**Supervised and Unsupervised Machine Learning based Review on Diabetes Care**

Sedentary lifestyle, poor diet and work pressure lead the diabetes disease which may cause several fatal health issues like heart attack, strokes, kidney failure, nerve damage etc. Diabetes can be effectively managed when caught early with high accuracy. Machine Learning (ML) approaches are very effective to early detection and prediction of diabetes. The goal of this paper is to offer the inclusive examination of the diagnosis of diabetes by supervised and unsupervised ML algorithms. This survey includes papers on the diagnosis of diabetes from 2018-2020. Decision tree based algorithm such as C4.5, AdaBoost, XGBoost, etc., have predicted the diabetes with high accuracy. Unsupervised learning techniques such as PCA and K-Mean are also useful in the attribute selection and outlier detection from the large dataset. This study reveals that K-Mean and SVM have also diagnosed and evaluated diabetes by high accuracy as an amalgamation of supervised and unsupervised machine learning techniques.

**SYSTEM ANALYSIS**

**EXISTING SYSTEM:**

Many of diseases can be prevented if diabetes can be diagnosed in the early stages. Early diagnosis and prediction of disease is possible due to recent technological development of IoT, Artificial Intelligence (AI) and Block chain in the current healthcare system. AI presented a paradigm shift in diabetes care from conservative management approaches to construct the targeted data-driven precision care. IoT offers connected environment to the smart healthcare system .

**DISADVANTAGES OF EXISTING SYSTEM:**

* this is difficult to detect Diabetes and managed when caught early with high accuracy.
* diagnosis and prediction of disease is possible due to recent technological development of IoT.

**Algorithm**: K-nearest neighbors (KNN), SVM

**PROPOSED SYSTEM:**

this focused on key words associated to the supervised and secondly on unsupervised ML techniquesDiabetes Mellitus is one of the serious diseases. Age, obesity, sedentary life style, hereditary diabetes, living style, poor diet, high blood pressure, etc. the main reason of diabetes. From the table 1, it has been observed that decision tree or variation of decision tree such as XGBoost, AdaBoost and RF are most widely used classification algorithm of the supervised learning. Trend is shifting from ML to deep learning. we will review the several ML techniques for diabetes detection and prediction. There are mainly two categories of learning i.e. supervised and unsupervised learning that made foremost impacts in the detection, prediction and treatment of diabetes..

**ADVANTAGES OF PROPOSED SYSTEM:**

* Various supervised ML techniques were compared to reveal that which algorithm is appropriate for the prediction of diabetes.
* we can have combination of supervised and unsupervised learning for the better prediction and detection of diabetes.

**Algorithm**: Decision tree based algorithm such as C4.5, AdaBoost, XGBoost

**SYSTEM REQUIREMENTS:**

**HARDWARE REQUIREMENTS:**

* System : Intel Core i3.
* Hard Disk : 1TB.
* Monitor : 15’’ LED
* Input Devices : Keyboard, Mouse
* Ram : 8GB.

**SOFTWARE REQUIREMENTS:**

* Operating system : Windows 10.
* Coding Language : Python
* Tool : PyCharm, Visual Studio Code
* Database : SQLite

**REFERENCE:**

Tannu Chauhan; Surbhi Rawat; Samrath Malik; Pushpa Singh,"**Supervised and Unsupervised Machine Learning based Review on Diabetes Care**" 2021 7th International Conference on Advanced Computing and Communication Systems (ICACCS) INSPEC Accession Number: 20727840DOI: 10.1109/ICACCS51430.2021.9442021.