| PROJECT OVERVIEW STATEMENT | Project Name: Predicting Employee Job Switch: An Attrition Forecasting Model | Student Name: Amey Suresh Borkar |
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**Problem/Opportunity:**

Employee turnover is a critical challenge for companies, leading to increased hiring costs and loss of expertise. Organizations need a proactive way to identify employees at risk of leaving, allowing HR teams to implement retention strategies.

This project aims to develop a machine learning model that predicts whether an employee is likely to switch jobs based on key factors like work experience, salary hikes, job satisfaction, and industry trends. This will enable HR departments to take timely action to retain valuable employees.

**Goal:**

The objective of this project is to design and implement a predictive model that accurately forecasts employee attrition. By leveraging machine learning algorithms on historical HR data, this model will help organizations:

- Identify employees at risk of leaving.
- Understand key factors influencing attrition.
- Optimize HR strategies to improve retention rates.

This project aims for at least **75% predictive accuracy** and will provide actionable insights through an interactive dashboard.

**Objectives:**
**Objective 1:**

- **Outcome:** Build a machine learning model to predict job-switch likelihood.
- **Time Frame:** Within two months of project initiation.
- **Measure:** Achieve at least 75% accuracy on the validation dataset.
- **Action:** Preprocess HR data, apply feature engineering, and test models such as Logistic Regression, Random Forest, and XGBoost.

**Objective 2:**

- **Outcome:** Identify the top five most influential factors contributing to attrition.
- **Time Frame:** Within one month of project initiation.
- **Measure:** Feature importance analysis using SHAP values.
- **Action:** Use Explainable AI techniques to interpret model decisions and generate HR-friendly reports.

**Objective 3:**

- **Outcome:** Create an interactive dashboard for HR teams to visualize attrition risks.
- **Time Frame:** Within one month of project completion.
- **Measure:** Fully functional dashboard with employee risk categorization.
- **Action:** Use Power BI, Tableau, or Streamlit to display key insights and predictions.

**Success Criteria:**
- The predictive model achieves 75% or higher accuracy on test data.
- HR professionals can identify at-risk employees based on model predictions.
- The project is completed within the specified timeline.

**Assumptions, Risks, Obstacles:**
- **Data Quality Issues:** Incomplete or biased datasets may affect model performance.
- **Generalization Risk:** The model may not generalize well to different industries.
- **Ethical Considerations:** Predictions must be used responsibly to avoid discrimination in HR decisions.
- **Technical Limitations:** Large datasets may require advanced computational resources.

| Prepared By | Date | Approved By | Date |
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| Amey Suresh Borkar | Jan 30th, 2025 | | |