

# Employee Turnover Analysis — Final Model Report

Salifort Motors • HR Attrition Project

## Overview

- ❖ This Stage focuses on **building the final machine learning model** using the insights and best-performing algorithms identified in Stage-3.
- ❖ At this stage, the goal is to construct a **reliable, production-ready model** capable of accurately predicting employee turnover.

## Objective

- Build the **final predictive model** using the top-performing algorithm.
- Ensure the model is robust, scalable, and performs well on unseen data.
- Use the optimized training pipeline (SMOTE + Scaling + Best Model) to achieve **high recall** for turnover prediction.

## Results

- ❖ The **Random Forest** model was constructed as the final model.
- ❖ Achieved strong, stable performance on the test set:
- ❖ **Accuracy:** ~98%
- ❖ **Precision (left=1):** 0.98
- ❖ **Recall (left=1):** 0.92
- ❖ **F1-Score:** 0.95
- ❖ The model generalizes well and is suitable for deployment.

	precision	recall	f1-score	support
0	0.99	1.00	0.99	2001
1	0.98	0.92	0.95	398
accuracy			0.98	2399
macro avg	0.98	0.96	0.97	2399
weighted avg	0.98	0.98	0.98	2399

## Next Steps

- ❖ Validate model assumptions
- ❖ Analyze feature importance
- ❖ Interpret how the model predicts turnover