

# TEST PLAN FOR <SEPSIS PREDICTION>

## *Change Log*

Version	Change Date	By	Description
version number	Date of Change	Name of person who made changes	Description of the changes made
1.0	3/11/23	YASH Puri	Initial Draft

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# 1 Introduction

Sepsis is a hazardous condition that happens when the body's reaction to contamination causes tissue harm, organ failure, or even demise of the person. Generally, the body releases natural synthetics into the circulation system in order to counterbalance the infection which is inside. Sepsis occurs when the body's response to these chemicals is out of balance, this can cause damage to many organ systems. Sepsis is caused by infection and can happen to anyone. It is most common dangerous for senior citizens, pregnant ladies, kids below one-year-old, persons suffering from chronic conditions, such as diabetes, kidney disease, lung disease, or even cancer, as they have weak immune systems. This disease is a major health concern for the public in terms of morbidity, health care expenses and mortality. Detecting at early stages, and starting with the required antibiotic treatment the outcomes can be improved. It can be treated if it can be recognized at early stages. Several examinations have demonstrated that delays in finding and treatment of sepsis can prompt high death rates. Our main motto is to detect sepsis by the help of creating a web interface as soon as the patient visits the emergency department for the treatment.

## 1.1 Scope

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### 1.1.1 In Scope

The Sepsis detection based web-app will have a wide scope in the upcoming world in health organizations as it will help health care providers to detect whether the patient is suffering from sepsis or not at an early stage. Detecting sepsis at an early stage will help to reduce the long lasting harmful effects caused by sepsis and can be treated with full recovery. This system helps health care professionals in order to make accurate decisions according to the prediction and provide the correct treatment based on patient data. The project is only useful for doctors who has knowledge on the disease and its treatment. It is a time efficient approach to analyse various vital parameters of patient effectively to detect sepsis without any involvement of man power.



## A) Functional Requirements

- 1) Predicting sepsis effectively if the data provided is correct.
- 2) Services: The Sepsis detection system provides analysis of different vital parameters of patient in a very time efficient manner.
- 3) Machine learning Libraries (Pandas, Seaborn, Matplotlib etc)
- 4) Hardware requirements involve windows 8 and above with minimum 4gb Ram.

## B) Non-Functional Requirements

- 1) Usability: Usability defines how difficult it will be for a user to learn and operate the system. It is assessed by using Efficiency of use, Intuitiveness.
- 2) Performance: Performance is a quality attribute that describes the responsiveness of the system to various user interactions with it. Poor performance leads to negative user experience. It also jeopardizes system safety when it is overloaded.
- 3) Scalability: Scalability requirements describe how the system must grow without negative influence on its performance. This means serving more users, processing more data, and doing more transactions. Scalability has both hardware and software implications. For instance, you can increase scalability by adding memory, servers, or disk space, can compress data, use optimizing algorithms, etc.
- 4) User-friendly interface: The system should be easy to use. The interface should be intuitive and user-friendly, allowing users to quickly find the results for sepsis occurrence or not.
- 5) Reliability: The system should be available and accessible at all times. Downtime or disruptions can make a bad impact on users result in lost opportunities for users, and damage the reputation of the platform.

### 1.1.2 Out of Scope

Out Of Scope defines the features, functional or non-functional requirements of the software that will NOT be tested :

1. The system only helps to detect sepsis it doesn't tell about precautionary measures that are needed to be taken if the patient is suffering from sepsis and can't tell about the diagnose.
2. Scalability and Cloud Hosting: - Load testing to ensure the platform can handle increased user loads efficiently when hosted on the cloud.
3. Custom Knowledge Database: - Ensure the database provided to train the system is accurate and reliable.

## 1.2 Quality Objective

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Here make a mention of the overall objective that you plan to achieve without your testing

Some objectives of your testing project could be :

- Ensure the Application Under Test conforms to functional and non-functional requirements
- Ensure the AUT meets the quality specifications defined by the client
- Bugs/issues are identified and fixed before go live.
  - 1) Usability: Ease of use and simplicity.
  - 2) Responsiveness: Verify that the website is responsive on various devices.
  - 3) Accessibility: Ensure the website complies with accessibility standards.
  - 4) Performance: Measure and optimize response times for various actions.
  - Scalability: Ensure the website can scale to handle an increased number of user.
- 5) Browser Compatibility: Test the website on various web browsers.
- 6) Documentation : Ensure comprehensive and up-to-date documentation for users.

## 1.3 Roles and Responsibilities

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- QA Analyst – Yash Goel
- Test Manager – : Ms. Shreela Pareek  
Managed all test processes, including test plans, resources, costs, timescales, test deliverables and traceability.
- Configuration Manager – Ms. Neha Shukla.
- Developers – Yash Puri, Yash Goel , Vishal Verma.
- Installation Team – Yash Puri, Yash Goel , Vishal Verma, Ms. Shreela Pareek, Ms. Neha Shukla  
Responsible for smooth execution of the program.

## 2 Test Methodology

### 2.1 Overview

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- Waterfall Model

The waterfall model is a software development model used in the context of large, complex projects, typically in the field of information technology. It is characterized by a structured, sequential approach to software development. The waterfall model is useful in situations where the project requirements are well-defined and the project goals are clear. It is often used for large-scale projects with long timelines, where there is little room for error and the project stakeholders need to have a high level of confidence in the outcome.

Features of the Waterfall Model:

- The waterfall model involves a sequential approach to software development, where each phase of the project is completed before moving on to the next one.
- The waterfall model relies heavily on documentation to ensure that the project is well-defined and the project team is working towards a clear set of goals.
- The waterfall model places a high emphasis on quality control and testing at each phase of the project, to ensure that the final product meets the requirements and expectations of the stakeholders.
- The waterfall model involves a rigorous planning process, where the project scope, timelines, and deliverables are carefully defined and monitored throughout the project lifecycle.

Overall, the waterfall model is used in situations where there is a need for a highly structured and systematic approach to software development. It can be effective in ensuring that large, complex projects are completed on time and within budget, with a high level of quality and customer satisfaction.

## **2.2 Test Levels**

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**Test Levels define the Types of Testing to be executed on the Application Under Test (AUT).**

**We aim to test our project at the following levels :**

- 1) Unit Testing:** This is the lowest level of testing and focuses on individual components or functions within the software. Developers often perform unit tests to verify that specific parts of the code work correctly.
- 2) Integration Testing:** This level of testing checks how different components or modules of the software work together. It ensures that integrated parts of the software function as intended.
- 3) System Testing:** At this level, the entire system is tested as a whole. It verifies that the software meets its specified requirements and functions properly in its intended environment.



### **3)Test Deliverables**

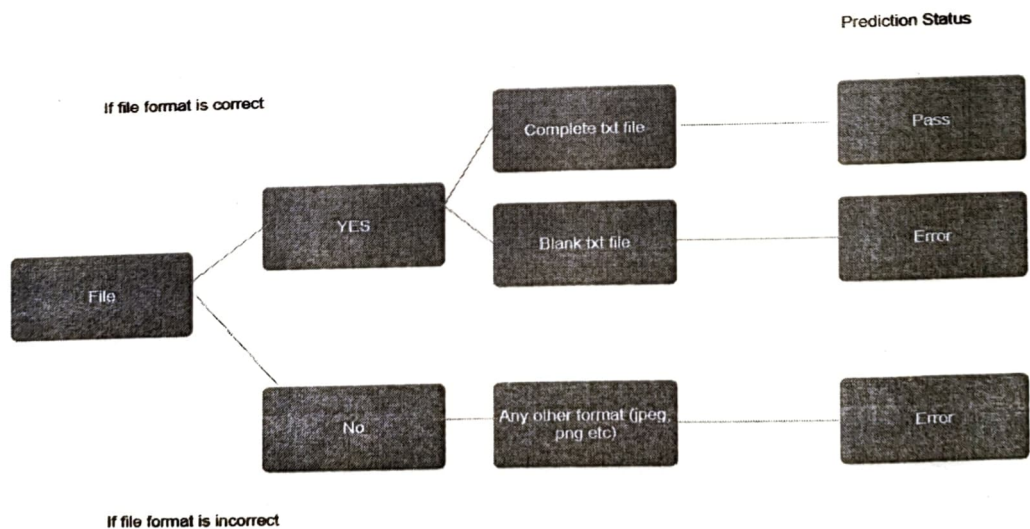
Test Case Id	Input	Expected O/P	Actual O/P	Status
1	Raw data is loaded	Dataset is cleaned	Dataset is cleaned	Pass
2	File format txt	Predict results	Predicted results	Pass
3	File format png	Error	Error	Pass
4	File format jpg	Error	Error	Pass
5	File format word	Error	Error	Pass
6	Data of patient with sepsis	Predict patient have sepsis	Predict patient have sepsis	Pass
7	Data of patient with No sepsis	Predict patient doesn't have sepsis	Predict patient doesn't have sepsis	Pass
8	Correct url to load web interface	Web interface will be loaded	Web interface is loaded	Pass
9	Icorrect url for interface	Error	Error	Pass



1) Decision Table

In the given decision table C1, C2 refers to the conditions and A1, A2 refers to the respective actions based on the conditions. This table shows that only txt format file will be accepted to predict sepsis and other formats will display error.

	C1-txt format	C2-jpeg format	C3-png format	C4- blank txt file
A1- Accepted and predict sepsis.	True			
A2-Bad request error		True	True	
A3-Not enough values				True



This above decision table shows if the format is in txt format then it will be accepted and will predict whether the person has sepsis or not otherwise it will display an error if the file is in some other format and even if the txt file is blank.

## **3 Resource & Environment Needs**

### **3.1 Testing Tools**

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No testing tool is used only manual testing is done

### **3.2 Test Environment**

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It mentions the minimum hardware requirements that will be used to test the Web-Application as mentioned below :-

- Modern OS Windows 8 and above
- RAM/Main Memory - 4GB DDR4.
- Disk space 4gb SSD.

## 4 Terms/Acronyms

Make a mention of any terms or acronyms used in the project

TERM/ACRONYM	DEFINITION
URL	Uniform Resource Locator.
AUT	Application Under Test.
OS	Operating System.
WI	Web Interface

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Sign: -

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22/Nov/23

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