HR Project Proposal

# Project Description

**This project aims to analyze employee data for an American HR company using various data analysis tools and techniques. The goal is to extract meaningful insights from the dataset to enhance decision-making, workforce management, and operational efficiency. The analysis will cover data cleaning, processing, visualization, and generating useful reports**.

# Group Members & Roles

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| --- | --- |
| Names | Roles & Technologies |
| Ali Tarek Abdel Fattah | * Data cleaning & preprocessing by Python * Bulid Data Model * Visualization by Power BI * Identify Key Analytical Questions |
| Ibrahim Wael Esmail | * Data cleaning & preprocessing by Python * Visualization by Tableau * Identify Key Analytical Questions * Final Documentation |
| Habiba Walid Ali | * Data cleaning & preprocessing by SQL * Visualization by Tableau * Identify Key Analytical Questions * Final Documentation |
| Ahmed Saber Abdel Shafi | * Data cleaning & preprocessing by SQL * Bulid Data Model * Identify Key Analytical Questions * Visualization by Power BI |

# Team Leader

**Name: Ali Tarek**

# Objectives & Scope

* **Clean and preprocess employee data to ensure data integrity.**
* **Perform data analysis to extract valuable insights related to employee demographics, employment history, and trends.**
* **Build interactive dashboards and reports for effective data visualization.**
* **Provide recommendations for better HR management and decision-making.**
* **Assist in the decision-making process and make it easier for decision makers**

# Tools & Technologies

* **Programming Languages: Python, SQL**
* **Visualization Tools: Power BI, Tableau, Matplotlib**
* **Analysis Tools: Python (Pandas, NumPy)**

# Milestones & Deadlines

# Week 1 (March 17 - March 23): Data Preprocessing

# In this week, the main focus will be on preparing the dataset for analysis. The tasks include cleaning the data, building a structured data model, and ensuring the dataset is ready for analysis.

# Tools: SQL, Python (Pandas, Matplotlib)

# Deliverables: Cleaned dataset and a well-documented preprocessing notebook.

# Week 2 (March 24 - March 30): Initial Analysis Questions

# This week will be dedicated to exploring the dataset and generating basic analysis questions that could provide meaningful insights.

# Tools: SQL, Python (Pandas, Matplotlib)

# Deliverables: A preliminary list of relevant analysis questions.

# Week 3 (March 31 - April 6): Refining Analysis Questions

# The focus here will be on refining and finalizing the analysis questions, making them more precise and suitable for deeper exploration.

# Tools: SQL, Python (Pandas, Matplotlib)

# Deliverables: A well-defined set of analysis questions ready for forecasting.

# Week 4 (April 7 - April 13): Forecasting Analysis

# This week will involve working on forecasting questions by utilizing statistical models and visualizing trends.

# Tools: Python (Scikit-Learn, Pandas, Matplotlib)

# Deliverables: Clear and accurate visualizations addressing forecasting questions.

# Week 5 (April 14 - April 20): Visualization & Presentation Preparation

# During this week, the focus will be on building a professional visualization dashboard and preparing a polished presentation.

# Tools: SQL, Python (Pandas, Matplotlib), Tableau

# Deliverables: Fully functional dashboard and initial presentation slides.

# Week 6 (April 21 - April 27): Review & Refinement

# This week will be dedicated to reviewing the work done so far, improving visualizations, and making necessary refinements to the presentation.

# Deliverables: Enhanced dashboard and presentation.

# Week 7 (April 28 - May 4): Adjustments & Report Completion

# The final adjustments will be made during this week, ensuring everything is ready for submission.

# Deliverables: Ready-to-submit report and polished presentation.

# Week 8 (May 5 - May 11): Final Review & Submission

# A comprehensive review of the entire project will be carried out before the final submission.

# Deliverables: Completed and submitted project.

# KPIs (Key Performance Indicators)

**Data Cleaning & Preprocessing**

* **Ensure all missing and incorrect values are handled properly.**
* **Standardize and normalize data to ensure consistency.**
* **Remove duplicate or irrelevant entries to improve data quality.**

**Analysis & Insights**

* Identify Key Analytical Questions relevant to business need**s.**
* **Detect seasonal trends and peak sales periods in the dataset.**
* **Analyze correlations between employee performance and salary.**

**Data Visualization**

* **Develop clear, interactive visualizations to present sales trends.**
* **Ensure visualizations accurately reflect key findings without distortion.**
* **Optimize dashboard performance for fast and smooth user experience.**

**Final Report & Recommendations**

* **Deliver a well-structured report summarizing key insights and findings.**
* **Provide actionable recommendations for businesses to improve human resources management**
* **Ensure final documentation meets project requirements and deadlines.**