

A
Major Project Report
on
AN EXPERT SYSTEM FOR INSULIN DOSAGE PREDICTION

Submitted to
Jawaharlal Nehru Technological University, Hyderabad
in partial fulfillment of the requirements for the award of Degree of
Bachelor of Technology
in
Computer Science & Engineering
by

THATIPELLI PRAVALIKA	(196Y1A05A3)
UNDRATHI NAVYASREE	(196Y1A05A7)
PANGA PAVANI	(206Y5A0507)
BETHI HARIKA	(186Y1A0512)

Under the guidance
of
Mr. E. HARI KRISHNA
Asst. Professor



Department of Computer Science & Engineering
SUMATHI REDDY INSTITUTE OF TECHNOLOGY for WOMEN

(Approved by AICTE, New Delhi; Affiliated to JNTU, Hyderabad)
Ananthasagar(Vill), Hasanparthy(M), Warangal – 506 371 (T.S.), Website : www.sritw.org



2022-2023

Rajini
PRINCIPAL
Sumathi Reddy Institute of Technology for Women
Ananthasagar (V), Hasanparthy (M)
WARANGAL - 506 371 (T.S.)

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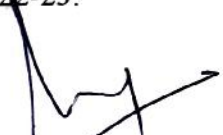
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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



CERTIFICATE

This is to certify that the project entitled "AN EXPERT SYSTEM FOR INSULIN DOSAGE PREDICTION" is submitted by T. PRAVALIKA (196Y1A05A3), U. NAVYASREE (196Y1A05A7), P. PAVANI (206Y5A0507) and B. HARIKA (186Y1A0512) in the partial fulfillment of requirement for the award of degree of Bachelor of Technology in Computer Science and Engineering during academic year 2022-23.


Mr. E. HARI KRISHNA
Project Guide


DR. E. SUDARSHAN
Head of the Department


External Examiner





PRINCIPAL

Sumathi Reddy Institute of Technology for Women
Ananthasagar (V), Hasanparthy (M)
WARANGAL - 506 371 (T.S.)

ABSTRACT

Diabetes is a chronic metabolic disorder characterized by high levels of glucose (blood sugar) in the bloodstream. The body normally regulates blood sugar levels through the hormone insulin, which is produced by the pancreas. However, in diabetes, there is either insufficient insulin production or the body's cells do not respond effectively to insulin, leading to elevated blood sugar levels.

Managing diabetes involves maintaining blood sugar levels within a target range through a combination of medication, diet, regular physical activity, and monitoring blood sugar levels. Uncontrolled diabetes can lead to various complications, including cardiovascular disease, kidney damage, nerve damage, and eye problems.

Gradient Boosting Classifier for predicting diabetes and the Linear Regression algorithm for predicting insulin dosage in diabetic patients. You plan to use the PIMA diabetes dataset for training the models and the UCI insulin dosage dataset for predicting insulin dosage.

You have chosen the PIMA diabetes dataset for training the Gradient Boosting Classifier and the UCI insulin dosage dataset for predicting insulin dosage. Make sure you have access to these datasets and that they are properly formatted for your machine learning algorithms. Before training the models, you might need to preprocess the datasets. This may involve handling missing values, normalizing, or standardizing the features, and splitting the data into training and testing sets.

Use the PIMA diabetes dataset to train the Gradient Boosting Classifier. This algorithm will learn patterns and relationships in the data to predict the presence of diabetes. Once the classifier is trained, you will upload a test dataset with no class labels. Use the trained model to predict the presence of diabetes for each sample in the test dataset.

For the samples predicted to have diabetes by the Gradient Boosting Classifier, you can use the UCI insulin dosage dataset to predict the insulin dosage. Preprocess the dataset as necessary and extract relevant features for insulin dosage prediction. The preprocessed UCI insulin dosage dataset to train a Linear Regression model. This model will learn the relationship between the input features and the insulin dosage.

Once the Linear Regression model is trained, apply it to the samples that were predicted to have diabetes by the Gradient Boosting Classifier. The model will predict the insulin dosage for each sample. Evaluate the performance of both the Gradient Boosting Classifier and the Linear Regression model. You can use metrics such as accuracy, precision, recall, and mean squared error (MSE) to assess the models' performance.



Rijan

Principal

Sumathi Reddy Institute of Technology for Women
Ananthasagar (V), Hasanparthy (M)
WARANGAL - 506 371 (TS)