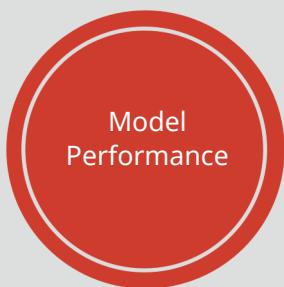
# Risk Assessment & Mitigation Plan

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Risk	Impact	Mitigation Strategy
Data Quality Issues	High	Implement thorough data cleaning
Technical Challenges	Medium	Conduct regular team meetings
Time Constraints	High	Follow strict project milestones
Model Accuracy Concerns	Medium	Optimize and test multiple models

# Key Performance Indicators (KPIs)

- Ensure cleaned dataset accuracy is above 95%.
- Achieve at least 80% accuracy in predictive models.
- Insights should be clearly interpretable.
- P Clarity and comprehensiveness of final report.



# Requirements Gathering

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## → Stakeholder Analysis

Identifying key decision-makers who benefit from the analysis.

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## → Functional Requirements

Data cleaning and preprocessing for structured analysis.

Application of statistical techniques to uncover HR trends.

Development of visual insights for better decision-making.

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## → Non-functional Requirements

- Accuracy and reliability in data processing.
- Efficient and scalable analytical models.
- Clear and interpretable visualizations.



# System Analysis And Design

## Problem Statement &

## Objectives

- Understanding factors influencing employee satisfaction and retention.
- Identifying workforce trends for HR strategic planning.

## Data Flow & System Behavior

- DFD (Data Flow Diagram): Mapping how data moves through different preprocessing and analytical stages.
- Sequence Diagrams: Outlining data transformation steps.
- Activity Diagram: Illustrating the process of data cleaning, analysis, and visualization.

# Our Team

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Nourhan Farg



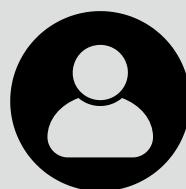
Doha Mostafa



Mohamed El- Mogay



Abdelrahman Yasser



Basant Yasser

- The team will work collaboratively throughout the project, with each member contributing across different tasks to ensure efficiency and quality results.



# Project Timeline

WEEK 1-2

- Data Collection & Preprocessing

WEEKS 3-4

- Exploratory Data Analysis (EDA)

WEEKS 5-6

- Model Development & Testing

WEEKS 7-8

- Report Writing & Presentation

# Data Modeling & Processing

## DATASET STRUCTURE

- Employee demographics, performance metrics, satisfaction levels, and attrition rates.

## DATA PREPROCES

- Handling missing values, normalizing data, and feature engineering.

## EXPLORATORY DATA ANALYSIS (EDA)

- Identifying trends, correlations, and distributions within the dataset.



# Visualization & Reporting

## DASHBOARD DEVELOPMENT

- Creating interactive visualizations in Tableau or Power BI.
- Representing key HR insights through graphs, charts, and KPIs.

## REPORT GENERATION

- Summarizing findings with key takeaways for HR decision-makers.
- Documenting methodologies and analytical results.



# Deliverables & Documentation



## → User Manual

- Explanation of the dashboards and their interpretation.

## → Technical Documentation

- Data preprocessing steps.
- Statistical techniques applied.
- Models developed

## → Final Presentation

- Summary of the project workflow, insights, and recommendations.

## → Video Demonstration

- Showcasing the analysis process and dashboard functionalities.

