

The Role of Employees When Departed

Employees are extremely vital in getting projects out the door on schedule. So when one of them departs unexpectedly from work, the projects he had been working on may not be finished and cause delays in overall project delivery timeline. As a result, it is critical to anticipate and try to proactively determine which employees are likely to resign in the future in order to have a plan in place ahead of time.

A) AI Solutions

The solution to this problem should incorporate Artificial Intelligence techniques in particular Supervised Machine Learning. We want to build a model that predicts which employees are going to leave their position by utilizing the relevant historical data of the employees.

The steps to develop such a model include:

- **Data Collection:** Collecting historical information about the employees such as age, years worked, salaries, hours worked, performance evaluations, and if the employee has ever left the company.
- **Data Preprocessing:** Preprocessing the historical employee data to include items like correcting any errors in the data, filling in any missing values, converting categorical data to numerical data, and standardizing any numerical data.
- **Feature Engineering:** Creating new measures in the employee dataset such as overtime worked, total days absent, and salary to years of experience ratio.
- **Model Selection:** During the selection of the ML Algorithm, there are three examples of algorithms that may be suitable for this task: Supervised Machine Learning classification.
- **Model Training and Prediction:** Historical employee data will be used to train the ML model and then to predict or estimate the probability that each current employee will resign from their job.
- **Result Interpretation:** Once the model has been built, use it to forecast which current employees may be high-risk for resignation and share any anticipated high-risk resignations with the HR department so they can create action plans to prevent them from happening.

B) Three Stages of Identifying Problems

1. Understanding the Issue, An unexpected resignation has a negative impact on several upcoming or concurrent projects because uncompleted work assignments create a delay in getting new products to customers.

C) Project Name

Employee Attrition Prediction Using Machine Learning

D) Dummy Dataset

Emp_ID	Age	Experience_Years	Department	Salary	Work_Hours	Leaves	Performance	Job_Satisfaction	Resigned
E001	25	2	IT	30000	9	4	3	Low	1
E002	32	7	HR	50000	8	1	4	High	0
E003	29	4	IT	42000	10	5	2	Low	1
E004	40	15	Finance	80000	8	0	5	High	0
E005	27	3	Support	28000	11	6	2	Medium	1