1. INTRODUCTION

2. REQUIREMENT ANALYSIS

3. TECHNOLOGY UTILIZED

4. METHODOLOGY

5. SYSTEM OUTPUT

6. DEPLOYMENT

7. CONCLUSION

REFERENCES

ABSTRACT

Employee attrition poses a significant challenge for organizations, affecting productivity and increasing operational costs. This research develops a machine learning-based prediction model aimed at identifying key factors contributing to employee turnover. Data was collected from organizational records, including demographic information, job roles, salary, performance ratings, and work-life balance metrics. The dataset underwent comprehensive cleaning and preprocessing, followed by Exploratory Data Analysis (EDA) to uncover significant trends and relationships influencing attrition.

Various machine learning algorithms, including Logistic Regression, Decision Trees, Random Forest, and Gradient Boosting, were applied to build predictive models. Model performance was evaluated using accuracy, precision, recall, and F1-score, with hyperparameter tuning to enhance prediction capabilities. The final model highlights critical factors such as job satisfaction, performance ratings, and tenure in predicting attrition. These insights can empower HR departments to proactively identify at-risk employees and implement effective retention strategies, ultimately fostering a more stable workforce.

INDEX