Ai based diabetes prediction system

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Ai

AI in Diabetes helps to predict or Detect Diabetes. Any neglect in health can have a high cost for the patients and the medical practitioner. It becomes challenging for the patient to trust that this decision is taken by the machine that does not explain how it reaches a particular conclusion

Development

Developing an AI-based diabetes prediction system involves writing code in several stages. Below is a simplified outline of a Python program for such a system using a basic logistic regression model. Please note that this is a simplified example for educational purposes and should not be used in a real-world clinical setting without extensive validation and expert oversight.

Development program:

# Step 1: Import necessary libraries

import pandas as pd

from sklearn.model\_selection import train\_test\_split

from sklearn.linear\_model import LogisticRegression

from sklearn.metrics import accuracy\_score, classification\_report

# Step 2: Load and Preprocess Data

# Assuming you have a CSV file 'diabetes\_data.csv' with relevant features and labels

data = pd.read\_csv('diabetes\_data.csv')

X = data.drop('diabetes\_label', axis=1)

y = data['diabetes\_label']

# Step 3: Split Data into Training and Testing Sets

X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, y, test\_size=0.2, random\_state=42)

# Step 4: Initialize and Train the Model

model = LogisticRegression()

model.fit(X\_train, y\_train)

# Step 5: Predict on Test Data

y\_pred = model.predict(X\_test)

# Step 6: Evaluate Model Performance

accuracy = accuracy\_score(y\_test, y\_pred)

report = classification\_report(y\_test, y\_pred)

print(f'Accuracy: {accuracy}')

print(f'Classification Report:\n{report}')

# Step 7: Deployment (this is a simplified example, actual deployment requires more considerations)

# You might use a web framework like Flask or Django for deployment, and possibly a database for storing and retrieving patient data.

# Step 8: Continuous Monitoring and Updating

# Regularly monitor the model's performance and update it with new data or retrain if necessary.

Remember, this is just a basic example using logistic regression. For real-world applications, you might want to explore more sophisticated machine learning models, handle missing data, perform feature engineering, and ensure data privacy and security. Additionally, consult with healthcare professionals and follow ethical guidelines when dealing with medical data

Algorithm

The accuracy level was 90% using the random forest algorithm, which is much higher when compared to other algorithms. In a recent paper [5], Mohan and Jain used the SVM algorithm to analyze and predict diabetes with the help of the Pima Indian Diabetes Dataset

THANK YOU!