Mental Health Within the Office

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The virtual nature of individual's jobs during the Covid-19 Pandemic has deteriorated employee mental health, calling for better employer communication.

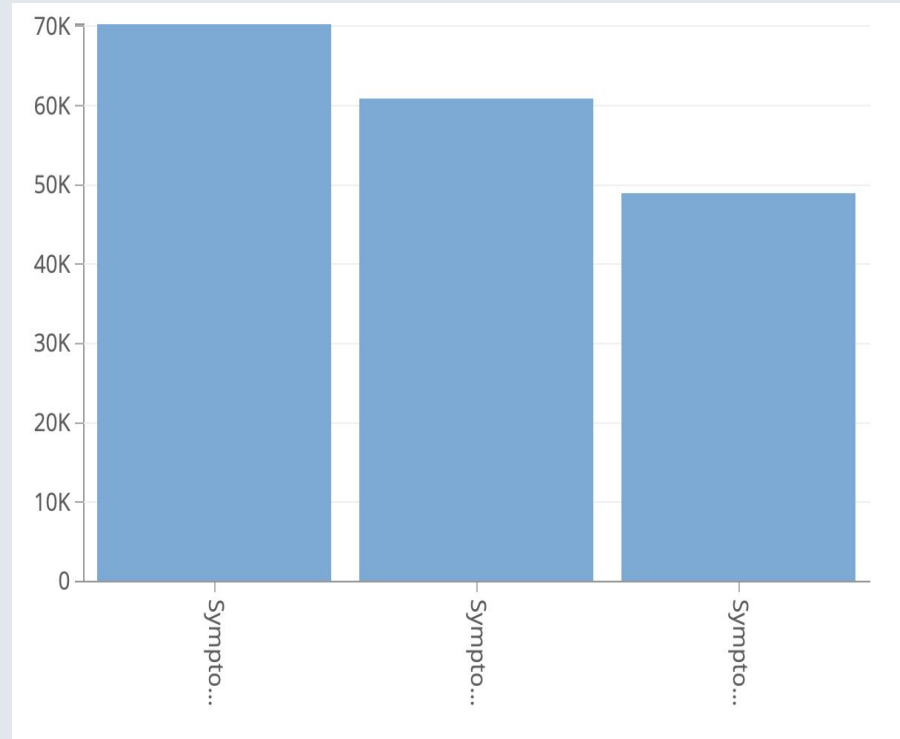# Anxiety or Depression During a 7-day Period

70,265.8 people

Recorded that they had symptoms of Anxiety Disorder or Depressive Disorder

60,827.7 people

Recorded that they had symptoms of Anxiety Disorder

48,925.1 people

Recorded that they had symptoms of Depressive Disorder

Mental Health Awareness

Mental illnesses affects an employee's communication with coworkers and their physical capability to function daily.

Source: CDC

Over 69% of employees have been showing burnout symptoms globally.

Source: Monster Poll

Depression interferes with an employee's ability to complete physical job tasks 20% of the time

Source: CDC

Time For Change!

We propose to make it mandatory for businesses to administer weekly or bi-weekly surveys to their employees that will then be interpreted by an AI. These surveys will check in with employee's mental health and 'burnout' state and then convey this information to the employer.
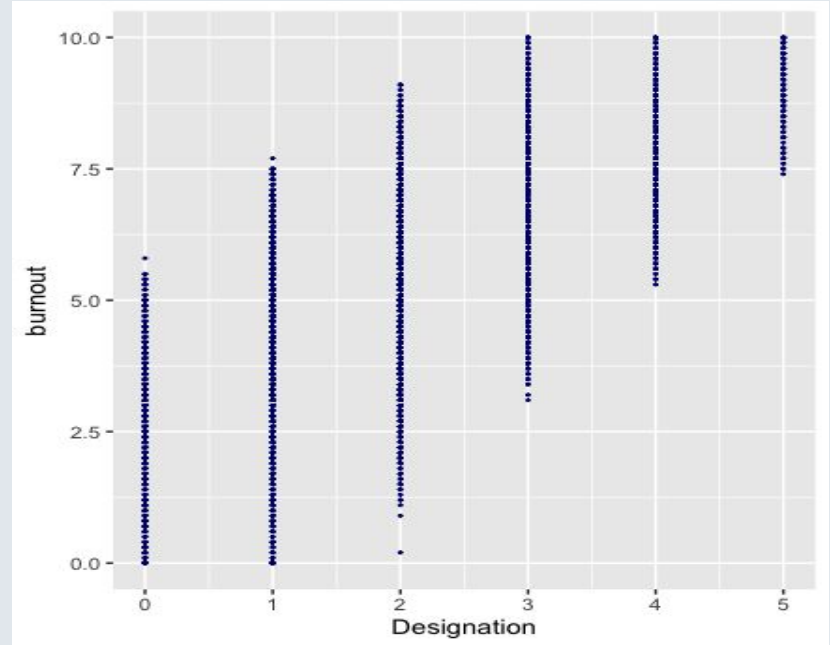
Data

Based on the data, as the seniority level of the employee increases, the anxiety and stress levels also increase.

The dataset consists of parameters such as date of joining, gender, company type, WFH setup availability, designation, resource allocation, and mental fatigue score.
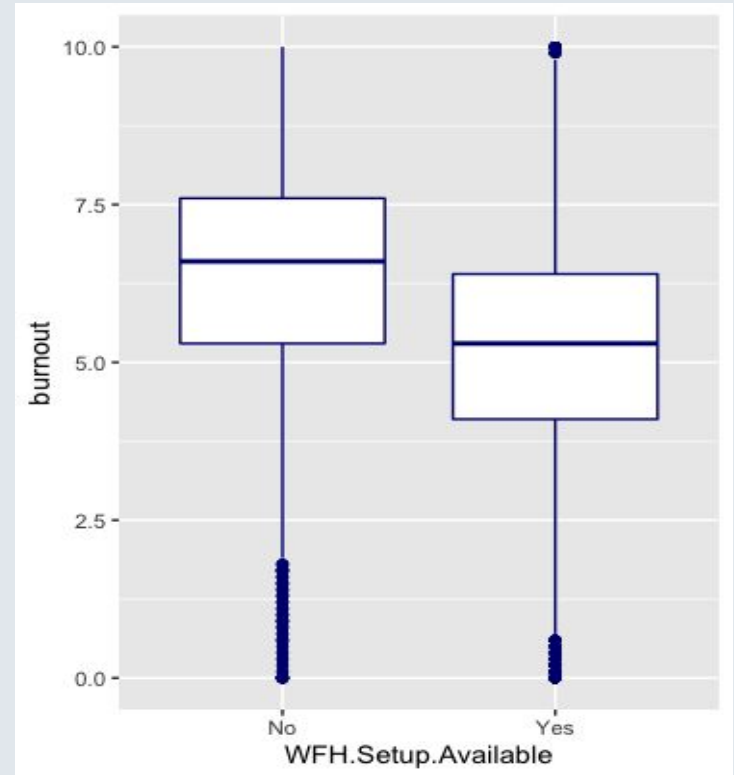
Burnout Rate Related to Job Designation

Source: Kaggle – Are Your Employees Burning Out?

Data

The left box plot is data from those who do not have a work from home setup and the right box plot is data from those who do have a WFH setup.

From the box plots it can be concluded that employee's with a proper work from home set up have a lower burnout rate.

Burn Rate for those who have working from home (WFH) setups and those who do not.

Surveys

```
des = float(input("What is your designation from 0-5?"))
ra = float(input("How would you rate your resource allocation from 1-10?"))
mfs = float(input("From 1-10 how mentally fatigued do you feel?"))

What is your designation from 0-5?3
How would you rate your resource allocation from 1-10?5
From 1-10 how mentally fatigued do you feel?4.5

print("Burn Out Rate:" + str(model.predict([des,ra,mfs])[0]))

Burn Out Rate:0.37202335498

/u/ibmuser/mlzos/imlpython/env/mlzenv/lib/python3.6/site-packages/sklearn/utils/va
ueError in 0.19. Reshape your data either using X.reshape(-1, 1) if your data has
  DeprecationWarning)
```

- Surveys are a prime way to connect and communicate with employees.

- Since we found evidence of elevated stress & anxiety levels based on the level of seniority of the employees job, these employees should receive different amount of questions more tailored to their workload.

- It is especially important for large companies to administer these surveys because it is often harder to reach everyone within large businesses. We want to ensure each employee is heard and reached.
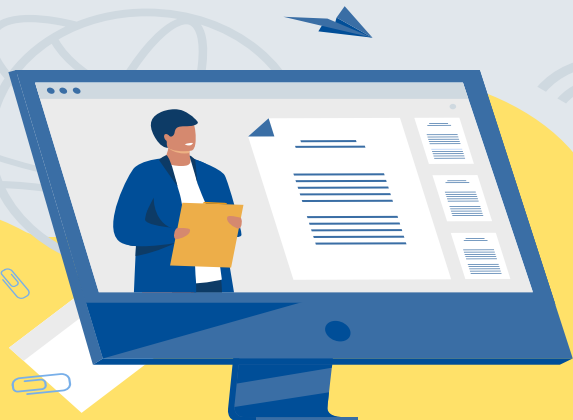
Burnout Predictor

The AI determines if a person would have burnout based on the survey.

- The AI uses a Multiple Linear Regression model to take three inputs (Resource Allocation, Mental Fatigue Score, and Designation) and predict a single output (Burn Rate)
- Multiple linear regression attempts to model the relationship between two or more explanatory variables and a response variable by fitting a linear equation to observed data.

$$Y = mx1 + mx2 + mx3 + b$$
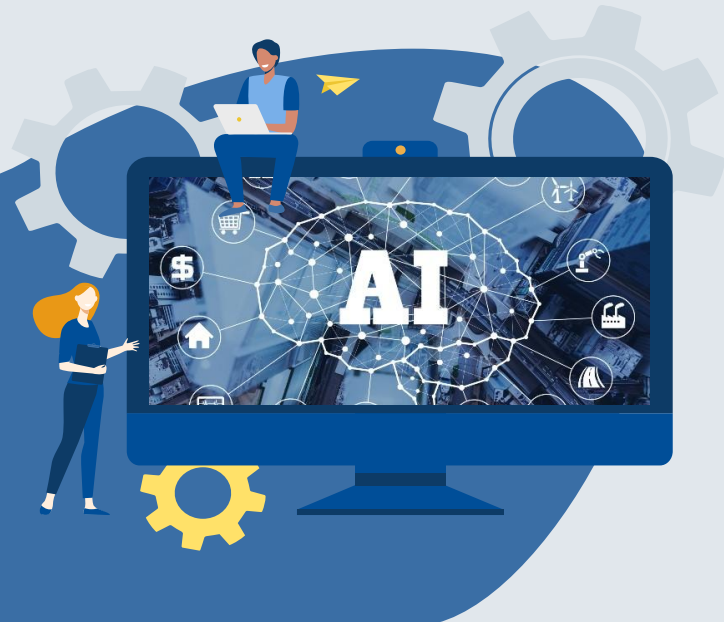
Demo

How We Created Our Model

Outcomes

We believe that based on these conducted surveys matched with our AI system, this will increase employee efficiency which in turn will affect company efficiency.

Resources

- https://www.springhealth.com/importance-of-mental-health-workplace-wellness/
- https://data.cdc.gov/NCHS/Indicators-of-Anxiety-or-Depression-Based-on-Repor/8pt5-q6wp/data
- www.stat.yale.edu/Courses/1997-98/101/linmult.htm
- https://machinelearningmastery.com/make-predictions-scikit-learn/
- https://stackabuse.com/multiple-linear-regression-with-python/
- https://www.kaggle.com/blurredmachine/are-your-employees-burning-out?select=train.csv
- https://www.wallstreetmojo.com/multiple-regression-formula/