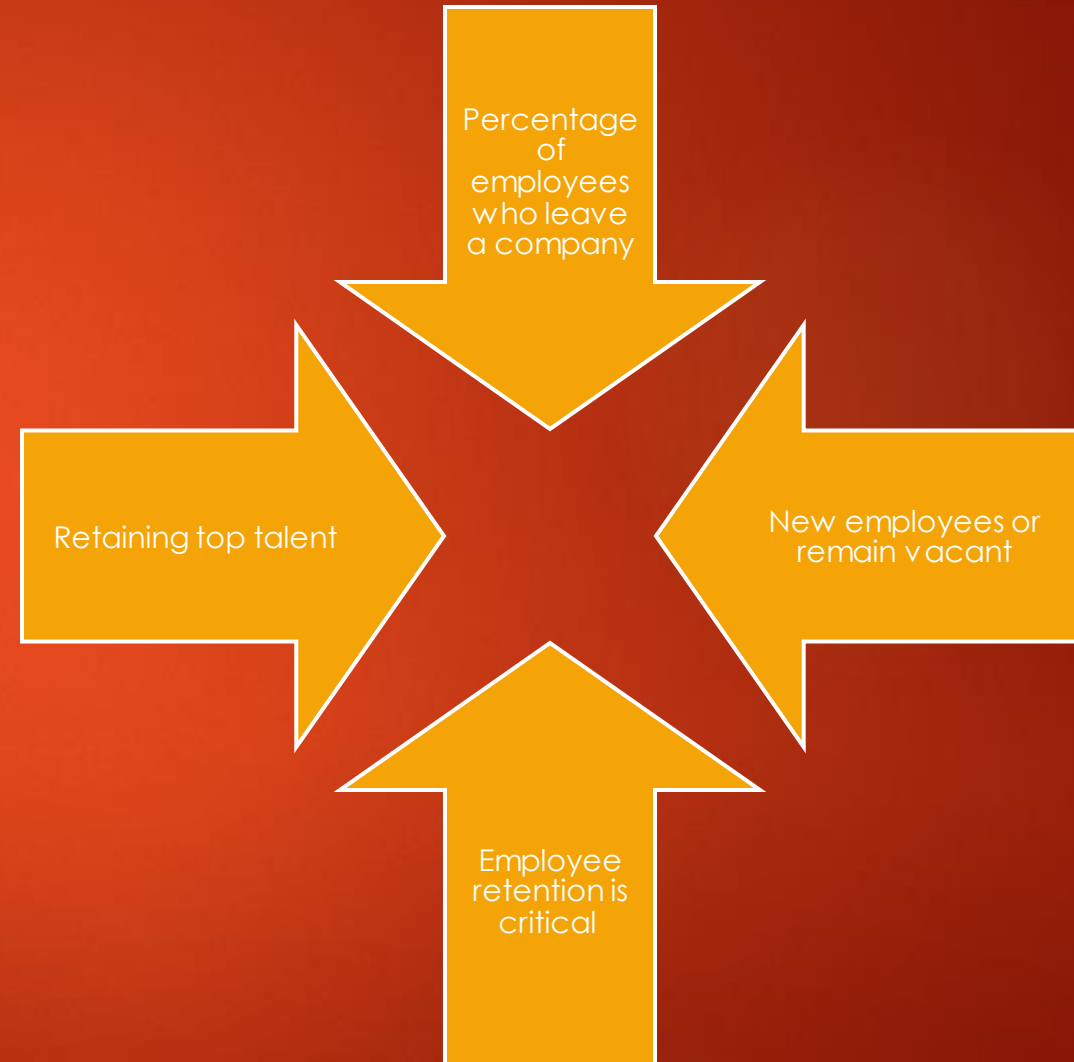


Employee Attrition

BILL ANDREWS | BELLEVUE UNIVERSITY

Background/History

► Employee attrition



Business Problem

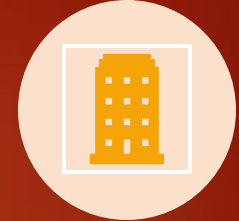
- ▶ The cost of high employee attrition to an organization is a significant issue.



JOB POSTINGS, HIRING
PROCESSES,
PAPERWORK, AND NEW
HIRE TRAINING



PREVENTS THE COMPANY
FROM EXPANDING ITS
COLLECTIVE
KNOWLEDGE AND
EXPERIENCE



COMPANY SERVES
CUSTOMERS



ERRORS AND PROBLEMS

Exploring the Dataset

► Dataset

Rows and Attributes

Attrition

Missing Data

Attributes Removed

Data Types

Methods

- ▶ What methods will be used in this data science project?
 - ▶ Define the problem
 - ▶ Gather the data
 - ▶ Prepare the data
 - ▶ Exploratory Data Analysis (EDA)
 - ▶ Model Data



Methods

- ▶ EDA and Prepare Model
 - ▶ Analysis
 - ▶ Splitting the dataset
 - ▶ Categorical Variables
 - ▶ Rescale the data
 - ▶ Import the Models



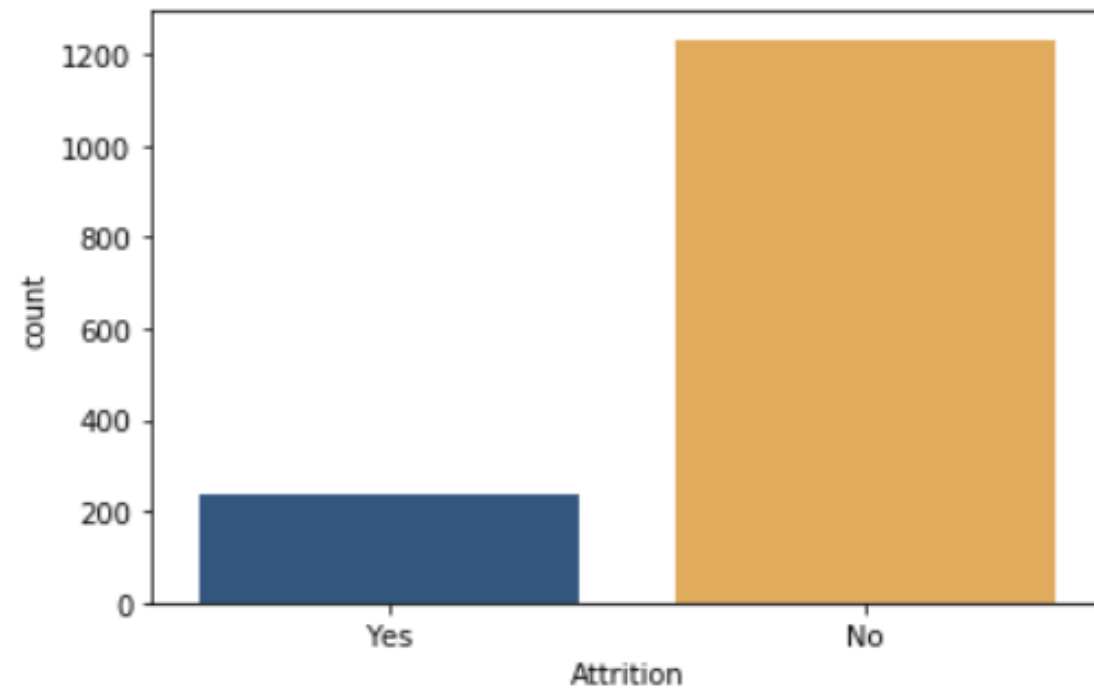
Visualizations

- ▶ Attrition Count
- ▶ Histogram of all variables
- ▶ Correlation

Visualizations

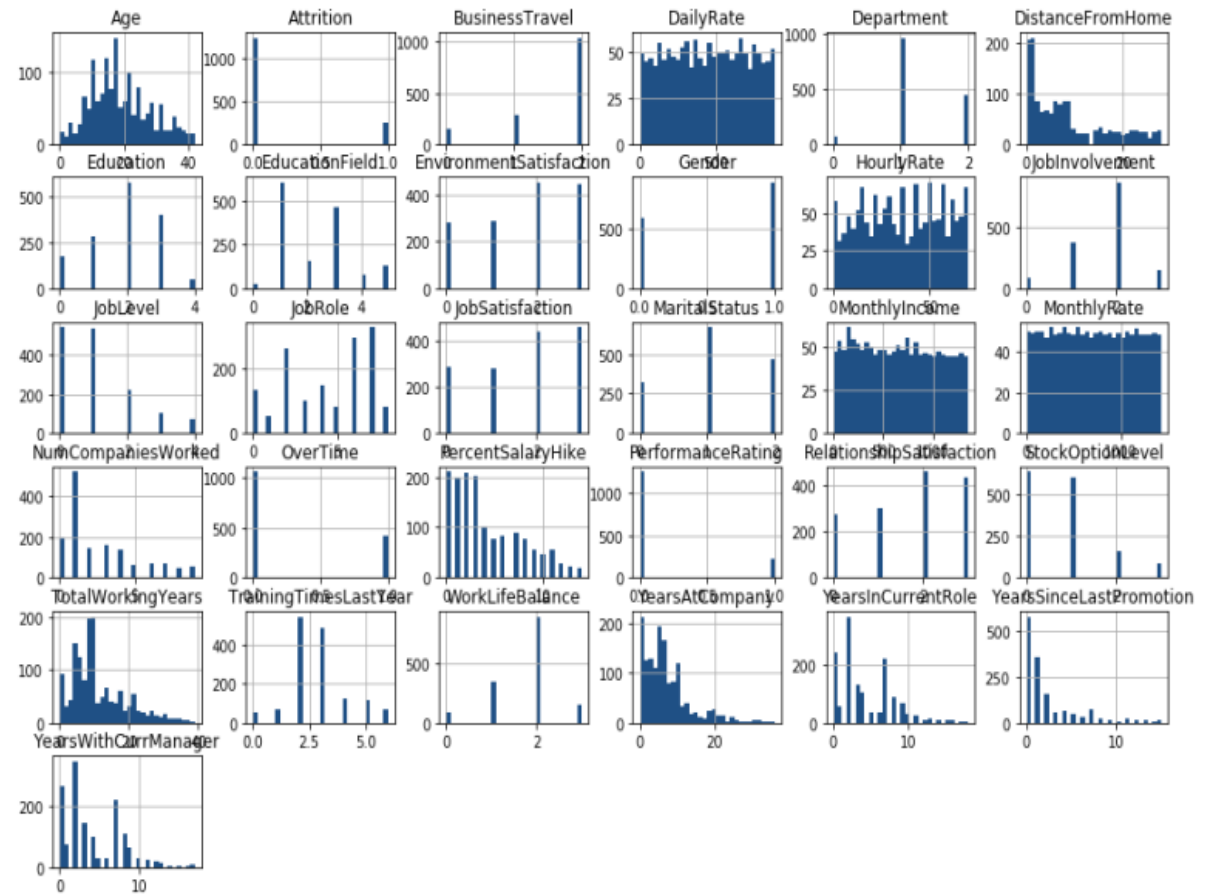
► Attrition Count

Attrition Count

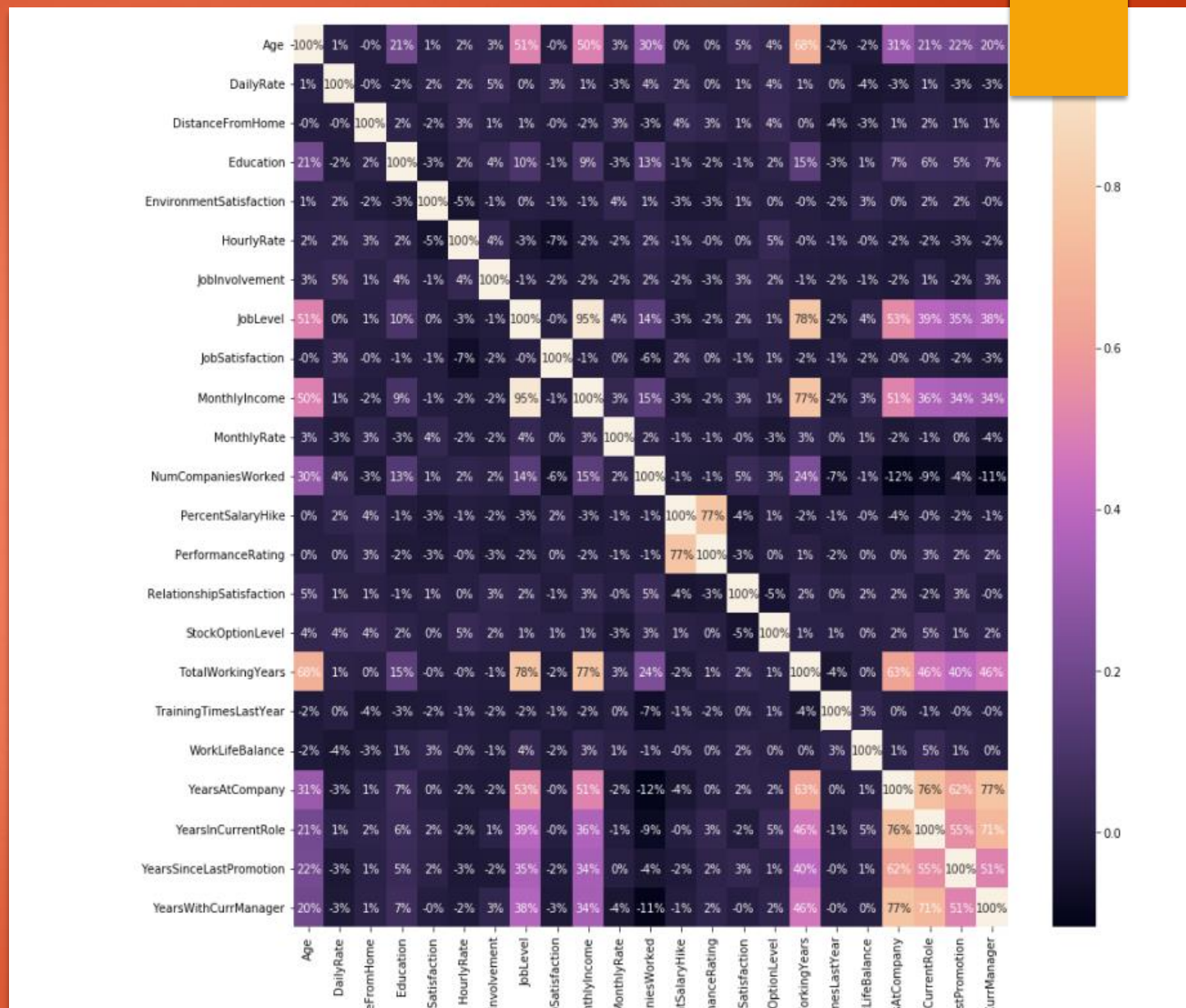


Visualizations

- Histogram of all variables

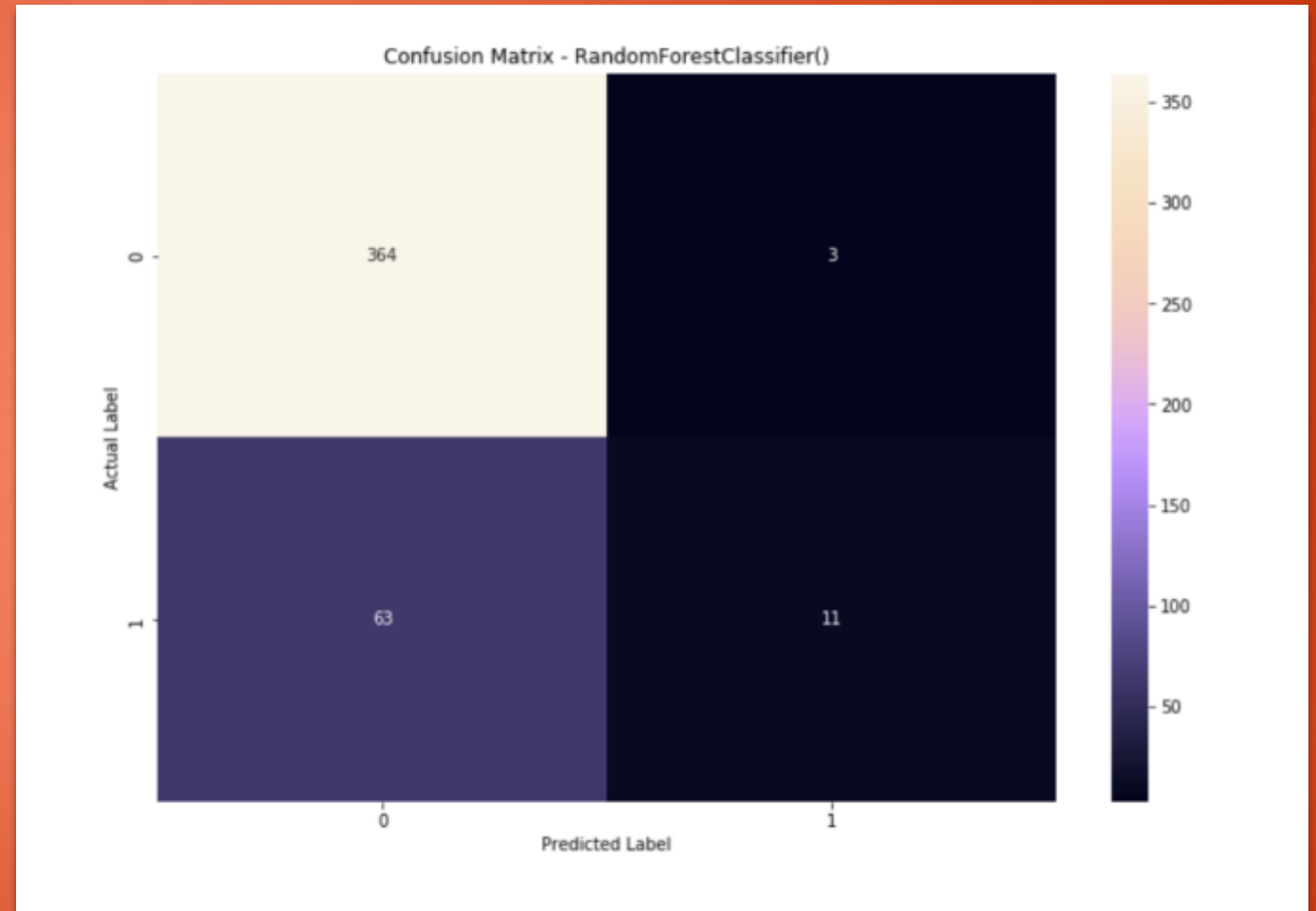


► Correlation



Conclusion

- ▶ Random Forest Model
 - ▶ Confusion Matrix
 - ▶ Accuracy
 - ▶ Precision
 - ▶ Recall
 - ▶ F1_Score



Assumptions



Conditions

Parameters

Limitations

Data Shortage



Data Labeling Errors

Challenges

Definition

Specific
Business
Problem

Amount of
Data

Additional Applications



Employee
Requirements



Talent
Acquisition



Loss of
Expertise



Measurement



Contingency
Plan

Recommendations

Specific Departments

Work Environment

Opportunities

Recognition

Competitive Compensation

Implementation Plan

A graphic consisting of two overlapping rounded rectangles. The front rectangle is light beige with a thin orange border and contains the text 'Retention Strategy'. The back rectangle is solid orange.

Retention
Strategy

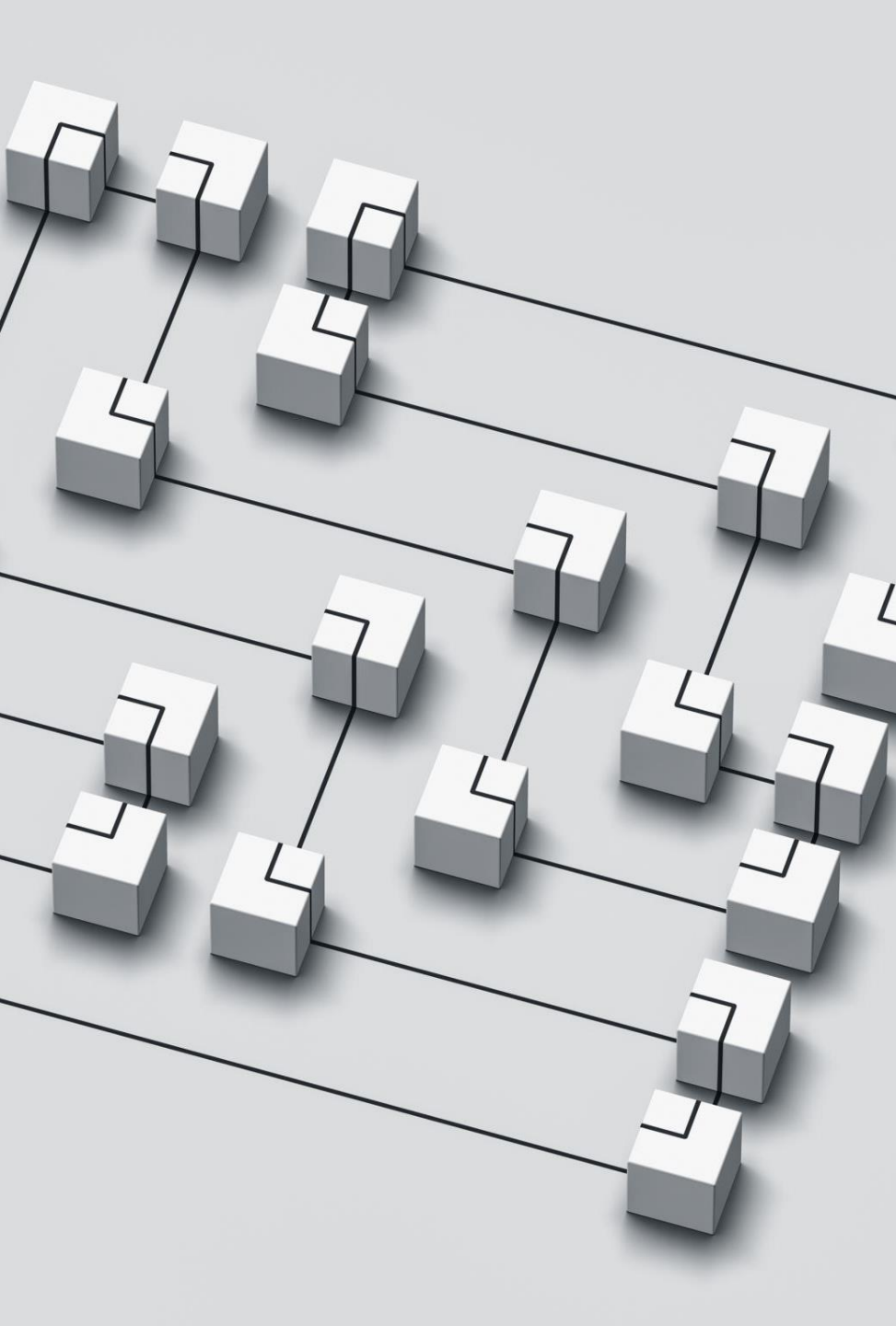
Ethical Assessment

Data
Bias

Stale
Data

Model
Features

Questions?



References

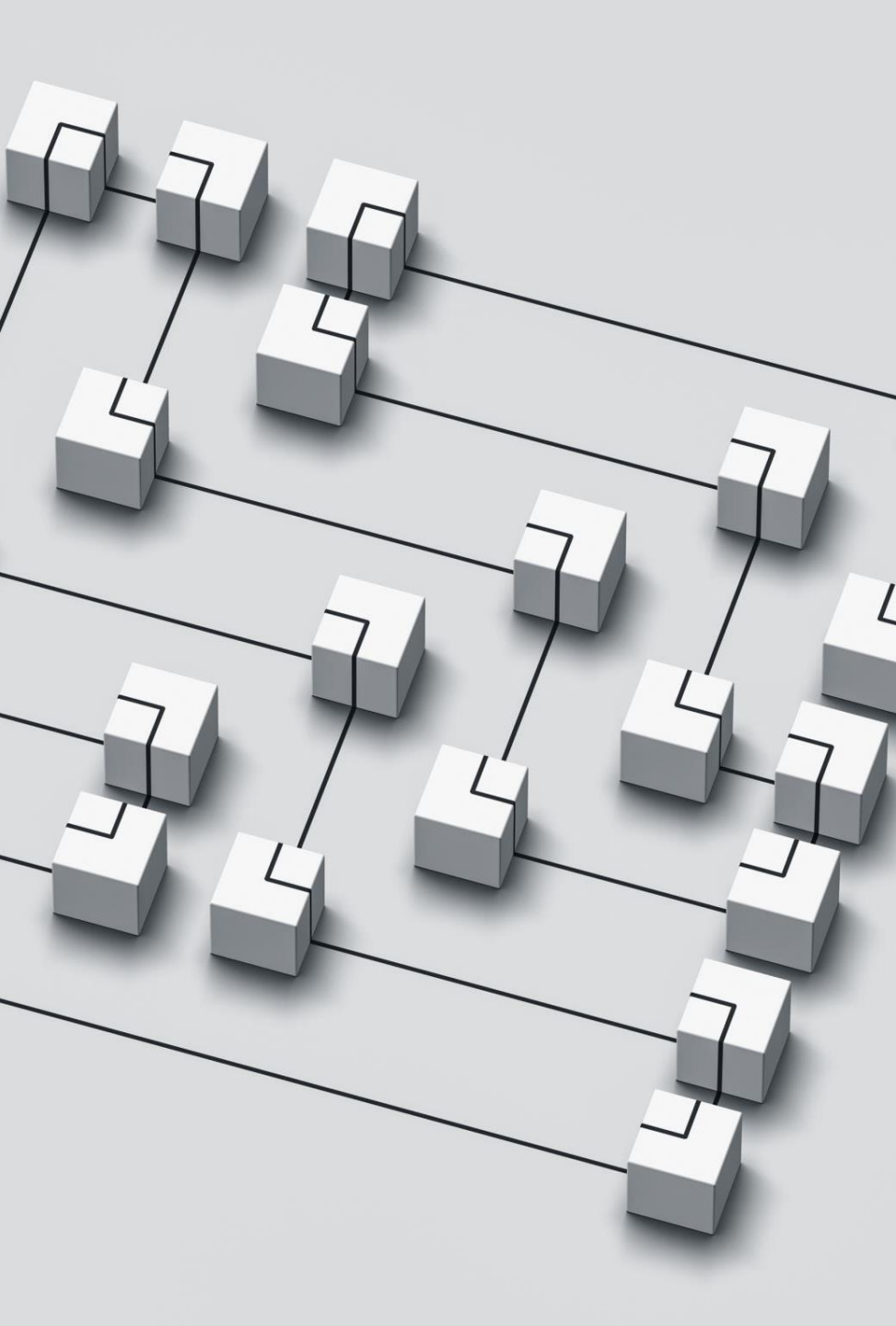
(March 13,2020). Predict Employee Attrition Using Machine Learning & Python. Will your employees leave? [Predict Employee Attrition Using Machine Learning & Python | by randerson112358 | Analytics Vidhya | Medium](#)

Dialani, Priya. (May 19, 2001). Predictive Analytics Models: Everything to Know About It. [Predictive Analytics Models: Everything to Know About It \(analyticsinsight.net\)](#)

Dalinina, Ruslana. (March 2, 2017). The Challenges of Building a Predictive Churn Model. [The Challenges of Building a Predictive Churn Model \(oracle.com\)](#)

Shanghvi, Yash. (April 12, 2022). Working with Predictive Data Models: A Comprehensive Guide 101. [Working with Predictive Data Models: A Comprehensive Guide 101 - Learn | Hevo \(hevo.com\)](#)

Sharma, Natasha. (May 18,2018). People Analytics with Attrition Predictions. [People Analytics with Attrition Predictions | by Natasha Sharma | Towards Data Science](#)



References

Keserer, Ekin. (October 7, 2021). Business Intelligence. Predicting Employee Attrition Using Machine Learning. [Predicting Employee Attrition Using Machine Learning \(akkio.com\)](https://akkio.com/predicting-employee-attrition-using-machine-learning/)

Gupta, Bhasker. (February 12, 2016). Predictive Attrition Model: Using Analytics to predict Employee Attrition. [Predictive Attrition Model: Using Analytics to predict Employee Attrition \(analyticsindiamag.com\)](https://analyticsindiamag.com/predictive-attrition-model-using-analytics-to-predict-employee-attrition/)

Torres, Fernando Luis. EDA and Employee Attrition Prediction. Python · Employee Attrition. [EDA and Employee Attrition Prediction | Kaggle](https://www.kaggle.com/fernando123/eda-and-employee-attrition-prediction)

Patel, Prashant. Employee Attrition. Fictional dataset on HR Employee attrition and performance. [Employee Attrition | Kaggle](https://www.kaggle.com/prashant123/employee-attrition)

Gulati, Preet Aman. (November 1, 2021). Employee Attrition Prediction – A Comprehensive Guide. [Employee Attrition Prediction – A Comprehensive Guide - Analytics Vidhya](https://www.analyticsvidhya.com/blog/2021/11/employee-attrition-prediction-a-comprehensive-guide/)

Ethical Decision-Making Models and 6 Steps of Ethical Decision-Making Process. [Ethical Decision Making Models and 6 Steps of Ethical Decision Making Process - Status.net](https://www.status.net/ethical-decision-making-models-and-6-steps-of-ethical-decision-making-process/)