

Diabetes Risk Prediction System - README

Overview

A full-stack web application built with Flask, SQLAlchemy, Scikit-learn, and Bootstrap that predicts the risk of diabetes based on user input and generates downloadable reports. It features user authentication, prediction history, an admin panel, and more.

Features

- User Registration & Login
- Diabetes Risk Prediction (Random Forest)
- Health-based Risk Factors Analysis
- PDF Report Download
- User Prediction History
- Admin Dashboard for user and assessment management

Installation Steps

1. Clone the Repository
2. Create a virtual environment
3. Install dependencies from requirements.txt
4. Add environment variables in a .env file
5. Run app.py and open <http://127.0.0.1:5000>

.env Format

SECRET_KEY=your-secret-key

DATABASE_URL=sqlite:///diabetes_risk.db

FLASK_DEBUG=True

Model Info

Random Forest Classifier is trained on a cleaned diabetes dataset.

Feature scaling is done using StandardScaler.

Prediction is based on thresholds of BMI, Glucose, Age, and Family History.

Admin Access

Visit /create-admin to generate the admin user.

Username: admin

Password: admin123

PDF Reports

Each prediction generates a downloadable PDF with risk score, parameters, risk factors, and lifestyle recommendations.

Valid Input Ranges

Pregnancies: 0-17

Glucose: 0-200

BloodPressure: 0-130

SkinThickness: 0-100

Insulin: 0-850

BMI: 0-70

Diabetes Pedigree: 0-2.5

Age: 0-120

Future Improvements

- Email notifications
- Analytics dashboard
- Mobile-friendly UI
- Cloud deployment
- Enhanced ML model

Author

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For college project on AI + Business Applications