***System Test Plan***

1) **Test Plan Identifier**

DPI 0.01

2)  **References**

SRS document

3) **Introduction**

This is a Test Plan for the Diabetes Prediction System project. The focus of this project is to develop a system that predicts the likelihood of a patient developing diabetes using machine learning algorithms. The system will have a Graphical User Interface (GUI) for healthcare professionals to interact with and input patient data. The estimated time to complete the project is 10 days. Any delay in the development process or verification could have a significant effect on the test plan.

4) **Test Items**

* User Registration and Login
* Patient Management
* Data Input Validation
* ML Model Integration
* Prediction Results
* Reporting and Visualization

5) **Software Risk Issues**

* Accuracy of the ML algorithms in predicting diabetes.
* Compatibility issues with different web browsers.
* Performance issues in real-time prediction.

6) **Features to be Tested**

* Verify that users can successfully register and log in.
* Validate the system's ability to handle different types of input data, including numerical and categorical features
* Ensure the correct integration of the ML model with the system.
* Verify the accuracy of the prediction results generated by the ML model.
* Test the generation of reports and visualizations to present prediction results.

7) **Features not to be Tested**

Not applicable

8) **Approach**

* Identify test scenarios and test cases based on the functional requirements.
* Prepare test data that covers different scenarios and edge cases.
* Execute the test cases using the GUI and ML model integration.
* Compare the actual results with expected results.
* Report any deviations or defects found during testing.

9) **Item Pass/Fail Criteria**

To input and check if all the functionality is working and the desired output is given

10) **Suspension Criteria and Resumption Requirements**

Testing may be suspended if critical defects or system failures are encountered that prevent further testing. Testing can be resumed once the defects are resolved or the system issues are fixed.

11) **Test Deliverables**

System test plan, test cases, test data, automation, test execution report, summary report, defects report

12) **Remaining Test Tasks**

not applicable

13) **Environmental Needs**

* Computer or mobile device for running the application.
* Internet connection for accessing any external resources required for testing.
* Compatible web browsers for testing the GUI.

14) **Staffing and Training Needs**

2 people required to test the product

15) **Responsibilities**

* Developing and executing the test plan.
* Reporting defects and issues.
* Collaborating with the development team to resolve defects.
* Providing feedback on the overall quality of the application.
* Weekly progress reporting to the project manager.

16)  **Schedule**

Start date of testing is 07-06-2023 to 17-06-2023 to ensure thorough coverage of test scenarios and adequate time for bug fixing and retesting.

17) **Planning Risks and Contingencies**

* Insufficient training data for the ML model, leading to inaccurate predictions.
* Delays in the development process affecting the testing timeline.
* Performance issues due to a large volume of patient records.

18) **Approvals**

given by product manager if the product functionality is working without any error

19) **Glossary**

* SRS = software require specification
* GUI= graphic user interface

# **Test case**

1. Test Case: User Registration

Description: Verify that users can successfully register for an account in the system.

Test Steps:

* Open the Diabetes Prediction System application.
* Click on the "Register" button.
* Fill in the required fields with valid user registration details.
* Click on the "Submit" button.

Expected Result: The user should be successfully registered and redirected to the login page.

1. Test Case: User Login

Description: Verify that registered users can log in to the system.

Test Steps:

* Open the Diabetes Prediction System application.
* Enter the registered username and password.
* Click on the "Login" button.

Expected Result: The user should be successfully logged in and directed to the system dashboard.

1. Test Case: Patient Record Creation

Description: Verify that healthcare professionals can create patient records in the system.

Test Steps:

* Log in to the Diabetes Prediction System as a healthcare professional.
* Navigate to the patient management section.
* Click on the "Add New Patient" button.
* Fill in the required patient details (e.g., name, age, gender, medical history).
* Click on the "Save" button.

Expected Result: The patient record should be created and saved successfully in the system.

1. Test Case: Data Input Validation

Description: Verify that the system properly validates and handles different types of input data.

Test Steps:

* Enter invalid or missing data in the patient record fields (e.g., age as a non-numeric value).
* Attempt to save the patient record.

Expected Result: The system should display appropriate error messages for invalid or missing data and prevent the patient record from being saved.

1. Test Case: ML Model Integration

Description: Verify the integration of the ML model with the system for diabetes prediction.

Test Steps:

* Create a patient record with valid and complete data.
* Trigger the ML model for diabetes prediction by clicking the "Predict" button.

Expected Result: The ML model should process the input data, generate a prediction, and display the predicted likelihood of diabetes for the patient.

1. Test Case: Reporting and Visualization

Description: Verify the generation of accurate reports and visualizations for prediction results.

Test Steps:

* View the prediction results for a patient.
* Check the accuracy of the prediction outcome and the inclusion of relevant patient information in the report.
* Verify the proper visualization of the prediction results, such as graphs or charts.

Expected Result: The reports and visualizations should accurately present the prediction results and patient information.