Employee Performance Prediction

Build a model to predict performance of employees, based on the visualisation and analysis of past data of employee performance

Introduction

This presentation explores the analysis of employee performance data, focusing on identifying patterns and factors influencing outcomes such as training effectiveness and recognition.

Data Overview

Total records analyzed: 23,490
Key features include employee demographics, previous ratings, training metrics, and KPI performance.

Data Preparation

Imported necessary libraries including NumPy, Pandas, and machine learning models.
Performed data preprocessing: splitting the dataset into features and target variables.

Exploratory Data Analysis

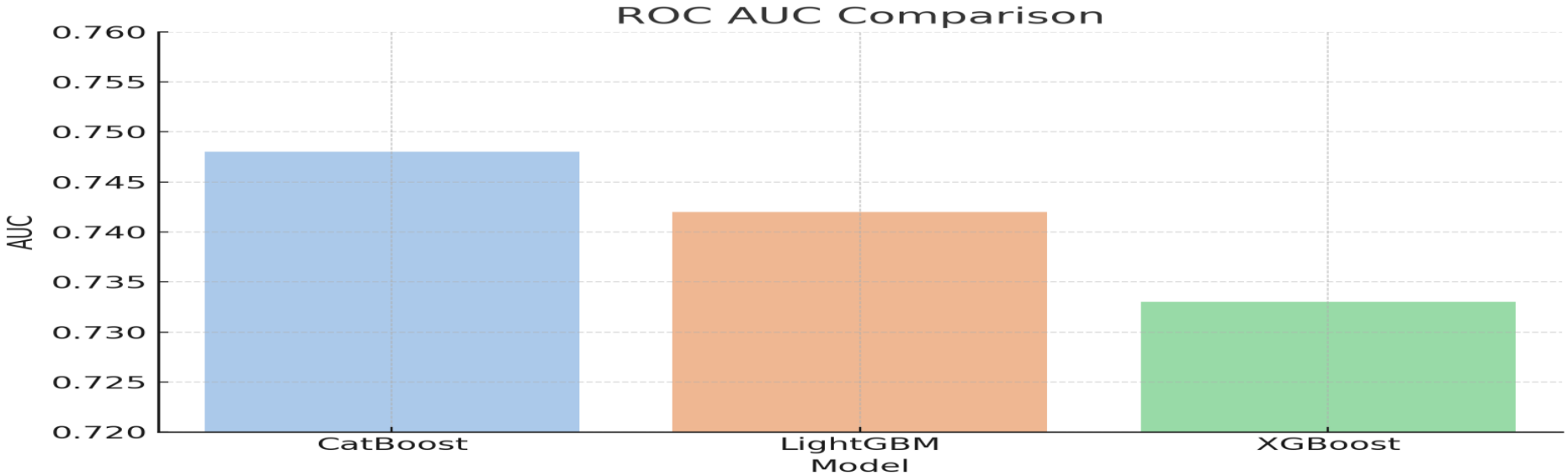
Visualized distributions for variables like Age, Number of Trainings, and Average Training Scores.
Identified a strong correlation between Age and Length of Service, along with moderate correlation between Previous Year Rating and KPIs Met.

Feature Scaling Techniques

Applied various scalers including StandardScaler, MinMaxScaler, RobustScaler, and MaxAbsScaler to normalize data.
Evaluated model performance across these scaling techniques.

Model Training

Trained three classification models: XGBoost, CatBoost, and LightGBM.
Used stratified train-test split to ensure balanced classes for model evaluation.



Model Evaluation Metrics

Measured performance using ROC-AUC scores, confusion matrix, and accuracy scores.
CatBoost consistently achieved the highest accuracy across all scalers.

ROC Curves Insights

ROC analysis confirmed that CatBoost differentiated between classes more effectively than XGBoost and LightGBM.
All models were well-calibrated, indicating strong classification ability.

Conclusion and Recommendations

Key Influencers on performance include Previous Year Rating and KPIs Met.
Recommendations include leveraging training programs in conjunction with performance metrics for better outcomes.

Conclusion

The analysis suggests that effective training programs coupled with strong KPIs can significantly enhance employee performance, with the CatBoost model being a robust tool for predictions.

References

- Analysis based on the employee performance dataset and model evaluations.
- Further information available from results of ROC analyses and classifications.

Thank you!

umarfrooqbhat@email.com
UMAR FAROOQ