PREDICTING EMPLOYEES UNDER STRESS FOR PRE-EMPTIVE REMEDIATION USING MACHINE LEARNING ALGORITHM

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ABSTRACT

As a result of the ongoing COVID-19 outbreak, a number of businesses and institutions have adjusted by reducing headcount or enabling employees to work remotely. Due to the long-term nature of the new normal, many employees have reported heightened levels of psychological stress and tiredness as a result of trying to adapt their personal and professional lives to the new normal. This research looks at how data visualization and machine learning algorithms may be used to make predictions about the stress levels of employees. Using the information, we may create a model to identify whether a worker is under- or over-stressed. Here, we offer experimental results that show how the XGB classifier may be used to boost the predictive power of models. Employee productivity is greatly affected by working hours, workload, age, and job ambiguity, as proven by XGB classifier interpretation. The other factors are negligible in light of what has already been discussed. A decrease in employee voice would naturally come from an increase in working hours, job uncertainty, and workload.

I.INTRODUCTION

On March 11, 2020 [3,] the WHO classified corona virus (COVID-19) a pandemic. It's now safe to assume that the virus has reached every corner of the globe and is generating widespread terror. The corona virus is responsible for the extremely contagious sickness known as COVID-19. The 'Corona virus' family is very diverse, including both cold and fatal viruses. According to WHO, 202 nations have confirmed cases of the virus as of March 31, 2020. The stock market and other sectors of

economic development have slowed significantly as a result of this. Stress in the job may result from prolonged uncertainty and pressure. Many promising advances have been made in using machine learning and AI in commercial settings. The regular activities of employees are dissected and analyzed in [11].

Because of the long hours and heavy workload, they are unhappy with their current circ
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internal stress manifests in people's appearance on the job. Because of this, people become less healthy overall and less motivated to do their jobs. Thanks to COVID-19, however, mankind finds itself in a situation it has never been in before. The purpose of this paper is to investigate the toll that disasters like the current pandemic have on the workforce. Using machine learning techniques to determine whether a

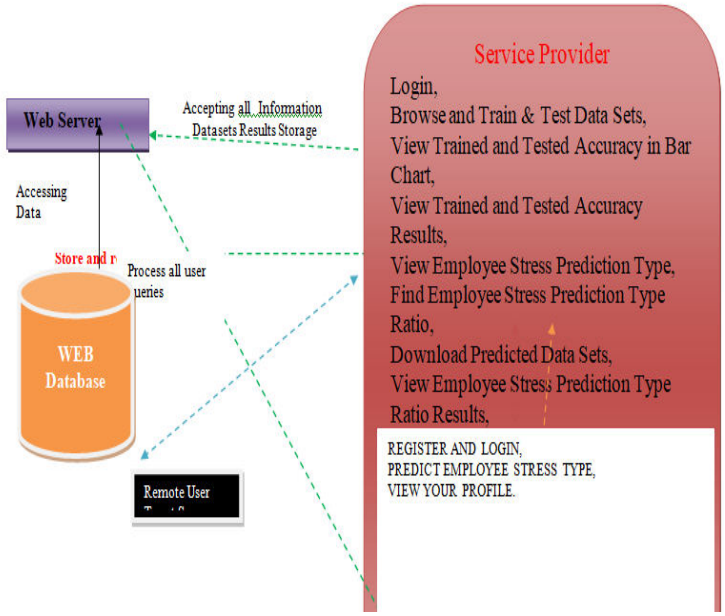

Fig1:System Architecture

II.EXISTING SYSTEM

In many organizations, the detection and management of employee stress typically rely on self-reported surveys, periodic performance reviews, and observational techniques. These traditional methods are often subjective,

time-consuming, and may not provide an accurate or timely indication of an employee's stress levels. Employees might not always feel comfortable disclosing their stress or mental health issues due to stigma or fear of negative consequences, leading to underreporting and unaddressed stress. Furthermore, these methods do not allow for continuous monitoring and real-time detection of stress, which is crucial for early intervention. The lack of data-driven approaches in the existing systems results in a reactive rather than proactive stance towards employee well-being, often only addressing stress when it has already impacted performance or health.

III.PROPOSED SYSTEM

The proposed system introduces a data-driven approach to predict employee stress levels using machine learning algorithms, enabling organizations to identify and address stress before it significantly affects employees' well-being and productivity. This system leverages various data sources, including work patterns, behavioral metrics, communication logs, and potentially physiological data (e.g., heart rate, sleep patterns, if available) to build predictive models that can identify early signs of stress. Machine learning algorithms such as Random Forest, Support Vector Machines (SVM), or Neural Networks are employed to analyze these data points and predict stress levels with high accuracy.

The proposed system allows for continuous monitoring and real-time analysis, offering pre-emptive remediation strategies such as personalized wellness programs, workload adjustments, or counseling services. By using predictive analytics, the system can provide alerts to managers or HR teams when an employee is likely to experience high stress, allowing for timely interventions. This proactive approach not only enhances employee well-being but also contributes to a more positive work environment and increased organizational productivity. The integration of machine learning in stress detection and management marks a significant improvement over traditional methods, enabling a more effective and efficient way to support employees.

IV.IMPLEMENTATION

Supplier of Services

The Service Provider must provide a valid user name and password to access this section. Successful login grants access to features including searching,

browsing, and training/testing data sets. Examine the Ratio of Predicted Employee Stress Types, View the Types of Employee Stress Used in Training, and Download the Predicted Data Sets. Get the Type Ratio Results of Employee Stress Predictions and a List of Remote Users.

Distant User

There are n people currently logged into this module. Users need to sign up first before they can do any actions. When a user signs up, their information is added to a database. He will be required to provide his valid user name and password when his registration has been approved. A user can perform things like PREDICT EMPLOYEE STRESS TYPE, VIEW YOUR PROFILE, and REGISTER AND LOGIN after they've successfully logged in.

V.CONCLUSION

We use XGB classifier to assess how well our model performs and make any necessary adjustments. Like a decision tree-based algorithm, this method uses the gradient boosting framework to conduct analysis, and the confusion matrix reveals the percentage of right predictions made by the model. XG Boost is around 10 times more robust than other gradient boosting methods and has remarkable predictive potential. Regularization is one of its many features, and it helps prevent over fitting and boost performance. As a result, it is also known as the "regularized boosting" method. The values might be either true (positive) or false (negative) or both (in all four directions).Measures how well a categorization model does its job.

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