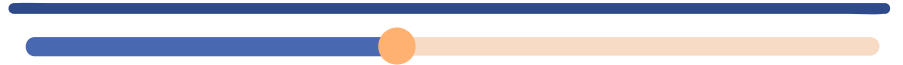


# WILL AN EMPLOYEE LEAVE THE ORGANIZATION?

Rawan Alamoud





# TABLE OF CONTENTS

01. BUSINESS PROBLEM

02. TOOLS

03. DATASET

04. FINDINGS

05. DATA MODEL

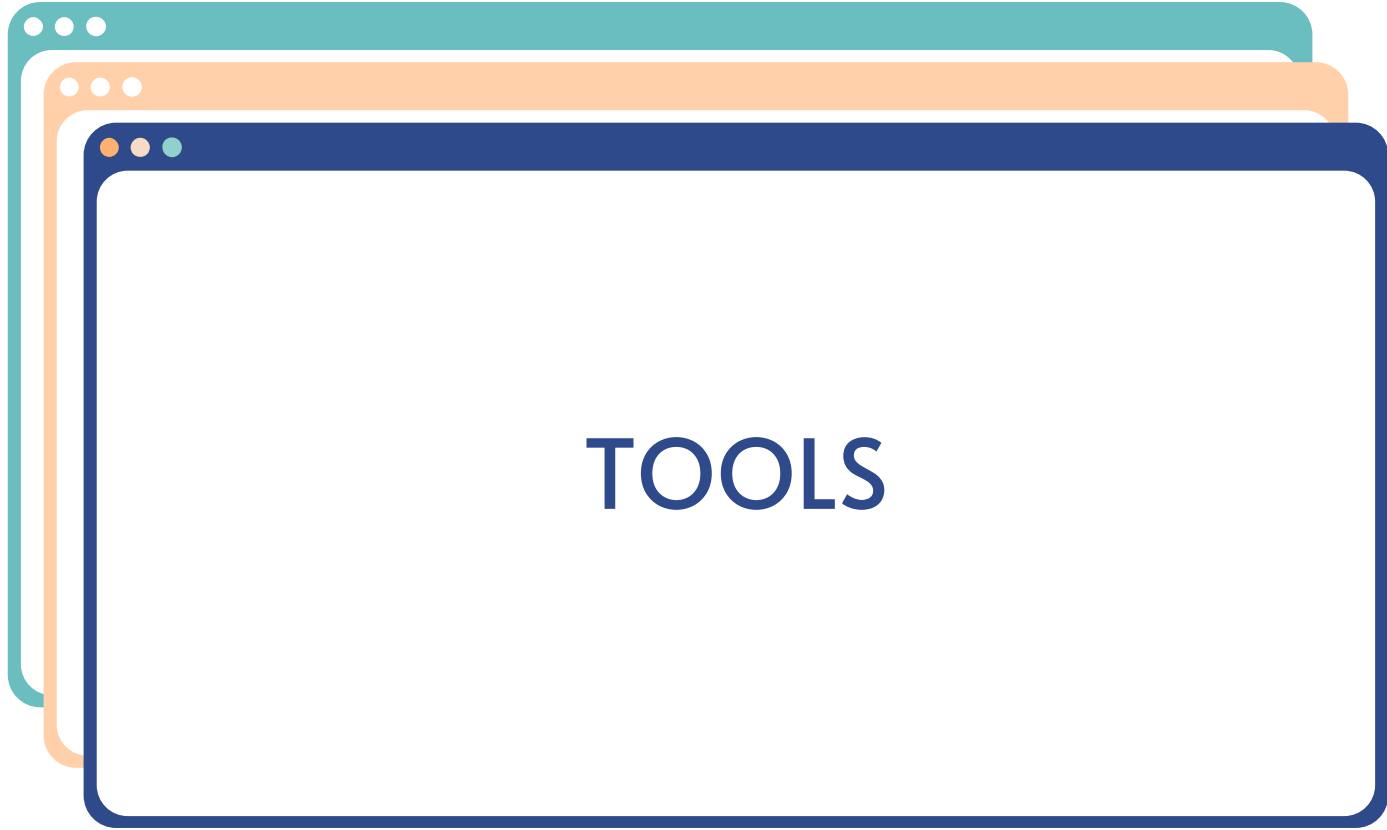
06. RESOURCES



Employee resignation is a major problem for many organizations and this could result in a loss of money, time, and effort for an organization.

**The purpose** of this project is to build a classification model that helps the organization predict whether the employee will leave the organization or continue to work for it.





## DATA PROCESSING



Numpy and pandas

## MODELING

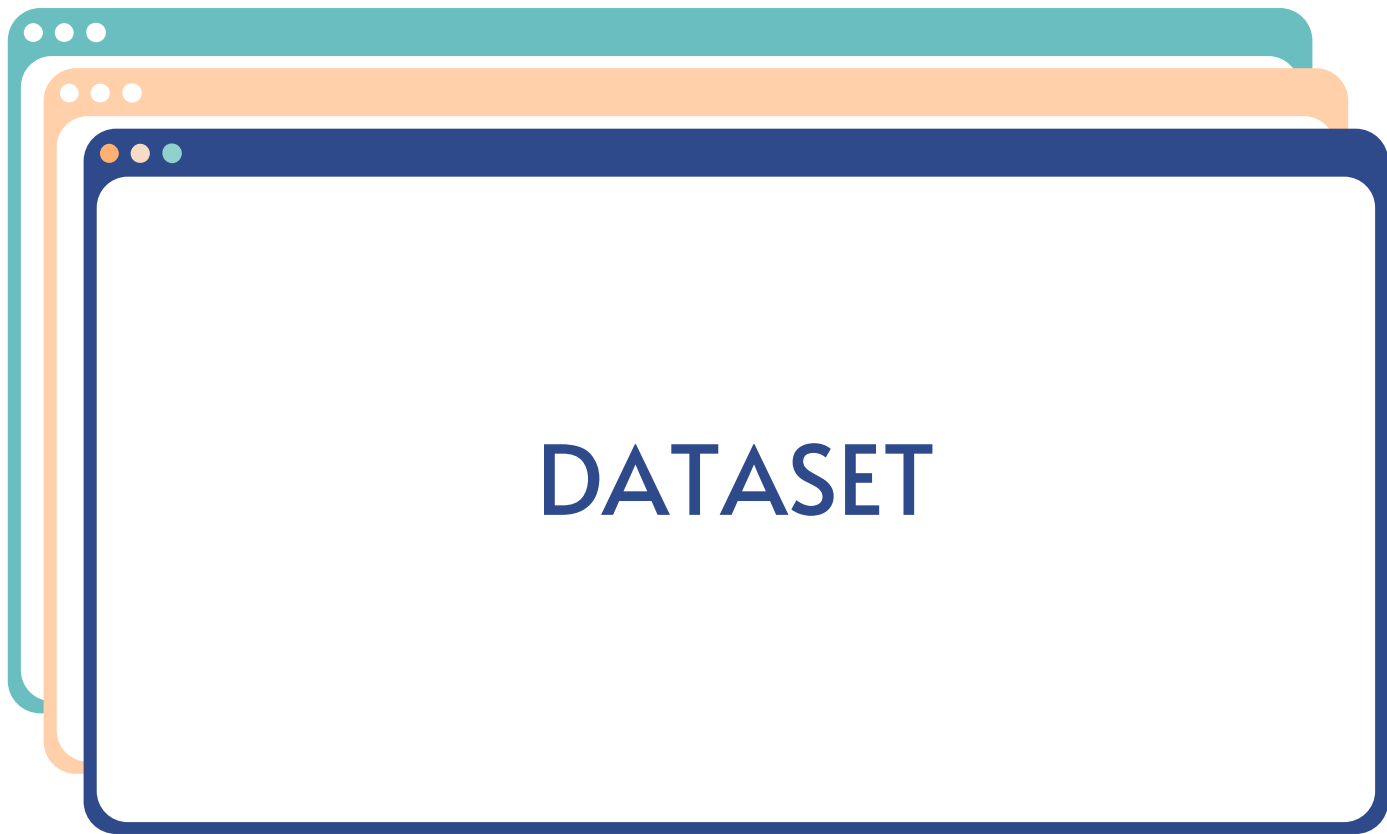


Scikit-learn

## VISUALIZATION



Matplotlib and Seaborn



# HUMAN RECURSES DATASET

Target



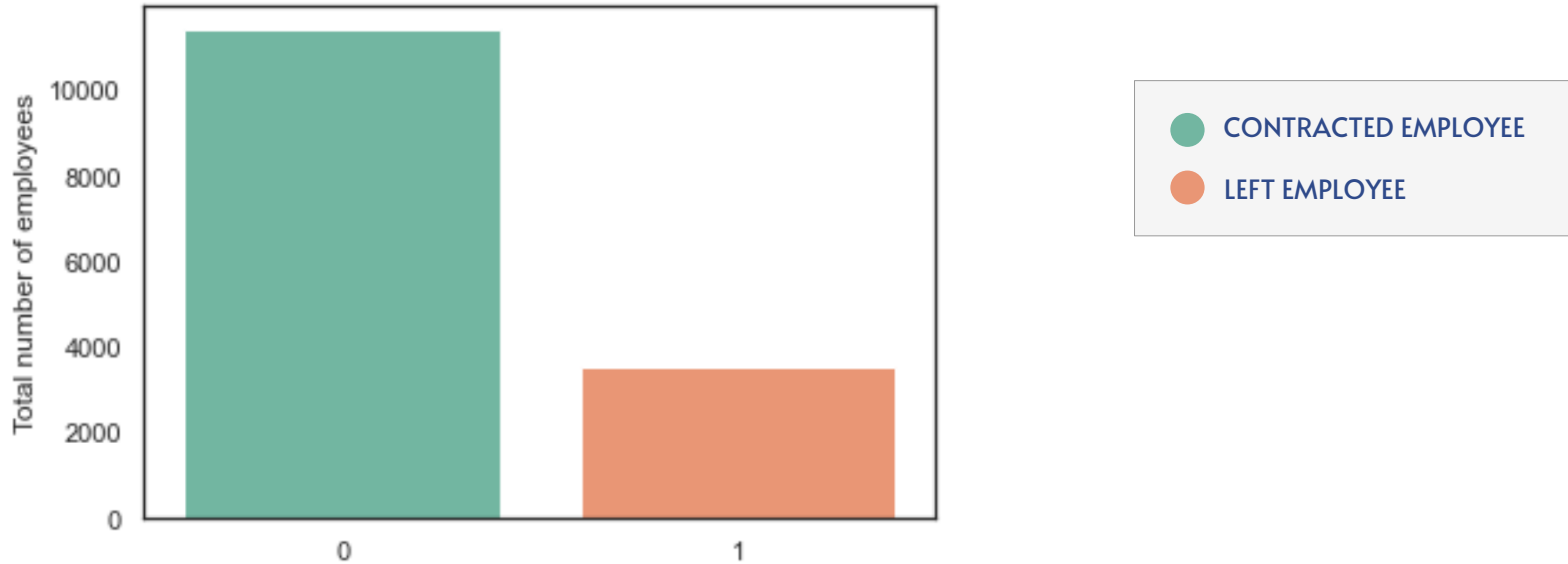
	Satisfaction level	Last evaluation	Number project	Average monthly hours	Time Spend company	Work accident	left	Promotion last 5 years	Department	salary
0	0.38	0.53	2	157	3	0	1	0	sales	low
1	0.80	0.86	5	262	6	0	1	0	sales	medium
2	0.11	0.88	7	272	4	0	1	0	sales	medium
3	0.72	0.87	5	223	5	0	1	0	sales	low
4	0.37	0.52	2	159	3	0	1	0	sales	low

- o The dataset contains 14,999 data points and 10 features.



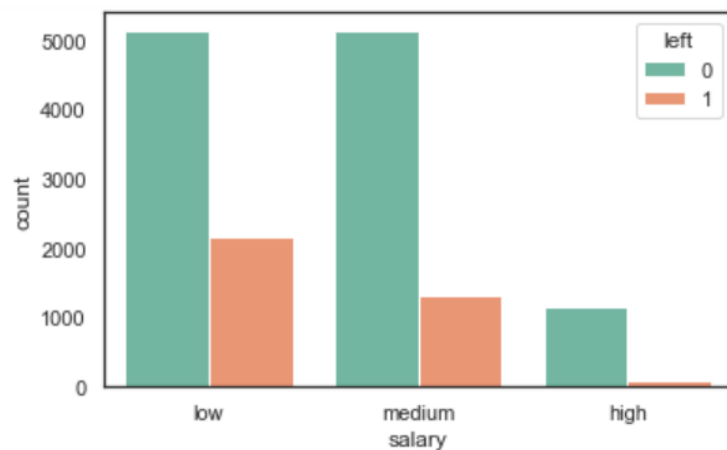
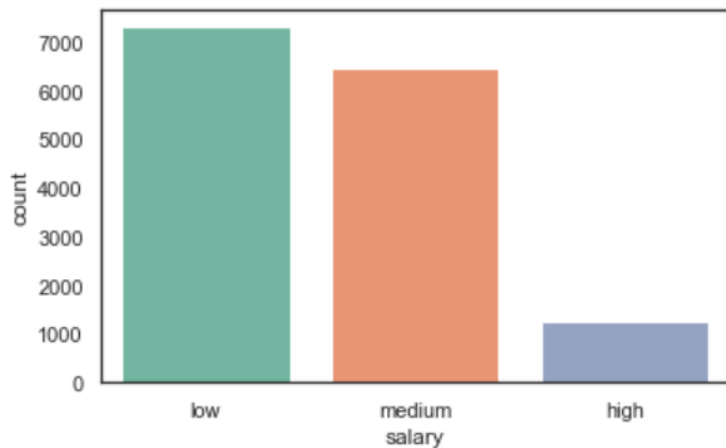


# NUMBER OF EMPLOYEES CONTRACTED/LEFT



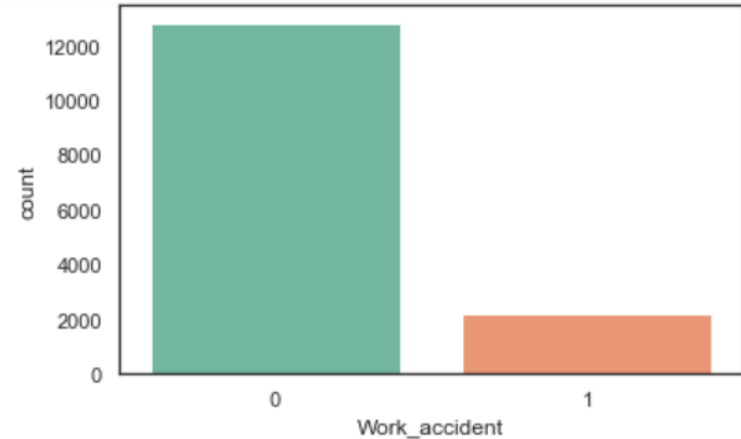
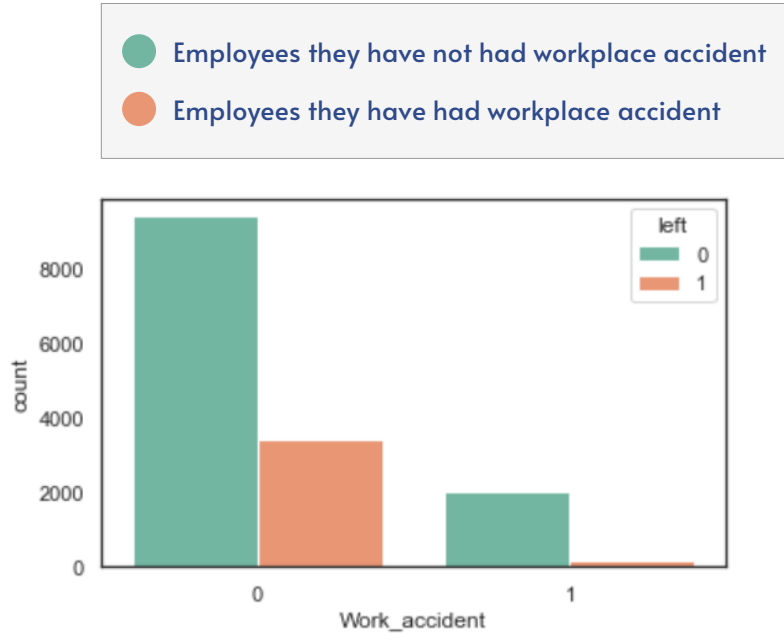
- The total number of employees who have left the organization: 3571
- The total number of contracted employees: 11428

# EMPLOYEES SALARY LEVEL



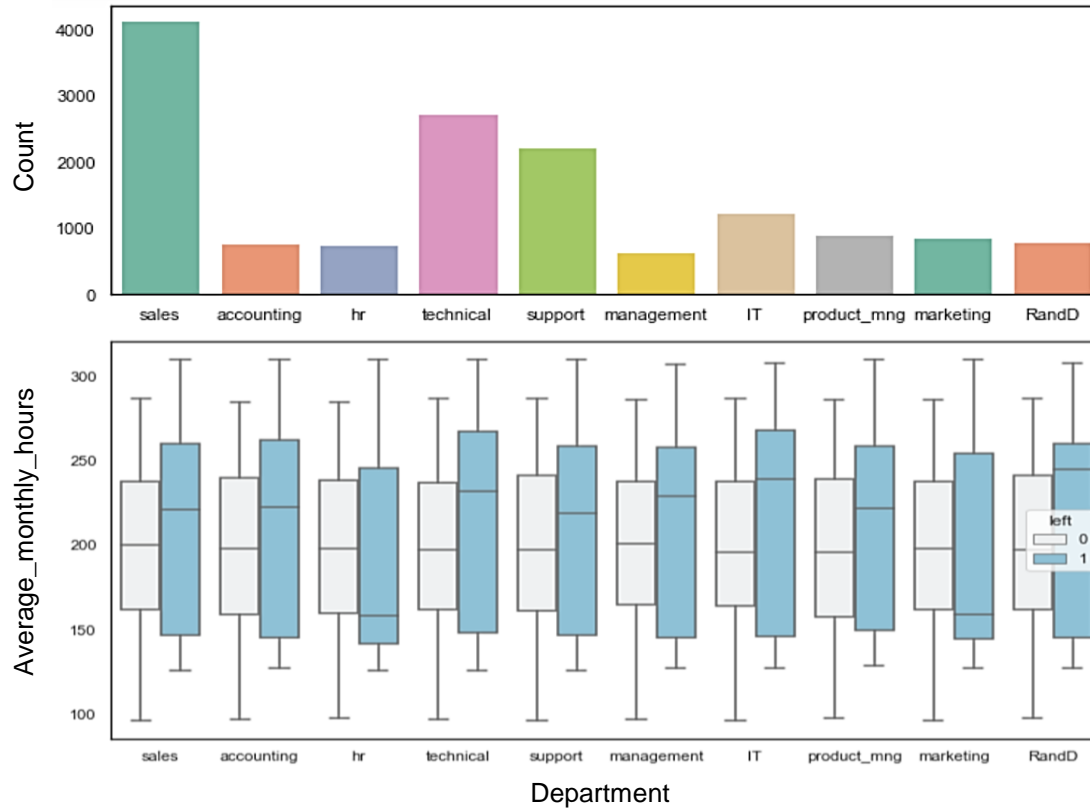
- o The left employees were receiving a low and medium level of salary

# HAVE EMPLOYEES HAD A WORK ACCIDENT?



- o Work accident feature not have a direct and clear impact on employees leaving

# AVERAGE MONTHLY HOURS IN EACH DEPARTMENT

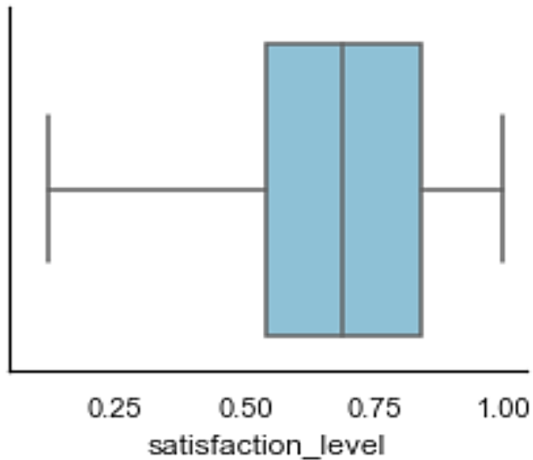


- CONTRACTED EMPLOYEE
- LEFT EMPLOYEE

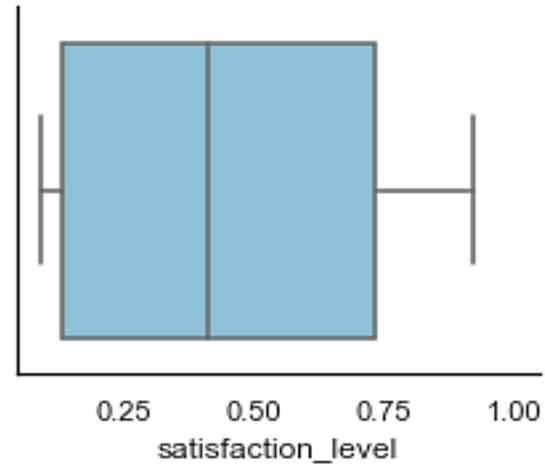
- o Employees who have left the organization were working for longer hours.

# LEVEL OF EMPLOYEES SATISFACTION

Contracted employees



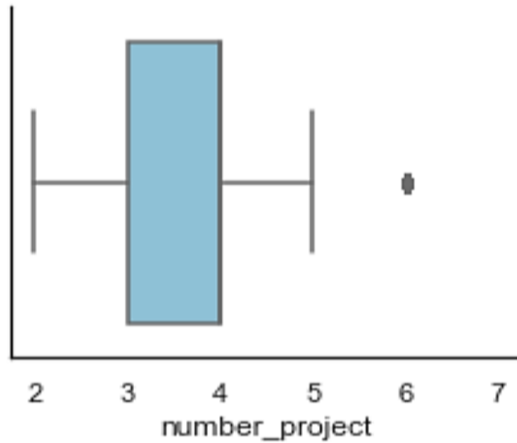
Left employees



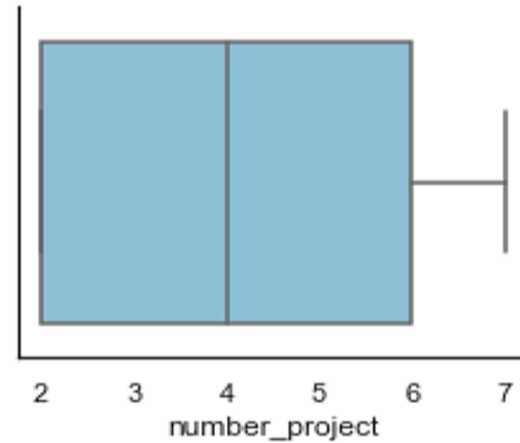
- o Employees who are left have a lower satisfaction rate.

# NUMBER OF PROJECTS THE EMPLOYEE COMPLETED WHILE AT WORK

Contracted employees

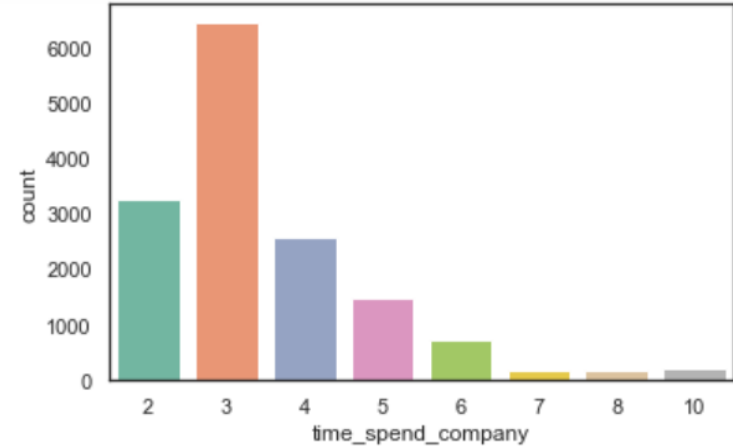
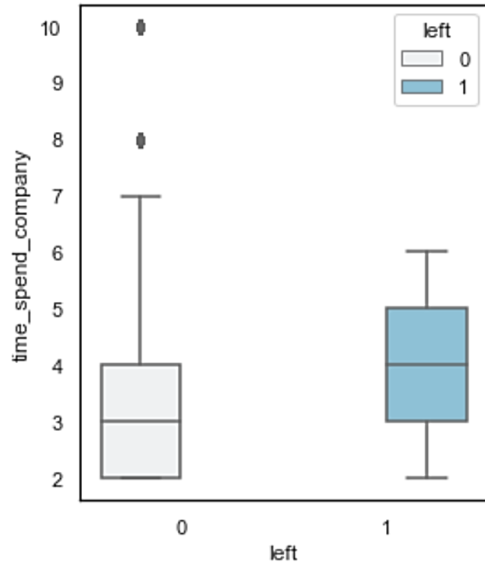


Left employees



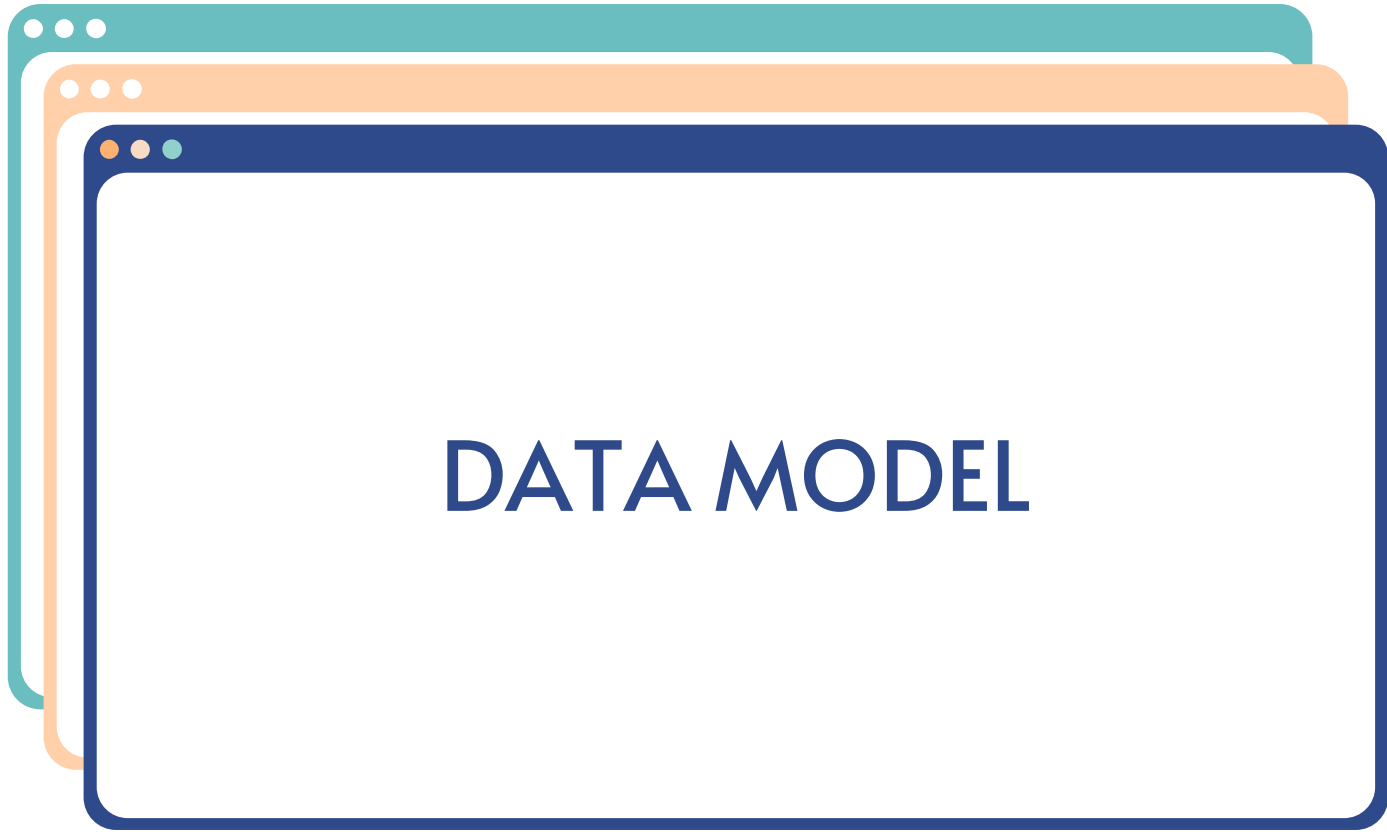
- o Employees that handle a large amount of projects tend to leave the organization.

# NUMBER OF YEARS THE EMPLOYEE HAS WORKED IN THE ORGANIZATION



- o Employees with high time employed by the organization tend to leave the organization.





- LOGISTIC REGRESSION MODEL

	Retained	left
Precision	0.79	0.47
Recall	0.92	0.23
F1-score	0.85	0.31

- KNN MODEL

	Retained	left
Precision	0.97	0.81
Recall	0.94	0.90
F1-score	0.95	0.85

# ACCURACY AND MSE RESULTS

Model	Accuracy	MSE
Logistic Regression	75.8%	24.2%
KNN	92.73%	7.27%



# RESOURCES

## DATASET

- Kaggle.com. 2021. *HR Analytics*. [online] Available at: <<https://www.kaggle.com/giripujar/hr-analytics>> [Accessed 30 October 2021].



# THANKS!

Do you have any questions?