**Review Summary of Diabetes Prediction**

| S no | Title | Authors | Methods | Features | Achievements/Results | Dataset | Citation |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Diabetes prediction using machine learning and explainable AI techniques | Isfafuzzaman Tasin, Tansin Ullah Nabil, Sanjida Islam, Riasat Khan | [XGBoost Classifier](https://www.bing.com/ck/a?!&&p=8b2ca65b048b5288JmltdHM9MTcwNjU3MjgwMCZpZ3VpZD0zNzAwODUwOS0zZWRmLTYwODgtMzE0YS05NzgyM2Y3MjYxZWUmaW5zaWQ9NTI1Mw&ptn=3&ver=2&hsh=3&fclid=37008509-3edf-6088-314a-97823f7261ee&psq=xgboost&u=a1aHR0cHM6Ly93d3cuZ2Vla3Nmb3JnZWVrcy5vc) with [SMOTE & ADASYAN technique](https://www.bing.com/ck/a?!&&p=2a5346aff4856d50JmltdHM9MTcwNjU3MjgwMCZpZ3VpZD0zNzAwODUwOS0zZWRmLTYwODgtMzE0YS05NzgyM2Y3MjYxZWUmaW5zaWQ9NTIxOQ&ptn=3&ver=2&hsh=3&fclid=37008509-3edf-6088-314a-97823f7261ee&psq=smote+and+adasyan+techniques&u=a1aHR0cHM6Ly90b3dh) | No. of Pregnencies,Glucose(mg/dl),Blood pressure(mm Hg),Skin thickness(mm),BMI,Age(years) | Accuracy:- 88.5  Precision:- 0.81 | [Pima Indian dataset](https://www.bing.com/ck/a?!&&p=12a2c6f7738253e0JmltdHM9MTcwNjU3MjgwMCZpZ3VpZD0zNzAwODUwOS0zZWRmLTYwODgtMzE0YS05NzgyM2Y3MjYxZWUmaW5zaWQ9NTIxMA&ptn=3&ver=2&hsh=3&fclid=37008509-3edf-6088-314a-97823f7261ee&psq=pima+dataset+csv&u=a1aHR0cHM6Ly93d3cua2FnZ2xlLmNv) along with private dataset | [The institution of engineering and technology-2022 Bangladesh](https://doi.org/10.1049/htl2.12039) |
| 2 | Diabetes prediction using machine learning algorithms | M. Ramakrishna Murthy, P. Ruchita, Ch. Bharat Teja, M. Manoj Kumar, T V S Lingeswararao | Random Forest, Decision tree and Naïve Bayes | Diabetes\_012,HighBp,HighChol,Cholcheck,BMI (Body mass index) ,Smoker, Stroke,HeartDiseaseorAttack ,PhysActivity ,fruits, Veggies, HvyAlcoholConsume, AnyHealthCare, NoDocbcCost, GenHealth, MenHealth, PhysHealth, DiffWalk, Sex, Age, Education,Income | **Random forest**  Accuracy:-84.4  Precision:- 50.8  **Decision tree**  Accuracy:-77.9  Precision:- 31.4  **Naïve Bayes**  Accuracy:-76.3  Precision:- 34.2 | [Diabetes Health Indicators Dataset](https://www.kaggle.com/datasets/alexteboul/diabetes-health-indicators-dataset?select=diabetes_012_health_indicators_BRFSS2015.csv) | [International Research Journal of Modernization in Engineering Technology and Science-2022](https://www.irjmets.com/uploadedfiles/paper/issue_5_may_2022/24121/final/fin_irjmets1653791514.pdf)  [Andra Pradesh](https://www.irjmets.com/uploadedfiles/paper/issue_5_may_2022/24121/final/fin_irjmets1653791514.pdf) |
| 3 | Diabetes prediction using Machine Learning algorithms and  ontology | Hakim El Massari, Zineb Sabouri, Sajida Mhammedi and Noreddine Gherabi | SVM, KNN, ANN, Logistic Regression, Naive Bayes, Decision Tree,Onthology classifier | preg, plas, pres, skin, insu, mass, pedi, age, class | | **Model** | **ACC** | **PRE** | | --- | --- | --- | | **SVM** | 77 | 78 | | **KNN** | 70 | 75 | | **ANN** | 75 | 79 | | **LR** | 77 | 79 | | **NB** | 76 | 80 | | **DT** | 73 | 79 | | **Onthology** | 77 | 81 | | [Pima Indians Diabetes Database (PIDD) is originally from the National Institute of Diabetes and Digestive and Kidney Diseases](https://www.kaggle.com/datasets/uciml/pima-indians-diabetes-database) | [Diabetes Prediction Using Machine Learning Algorithm and Onthology, Morocco University-2022](https://arxiv.org/ftp/arxiv/papers/1205/1205.5921.pdf) |
| 4 | Machine Learning based Diabetes Prediction and Development of Smart Web Application | Nazin Ahmeda , Rayhan Ahammeda , Md. Manowarul Islama,∗ , Md. Ashraf Uddina , Arnisha Akhter a , Md. Alamin Talukder a , Bikash Kumar Paul | Random Forest (RF),Support Vector Machines (SVM),Logistic regression (LR), Gradient boosting (GB),k-nearest neighbor (k-NN) | | **Dataset 1** | **Dataset 2** | | --- | --- | | Pregnancies, Glucose, Blood Pressure, Skin Thickness, Insulin, BMI, Diabetes Pedigree Function, Age, Outcome | Age, Gender,  Family Diabetes, highBP ,Physically Active ,BMI, Smoking, Alcohol ,Sleep,SoundSleep,RegularMedicine ,JunkFood ,Stress BPLevel ,l Pregancies, Pdiabetes ,Uriation Frequency, Diabeti | | |  | **ACCURACY** | | | --- | --- | --- | | **Model** | **D1** | **D2** | | **RF** | 80.26 | 96.18 | | **SVM** | 80.26 | 91.49 | | **LR** | 77.63 | 84.04 | | **GB** | 78.95 | 91.00 | | **NB** | 78.95 | 86.17 | | **K-NN** | 75.00 | 90.43 | | **DT** | 76.32 | 96.81 | |  | [International Journal of Cognitive Computing in Engineering-2021](https://www.researchgate.net/publication/356873029_Machine_Learning_based_Diabetes_Prediction_and_Development_of_Smart_Web_Application)  [Bangladesh](https://www.researchgate.net/publication/356873029_Machine_Learning_based_Diabetes_Prediction_and_Development_of_Smart_Web_Application) |
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