**INTRODUCTION**

Depression affects millions of people around the world. Depression is different when compared to the mood changes happening in daily life. Depression can affect various aspects of life, such as having problems in social relations and not being able to concentrate in work. Depressed people find it difficult to get pleasure from daily activities. Depression can be recurrent or persistent. In most cases, inperson clinical depression criteria are used to diagnose depression. But a large number of individuals having earlystage depression do not consult a doctor by which their conditions worsen. [1].

Therefore, depression has to be identified in its early stages such that the patient receives proper care. Large amounts of relevant data are needed to build a depression detection model [2]. Various models in Machine Learning and Deep Learning being are used for early identification and prediction of Depression.

Machine Learning is a sub discipline of Artificial Intelligence in which computational methods are used to gain knowledge from data and performance increases via experience. In the traditional definition of Machine Learning approaches, three forms of knowledge acquisition are included: Supervised, Unsupervised and Reinforcement Learning [3].

In Supervised Learning, a statistical model is trained by an algorithm to generate predictions about some class that is not labeled. A column containing data with the answer (label/target) is used for monitoring learning while training. As implied by the term, unsupervised learning relies only on feature values, or the inherent structure of the data, rather than labels. Here, the main focus is the process of finding patterns and extracting knowledge. The two previous approaches are fundamentally different from reinforcement learning (RL), which does not require human-generated data for training but instead learns by trial and error. It learns on the basis of feedback and reward.

Being relatively new, Machine Learning (ML) is still growing quickly. It is fundamental to data science and Artificial Intelligence (AI) and resides at the intersection of computer science and statistics. The advancement of theory of some novel learning algorithms and the continuous proliferation of low-cost processing and massive amounts of data (commonly called "big data") have both fueled recent advances in machine learning. A greater amount of decision making based on evidence is occurring across a variety of fields, including biomedicine, healthcare [4], education, manufacturing, data governance, financial modeling, marketing and policing, as a result of the widespread use of ML-based methodologies in research, technology, and industry

Depression is a common mental health issue that impacts a huge number of people globally. Effective therapy and support depend on early identification and intervention. Creating a scalable and dependable depression detection system that can help medical practitioners diagnose patients early and carry out timely interventions is the problem. This study entails utilizing machine learning techniques, data, and technology to develop a tool that may recognize possible indicators of depression in people. The objective is to provide a thorough and trustworthy instrument for detecting depression by addressing these elements, which can aid in early intervention and better mental health outcomes.

In this work, multiple Machine Learning models have been applied for Depression Detection such as Logistic Regression, K Nearest Neighbors, Extreme Learning Machines, and Decision Tree, Gaussian Naïve Bayes, and Random Forest Classifiers. Section 2 describes related work, Section 3 describes the proposed work, and Section 4 describes the outcome of applying various models in Machine Learning used in predicting depression. Part 5 of the paper discusses the conclusion and part 6 describes the future scope.