Employee Churn Risk Predictor & Actionable Agent — One Pager

Use Case

Problem:
High employee turnover (churn) creates significant costs for organizations — including hiring expenses, loss of knowledge, and disruption of team performance. Many companies struggle to **identify employees at risk of leaving early enough** to take meaningful action.

Solution:
This project uses a **Random Forest Classifier** trained on the **IBM HR Analytics Attrition Dataset** to **predict which employees are likely to leave**. The prediction is combined with an **Actionable Agent** that suggests specific HR interventions (e.g., reduce overtime, assign a mentor, review salary).

How it Works:
1. The model is trained using real employee data, with EDA and preprocessing to ensure quality.
2. The trained model is saved (.pkl) for reuse.
3. A **Streamlit web app** allows HR teams to upload new employee data and instantly get risk predictions.
4. The Agent generates tailored recommendations for each at-risk employee.
5. The system can automatically **send email notifications** to HR managers, so actions can be taken immediately.

Impact

1.Proactive Retention:
Allows HR teams to detect risk **before attrition happens**, enabling preventive action rather than reactive replacement.

2.**Cost Savings:**
Reducing churn can save significant costs related to recruitment, training, and productivity loss.

3. **Better Workforce Planning:**
By understanding *why* employees may leave (overtime, low satisfaction, low pay), organizations can improve policies, workload balance, and employee satisfaction.

4.**Automated Alerts:**
Integrated email notifications keep HR informed without manual monitoring — improving **response speed**.

5. **Scalable Solution:**
Reusable model + simple deployment = easily adaptable for any HR department using similar workforce data.

Key Takeaway

This system turns real HR data into actionable insights, combining Machine Learning with practical recommendations to help organizations reduce employee churn and improve retention.

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Use Case: Employee Attrition Prediction & Automated HR Intervention
Impact: Cost Reduction, Improved Retention, Better Decision Making