# Future of Tech Recruiting

ALEX DONAHUE

# Business Approach

**Use case**

- Accurately analyze and predict the current and future trend of layoffs within the tech industry across the united states.

**Approach**

- Examine and analyze layoff data to identify key aspects and build a supervised learning model to at level of accuracy that will allow you to predict the trend of future layoffs in this industry.

**Key metrics**

- Percentage of layoffs, Total layoffs, Country,  Location, Time Since Layoff

# About the Data

➢ The data availability is from when COVID-19 was declared as a pandemic (March 11, 2020 - December 14, 2022)

➢ The data that my team collected allowed us to gather insights of companies across the globe.

➢ We were able to gather details on specific sub industries, funding, stage of the company, locations, and preform calculations.

➢ We ultimately ran the model using data of companies located in the United States.

# Data Prep

**Initial Cleaning**: Dealing with null values, creating new columns for date calculations and setting the data frame to only include US Companies

**Further cleaning:** Reevaluating initial cleaning by exploring charts about the data, dropping unneeded columns and rows, and deleting inaccurate rows regarding location.
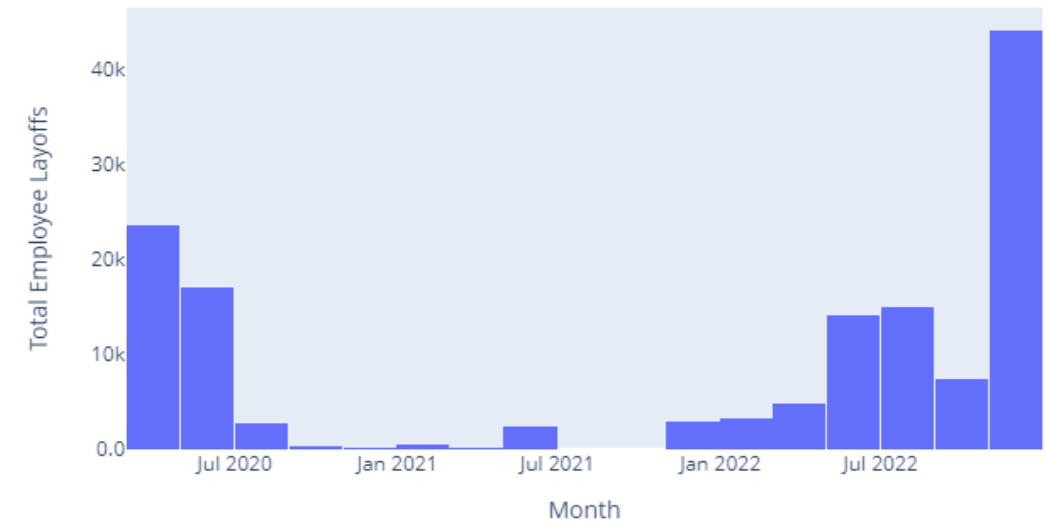
**Encoding**: Assigning integer ID to Sub industry and regional locations and creating dummy variables for object data types to run the model.

Step by step descriptions are provided before each section, and comments with each line of code within the notebook.
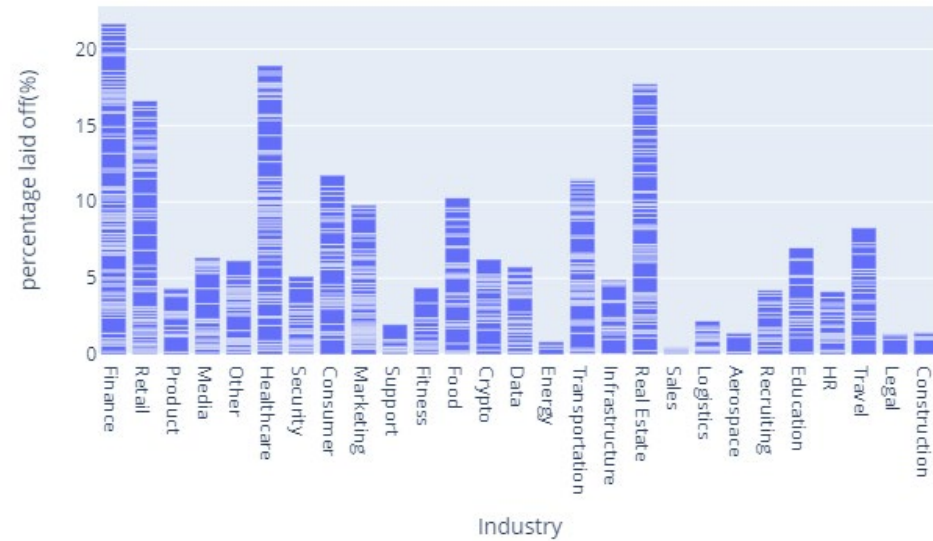
# Importance

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Used to predict hiring flow

Workflow timing

Financial planning

Specialized hiring

# Predictive Modeling

My team built 3 predictive models :

➢Decision Tree, XGBoost, Linear Regression

  ➢Decision Tree regression
    ➢Low accuracy
    ➢Inconsistent
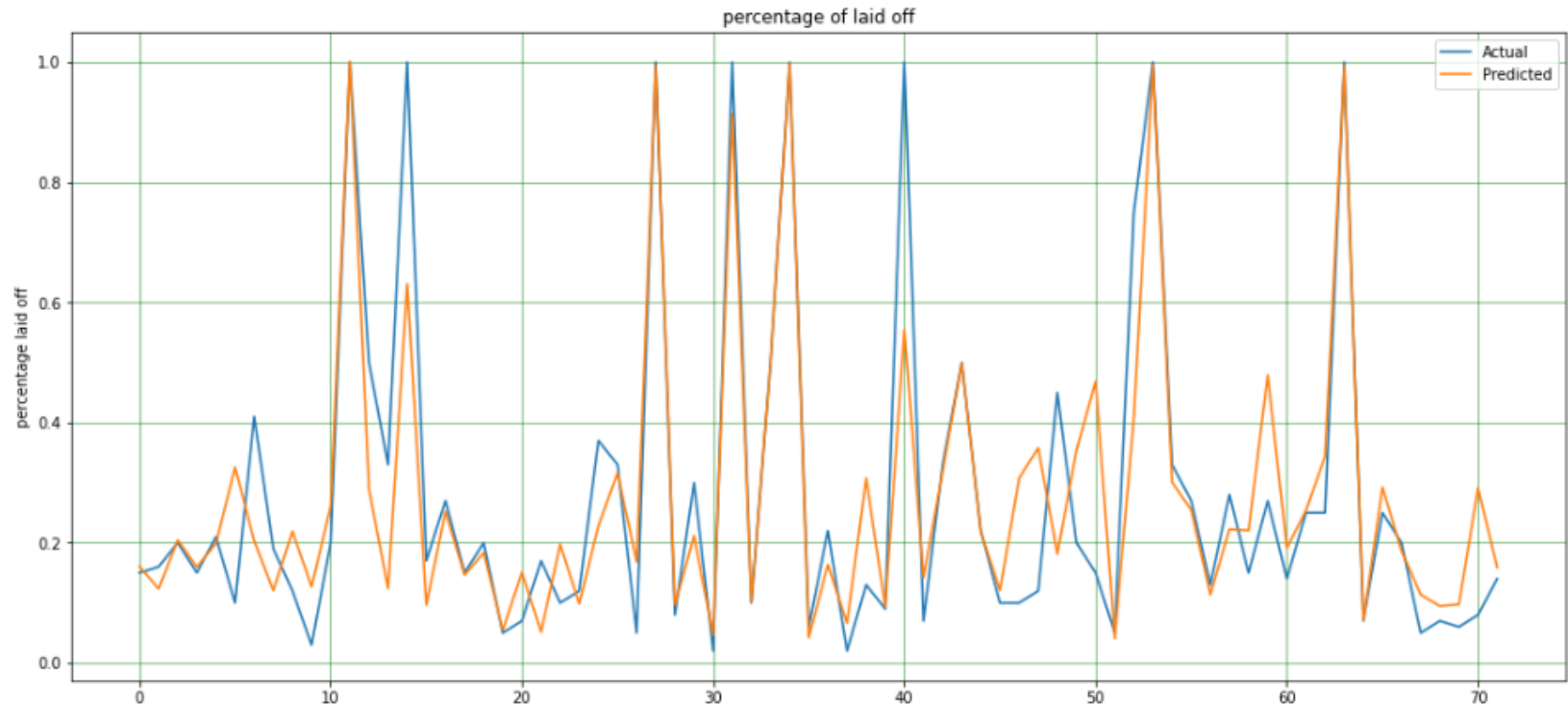    ➢Long Run time  when plotting the tree
    ➢Sporadic and high tree count

  ➢XGBoost Regression
    ➢Increased accuracy but still low

# Linear Regression

➢ Regression Score: .795

➢ R-squared coefficient: .795

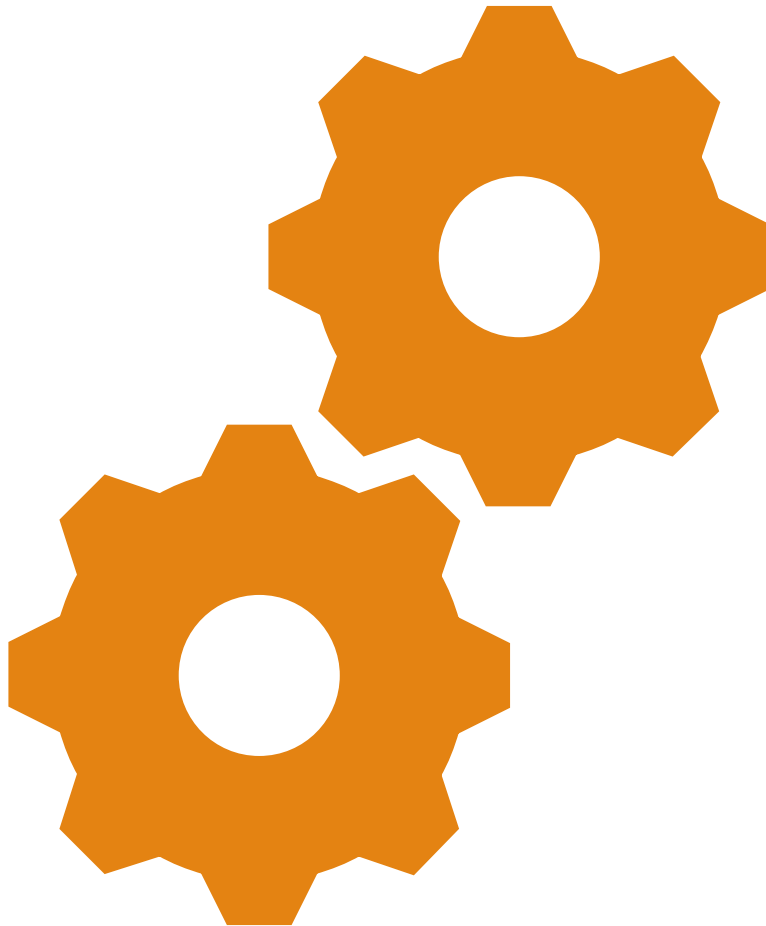➢ RMSE: 0.12



percentage of laid off

# Moving forward

Continuous training of the model periodically is recommended

Due to the Covid-19 pandemic being an unusual circumstance regarding layoffs the utility of the model is likely to drop

Training with new data and more current data periodically  will help combat model drift. Helping to maintain the level of accuracy.

# Summary

Integrate Linear Regression model into business strategy

- most accurate
- Most consistent

Combat limitations by continuing to update and retrain the model more current data

Follow step by step guide to program your model easily and efficiently

Q&A