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**RV UNIVERSITY**

**Diabetes detection using Machine Learning algorithms**

**Software Requirements Specification**

**Version 1.0**

**07-06-2023**

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**Document Revision History**

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| 1.0 | 07-06-2023 | Document created | K Akanksha Raju |

**Software Requirement Specification**

1) Test Plan Identifier = TP-DIA-ML-1.0.

2) References = srs document

3) 1) Introduction = Millions of people worldwide are affected by the common and chronic disease known as diabetes. For effective management and treatment, diabetes must be accurately and quickly detected. This Software Requirements Specification (SRS) document presents the development of a system for diabetes detection using machine learning algorithms, aimed at assisting healthcare professionals and individuals in early diagnosis and risk assessment.

1.1) purpose = The goal of this research is to create a software system that effectively detects diabetes using machine learning methods. This project's goal is to identify diabetes sooner so that it can be diagnosed .

1.2) Definition , Acronyms and Abbreviation :

To facilitate clarity and understanding, the following definitions, acronyms, and abbreviations are used in this document:

* TP - Test Plan
* DIA - Diabetes Detection
* ML - Machine Learning Algorithms
* 1.0 - Version 1.0

4) Test Items =

* Features = In this project, the features from the provided data that will be used as an input for the machine learning algorithms are glucose and blood pressure.
* Machine Learning algorithms = We are using various machine learning algorithms such as Logistic Regression, Decision tree , Random forest , Naive Bayes , K Nearest Neighbour , Support Vector Machine for diabetes detection .
* Prediction Generation : Based on the input data, this component employs the trained machine learning models to produce diabetes predictions

5) Software Risk Issues=Not Applicable

6) Features to be Tested =Glucose level and Blood Pressure.

7) Features not to be Tested=none

8) Approach= By utilizing the provided data, applying all machine learning algorithms, and testing the data, it is possible to determine whether or not a person has diabetes.

9) Item Pass/Fail Criteria=

* Machine Learning algorithms :

Pass Criteria : The machine learning algorithms should achieve an accuracy rate of at least 85% in diabetes detection .

Fail Criteria : If the algorithms fail to achieve the specified accuracy rate or demonstrate poor generalization on unseen data.

* Prediction Generation Module :

Pass Criteria : The prediction generative module should generate the Diabetics Detection then it is passed.

Fail Criteria : If the prediction generative module did not generate the Diabetics Detection then it is Failed.

10) Suspension Criteria and Resumption Requirements=If more errors occurred then test plan will be canceled

11) Test Deliverables = A comprehensive test plan document will be created that outlines the testing objectives, scope, approach, and schedule. It will serve as a reference document for the testing team and stakeholders.

12) Remaining Test Tasks=execution,system test summary report .

13) Environmental Needs=none

14) Staffing and Training Needs=1 Trained person required

15) Responsibilities=developing and executing test plan,reporting defects and issues,weekly report,collaborating with development team to resolve the defects,providing feedback on the overall quality of application

16) Schedule=starting and ending of test plan

17) Planning Risks and Contingencies=defects discovered late in the testing process,inconsistent behavior across different people

18) Approvals= Not Applicable