**1. Introduction**

* **Objective:** The purpose of this project is to utilize data analysis techniques to explore and analyze employee survey data, identifying key patterns and insights related to workforce satisfaction, productivity, and work environment. This project aims to provide actionable insights to improve employee engagement and organizational performance.
* **Track Relevance:** This project involves several key data analysis stages, including data cleaning (handling missing or inconsistent responses), preprocessing (creating new metrics such as employee age groups), exploratory data analysis (visualizing key survey insights), and data visualization (using Power BI to generate interactive dashboards).
* **Expected Outcomes:** The project will deliver actionable insights regarding employee satisfaction, training needs, and work-life balance. The final outcome will be a comprehensive dashboard providing HR management with a clear overview of workforce dynamics.

**2. Project Proposal**

* **Title:** "Employee Survey Analysis"
* **Team Members:** Mina Essam Fayez
* **Problem Statement:** The organization possesses a vast amount of data from employee surveys, but without a structured approach to analyze it, valuable insights remain hidden.
* **Proposed Solution:** To develop an Employee Survey Dashboard that enable organizations to understand and act upon employee feedback, fostering a more engaged, productive, and satisfied workforce.
* **Scope and Limitations:** The project will focus on survey data for employees within a specific time frame. Data limitations may include incomplete responses or lack of detail in certain survey areas.

**3. Project Plan**

* **Milestones:**
  + Data Collection: October 2024
  + Data Cleaning: October 2024
  + EDA: October 2024
  + Visualization & Detailed Analysis: October 2024
  + Final Reporting: October 2024
* **Task Breakdown:**
  + Data Collection, Data Cleaning & Preprocessing, EDA & Visualization: MinaEssam
* **Resources Needed:** Power BI, Excel, Figma, HR Survey Dataset and SQL server management studio
* **Risk Management:** Potential issues include missing data or unclear survey responses. To mitigate, we will ensure preprocessing includes imputation techniques and involve stakeholders for clarification.

**4. Data Preparation and Exploratory Data Analysis (EDA)**

* **Data Collection:** The dataset contains responses from employees, including job satisfaction, commute distance, and training hours.
* **Data Cleaning and Preprocessing:** Techniques include creating custom age groups, and converting categorical data into numerical values.
* **EDA:** This includes creating visual summaries

**5. Detailed Data Analysis**

* **Advanced Analytical Techniques:** Clustering employees based on survey response patterns and performing hypothesis testing to analyze differences in satisfaction based on job level or training hours.
* **Visualization of Findings:** Power BI will be used to create interactive dashboards, showing key trends in employee engagement, distribution by job type, and correlation between overtime and job satisfaction.

**6. Reporting and Recommendations**

* **Compile Final Report:** The report will summarize the survey results, key findings, and recommend areas for organizational improvement (e.g., increasing training opportunities or promoting work-life balance).
* **Create Presentation Slides:** A slide deck will be created to present key insights, focusing on employee satisfaction metrics, engagement drivers, and actionable recommendations.

**7. Project Documentation**

* **Technical Documentation:** Details of the data cleaning process, statistical techniques used, and steps taken for creating the Power BI dashboard.
* **Project Report:** A comprehensive document covering all stages from data collection to final insights.

**8. Presentation**

* **Final Presentation:** Presenting key insights from the employee survey, including visuals on workforce engagement, training, and satisfaction. Suggestions for future work (e.g., periodic surveys to track progress) will be proposed.
* **Q&A Preparation:** Prepare for questions related to data sources, techniques used for analysis, and the relevance of findings to organizational goals.

**9. Deliverables**

* **Functional Dashboards:** An interactive Power BI dashboard displaying employee engagement insights by job level, overtime status, commute distance, and more.
* **Presentation Materials:** A slide deck summarizing the analysis, recommendations, and actionable insights.
* **Project Documentation:** All code, datasets, and technical notes used in the project.