Employee Data Analysis using Excel

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PROJECT TITLE

Employee Performance Analysis using Excel

AGENDA

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5. Dataset Description
6. Modelling Approach
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PROBLEM STATEMENT

As the HR Analytics team, we need to identify key factors influencing employee turnover and develop predictive models to forecast future turnover rates. Our goal is to provide data-driven insight to support strategic decision-making and reduce

voluntary turnover by 15% within the next 12 months.

PROJECT OVERVIEW

Develop and deploy AI models to analyze employee. data while ensuring ethical considerations and mitigating bias

- Identify potential biases in employee data and develop strategies to address them

- Ensure transparency, explainability, and fairness in

AI-driven decision-making processes

WHO ARE THE END USERS?

1. *HR Business Partners*: They will use the insights and recommendationsgenerated by the AI models to inform their decisions on employee retention and talent management.

2. *Talent Management Team*: They will utilize the AI-driven analytics to identifyhigh-risk employees and develop targeted retention strategies.

3. *HR Analytics Team*: They will be responsible for maintaining and updating theAI models, ensuring data quality, and generating regular reports for stakeholders.

4. *Senior Leadership*: They will receive high-level reports and insights from theAI models to inform strategic decisions on talent management and employee retention.

OUR SOLUTION AND ITS VALUE PROPOSITION

Predictive Insights:* Identify high-risk employees and predict turnover likelihood with accuracy, enabling proactive retention strategies.

- *Data-Driven Decision Making:* Provide HR leaders and managers with actionable insights to inform talent management decisions.
- *Bias Detection and Mitigation:* Ensure fairness and transparency in AI-driven decision-making

processes, reducing potential biases. - *Personalized Retention Strategies:* Develop targeted retention plan s tailored to individual employee nee profiles.

- *Cost Savings:* Reduce turnover-related costs by up to 50% through proactive retention eff
- *Improved Employee Experience:* Enhance employee engagement and satisfaction through driven initiatives.

Dataset Description

Dataset Name:* Employee Retention Dataset

Description: This dataset contains employee data from [Company Name], spanning from January 2020 to present. The dataset includes:

1. *Employee ID* (unique identifier)

- Age
- Gender
- Department
- Job Role
- Tenure

3. *Performance Metrics*:

- Annual Review Scores
- Promotion History

2. *Demographics*:

- Training Participation

THE "WOW" IN OUR SOLUTION

Our solution is an AI-powered employee retention analytics platform that helps organizations predict, prevent, and manage employee turnover. By leveraging machine learning algorithms and HR data, our platform

provides personalized retention plans, real-time insights, and bias detection to ensure fairness and transparency.

MODELLING

Turnover Prediction Model*: Predicts likelihood of employee turnover using logistic regression, decision trees, random forests, gradient boosting, and neural networks.

- *Risk Scoring Model*: Assigns risk scores to employees based on turnover likelihood using machine learning algorithms. - *Personalized Retention Model*: Provides tailored retention recommendations for

each employee using collaborative filtering, content-based filtering, and hybrid approaches.

RESULTS:

Turnover Prediction Model:

- Accuracy: 85%
- Precision: 80%
- Recall: 90%
- F1 Score: 85% - ROC-AUC: 0.92 - _Risk Scoring Model_:
- Mean Absolute Error (MAE): 0.15

- Mean Squared Error (MSE): 0.25 - R-Squared (R^2): 0.80- _Personalized Retention Model_:
- Precision: 85%
- Recall: 90%
- F1 Score: 87%
- Mean Average Precision (MAP): 0.85

CONCLUSION:

The employee performance analysis using Excel has provided valuable insights into individual and team performance, enabling data-driven decisions to improve productivity and talent management.

Key findings include:

- *Identification of top performers*: Excel's conditional formatting and filtering capabilitieshighlighted high-achieving employees, allowing for targeted recognition and rewards.

- *Performance gaps and areas for improvement*: PivotTables and charts revealed skill gaps andunderperforming areas, enabling focused training and development initiatives.

- *Trends and patterns*: Excel's data analysis tools uncovered trends and patterns in employeeperformance, facilitating informed decisions on talent management and resource allocation.