

# IBM Human Resource

## Employee Retention Project

### ISSUE / PROBLEM

IBM seeks to improve employee retention and answer the following question:

**How do we identify employees likely to exit and provide support?**

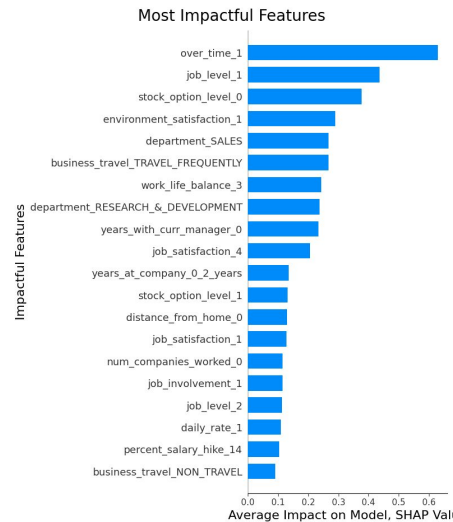
### RESPONSE

Because of the imbalance between samples (leave v. stay), we leveraged an XGBoost model and Random Forest approach.

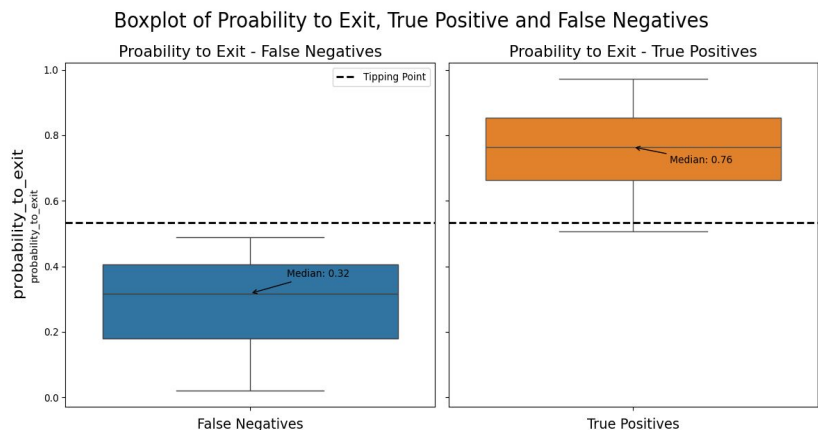
Focus was placed on establishing the probability someone would leave as we want to intervene before someone decides to leave.

### IMPACT

This model helps predict whether an employee will leave and identify which factors are most influential. Our top 3 features—overtime, job level, and stock options—indicate that junior members may feel overworked and disconnected.



**Summary Plot of Impactful Features. Overtime, Job Level, and Stock Options suggest overworked, junior employees feel disconnected**



**To add early warning detection to our process, we identified the tipping point where an employee's intent to leave may shift from a thought to an action. This threshold empowers managers and HR to intervene proactively, allowing for support at the earliest signs of attrition risk.**

### INSIGHTS/NEXT STEPS

- **Monitor** overtime at the Business Unit level to prevent burnout.
  - a. An additional project may be needed to leverage our data to monitor overtime usage to prevent burnout
  - b. If needed, **leverage** Industrial Engineering to revisit Workforce Calculation.
- **Engage** with junior employees!
  - a. With individuals who have less than a year with their manager also being an impactful feature, we might be **too removed from our people**.
  - b. Special emphasis for **junior employees in Sales who travel frequently**, It's harder to engage them and they may feel like they are toiling alone out there. Check up on them!