



**INFORMATICS  
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In Collaboration with

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**Machine Learning Based Approach to Predict Employees Having  
Depression in a Workplace in Sri Lanka**

A Project Proposal by

Mr. Tharindu Jayathilaka

18988840/1 20211385

Supervised by

Mr. Achala Aponso

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# Abstract

Depression is a common mental health disorder that is marked by enduring emotions of sadness, hopelessness, and emptiness, and it has substantial effects on an individual's overall well-being and ability to function. Early detection of depression is crucial, as it allows for timely intervention, reduces the risk of suicide, and improves treatment outcomes. Globally, depression has become a leading cause of disability, affecting millions of people, particularly women. In the workplace, early detection of depression enables managers to make informed decisions and provide necessary support to employees, benefiting both individuals' mental health and organizational productivity. However, depression is often underdiagnosed and undertreated due to stigma and limited access to mental health services.

To solve the above problem, a depression diagnosis model is formed by using ML techniques like linear regression, logistic regression, KNN, naive Bayes, and random forest classifiers. This model was used to predict the employees having depression. The organization and the engineering managers could use this ML model to identify the employees who are suffering from depression and take the necessary actions.

According to the results obtained from the study, linear regression, logistic regression, KNN, naive Bayes, and the random forest algorithm had an accuracy of 69%, 45%, 54%, 45% and 61% respectively. Therefore, it could be concluded that linear regression has outperformed other ML techniques in detecting depression.

Keywords: Depression Detection, ML, Data Science, Workplace, Engineering Managers, Sri Lanka

## Subject Descriptors

- Computing methodologies → Machine learning algorithms → Data mining
- Information systems → Decision support systems → User modeling and user-adapted interaction → Collaborative filtering and recommendation systems
- Applied computing → Healthcare information systems → Mental health informatics → Biomedical informatics