ML PROJECT DETAILS

Topic – Predicting the diagnosis of Type 2 Diabetes using Electronic medical records.

Group No -14

Name of group members –

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Objective – The main **goal** is to determine new patterns and then to interpret these patterns to deliver significant and useful information for the users. **Diabetes** contributes to heart disease, kidney disease, nerve damage, and blindness.

Dataset – this study uses a publicly available EMR dataset released by practise fusion in 2012 for a Kaggle Competition. It consists of de-identified records for 9,948 patients , among whom 1,904 have been diagnosed with DMT2. The data was extracted from 17 database tables, which include diagnosis histories, medication histories, physician visits, lab reports, smoking histories and demographic characteristics. We had four original features from the raw input (age, gender, weight, BMI), in addition to indicator variables for DMT2 diagnosis. Binary features were added in the form of indicator variables for medication, prescriptions, diagnoses, and anomalous lab report results.

Expected Algorithm used -

1.Decision Tree

2.Random Forest

3.Neural Network

4.Naive Bayes Algorithms

5.k-Nearest Neighbors(KNN)

6.Support Vector Machines Analysis

Expected Outcome – Diabetes is a disease which can cause many complications. How to exactly predict and diagnose this disease by using machine learning is worthy studying. In future we aim to predicting type of diabetes and exploring the proportion of each indicator which may improve the accuracy of predicting diabetes.

Applications –

1. ML algorithms have been mainly used to classify diabetic prone cases for pre-diabetes, diabetes, and advanced diabetes based on the patients' HbA1c level.
2. The results demonstrate that AI methods are not only suitable for use in clinical practice but also self-management of diabetes. Also, these methods have the potential for improving patients' quality of life.
3. There have been reports on other areas of DM research using robotics, such as using a robot for pancreas transplantation, pancreatectomy surgery, and monitoring and training to improve the care of elderly with dementia.