AI-BASED DIABETES PREDICTION SYSTEM

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PROBLEM STATEMENT:

Develop an AI-based Diabetes Prediction System to assist healthcare professionals and individuals in accurately identifying the risk of diabetes and providing early intervention. The system should utilize patient data and machine learning algorithms to predict the likelihood of diabetes onset, thereby promoting proactive healthcare management and reducing the burden of diabetes-related complications. This project aims to create an effective and user-friendly tool that can assist in early diabetes risk detection, ultimately reducing the prevalence and impact of diabetes in the population.

DESIGN THINKING PROCESS:
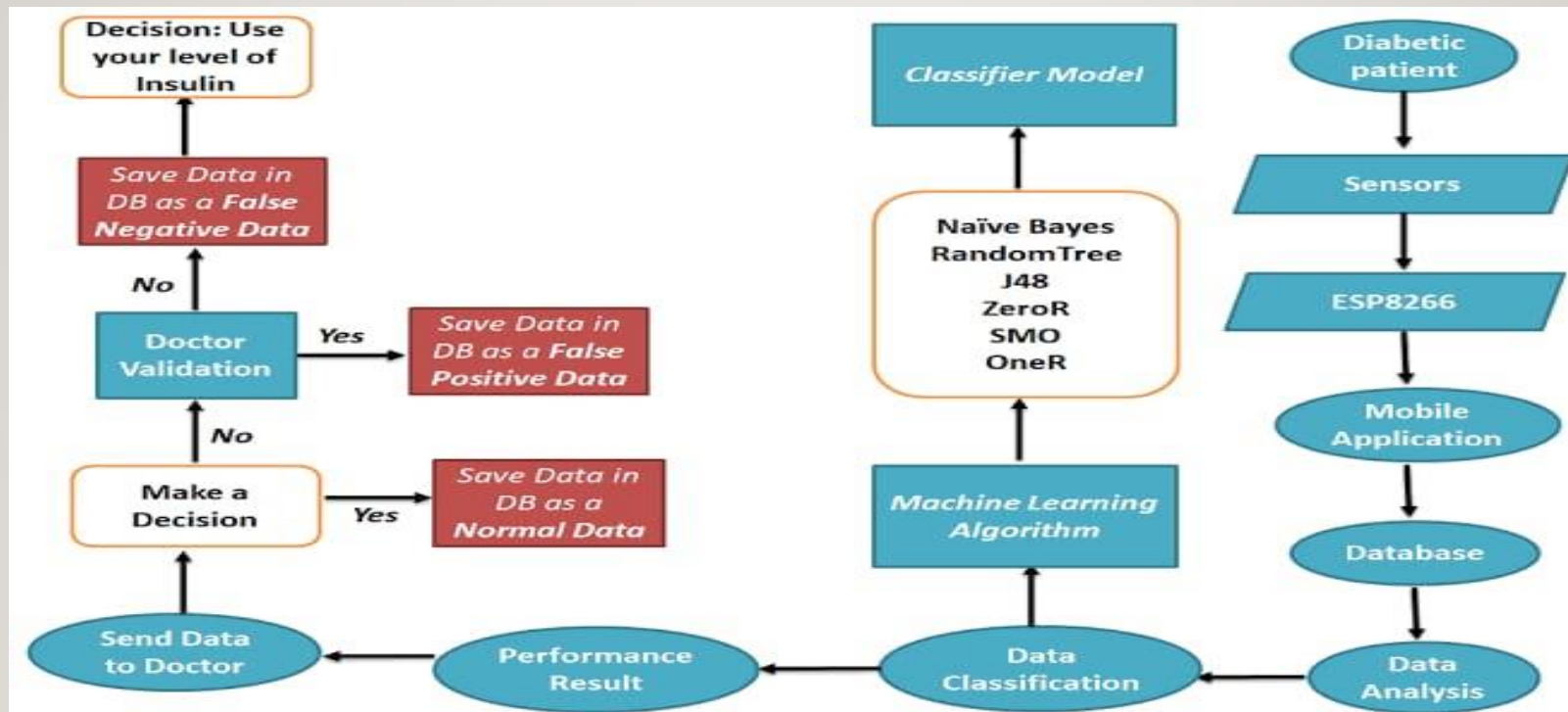
PHASES OF DEVELOPMENT:

- Phase1-Defining problem statement

- Phase2-Innovation and Design thinking

- Phase3-Development part 1

- Phase4-Development part 2

- Phase5-Development part 3

DATASET USED:

In this dataset there are various sources including electronic health records, surveys, clinical studies, and medical institutions. Ensuring the quality and accuracy of the data is crucial for building an effective prediction model. Additionally, consider ethical and privacy considerations when collecting and handling patient data, and ensure compliance with relevant data protection regulations.

DATA PREPROCESSING STEPS:

- We have used natural language pandas and sklearn libraries for the process of preprocessing the dataset that is provided to build an AI-based diabetes prediction system.

- We have removed some unnecessary words and punctuations from the dataset to obtain and classify the words which comes under prediction.

- Then we have deleted the attributes that contains no values.

- https://colab.research.google.com/drive/1r2Yhtm20HhBpEVuOkV7ce_TZ GxMeulQt?usp=sharing

MODEL TRAINING:

- For predicting blood pressure status, they used conditional decision making and for predicting diabetes, they used SVM, KNN, and decision tree.

- Among these models, SVM worked better as they got 75% accuracy which is better than other classifier algorithms.

EVALUATION METRICS:

- The objective of the dataset is to diagnostically predict whether or not a patient has diabetes, based on certain diagnostic measurements included in the dataset. Several constraints were placed on the selection of these instances from a larger database.

- We have used scikit learn and seaborn libraries to build the model for diabetes prediction system.

- https://colab.research.google.com/drive/1r2Yhtm20HhBpEVuOkV7ce_TZ GxMeulQt?usp=sharing