**Phase-1 Submission Template**

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**1.Problem Statement**

“Evaluating employee performance and productivity trends using workforce analytics”. It’s Traditional performance reviews are often biased and infrequent, making it hard to track real-time productivity. This leads to poor decision-making and missed opportunities to support or recognize employees. Workforce analytics can solve this by offering data-driven insights for better HR and managerial actions.

**2.Objectives of the Project**

**Measure employee performance** using KPIs like attendance, task completion, and feedback.

**Analyze productivity trends** to understand how performance changes over time.

**Identify at-risk employees** who may be disengaged or underperforming.

**Predict future performance** using machine learning models for proactive action.

**Generate visual reports and dashboards** to assist HR in decision-making.

**3.Scope of the Project**

The project includes analyzing performance indicators, identifying trends, and building predictive models. It involves visual dashboards and reports. It is limited to public/static or synthetic datasets. The project avoids sensitive personal data and focuses on structured data only. Deployment will be basic or offline due to scope limitations.

**4.Data Sources**

We will use public datasets from Kaggle or UCI, like HR analytics or employee productivity data. These are static datasets, possibly supported by synthetic data we generate. The data will include structured fields such as hours worked, performance ratings, and task metrics.

**5.High-Level Methodology**

* **Data Collection:** Gather employee performance datasets from public or synthetic sources.
* **Data Preprocessing:** Clean, normalize, and encode data for analysis.
* **Exploratory Data Analysis (EDA):** Identify trends, patterns, and correlations using visualizations.
* **Feature Engineering:** Create new performance metrics and meaningful features.
* **Model Building:** Apply ML models (e.g., regression, decision trees) to predict performance.
* **Visualization & Reporting:** Build dashboards and reports for HR insights and decision-making.

**6.Tools and Technologies**

**Python:** Core programming language for data analysis and model building.

**Libraries:**

* *Pandas, NumPy* for data handling and manipulation.
* *Matplotlib, Seaborn, Plotly* for data visualization.
* *Scikit-learn* for building and evaluating machine learning models.

**Jupyter Notebook / Google Colab:** For writing and executing code interactively.

**Tableau / Power BI / Streamlit:** For creating dashboards and presenting insights.

**Git & GitHub:** For version control, collaboration, and project tracking.

**7.Team Members and Roles**

1. A. Andro Jerslin Jebina - Backend Process

2. J. Janani - Database Configuration

3. K. Prithika - User Interface