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# **Software Requirements Specification**

**for**

## **Healthcare Maintenance System**

**Prepared by: Mridul Tripathi 16BCE0672**

**Suvronil Basu 16BCE0655**

**Vellore Institute of Technology, Vellore**

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# **1. Introduction**

## **1.1 Purpose**

Developing a Health Care Maintenance which provides automated case management, patient scheduling, diagnosis notes, electronic mail integration to remind patient about their appointment, electronic revisit letter with paperless environment, Point of Sales (POS), inventory for spectacles, lenses and sundries and unlimited custom and pre-built reports.

## **1.2 Document Conventions**

This document is edited with the use of the standard Times New Roman font with a text size of 11 and 14 depending on the type of text (title, paragraph, details, etc) this software is built using HTML, CSS, JavaScript on front end and SQL server as backend.

## **1.3 Intended Audience and Reading Suggestions**

This system is built keeping in mind the development of various healthcare aspects and areas. The document is intended for the readership of every individual that is concerned with the healthcare system directly or indirectly. These readers may include but are not limited to: 1) Doctors 2) Patients 3) Web Developers 3) Chemists 4) Physicians 5) Specialists 6) Staff Nurses, etc. The reader is suggested to have an open mind while going through the document as it deals with a very vast and versatile field.

## **1.4 References**

- 1) An integrated approach to software engineering, Third edition by Pankaj jalote
- 2) HTML, CSS, JavaScript – Jon Duckett.
- 3) SQL server – Joseph L Jordan

# **2. Overall Description**

## **2.1 Product Perspective**

This project gives the procedural approach how a patient gets treatment, details about date of treatment and finally depending on different criteria like room allocated, lab reports, treatment and medicine taken, how billing is calculated, etc. During billing health card facility is also considered. At the same time this project also deals with the different mediums that can be built between different stakeholders For example, A website between customers and the hospital is crucial to give the customers a better outlook. For the development of the website we also need web developers. Hence, how all the stakeholders are related to each other is enumerated in this document.

## **2.2 Product Functions**

The data represented in healthcare maintenance system application will perform the following major functions:

- ➔ Patient Details: - It includes inpatient and outpatient details.
- ➔ Lab reports
- ➔ Billing Details
- ➔ Appointment Details
- ➔ Correct diagnosis of the diseases

This software will help to calculate the bill much quicker and simpler way. This will also ensure that the diagnosis of the disease is accurate and every customer's satisfaction and stakeholders' satisfaction. This enables the organization to keep the information in an efficient and systematic way.

## **2.3 User Classes and Characteristics**

This software is developed such that total appearance of the product to make it more user friendly. The operator will be provided with login id and password. General users with basic computer skills can use this software. The different classes of users may include: 1) Customers/ Patients 2) Doctors 3) Chemists 4) Physicians 5) Web Developers, etc.

## **2.4 Operating Environment**

The following software and hardware operating environments have been used in the software:

- 1) Windows 10
- 2) Web page using CSS, HTML and JavaScript

## **2.5 Design and Implementation Constraints**

This will help the doctors or users to view the records of the patients immediately whenever necessary. They can also calculate the bill of the particular patients. This software also has the ability to add, update and delete the record whenever needed. This project will help to smoothen the process of the hospital activities.

## **2.6 User Documentation**

This project is divided into different modules, each module has its own significance and is independent of the other. Once in the library/module, you can further narrow your search by selecting Product Type and Manual Type using the integrated search wizard.

## **2.7 Assumptions and Dependencies**

This project assumes that there will be a database of medical records hosted by a server. The server assumes it will be installed with a high-speed Internet connection to communicate with the users. The software being developed assumes that the users have an access to the Internet from either a cellular or Wi-Fi connection to establish a connection between the application and the medical record repository. The web version of the project assumes that the user has a computer with an Internet connection and a web browser to access the online version of the software.

## **3. External Interface Requirements**

### **3.1 User Interfaces**

User interface is designed in a user-friendly manner and the user, in another end he has to give the order, for that he will interface with keyboard and mouse.

### **3.2 Hardware Interfaces**

- 1) OS – Windows 10
- 2) Hard disk – 1 TB (1024 GB)
- 3) RAM – 8 GB
- 4) Keyboard – Standard QWERTY keyboard for interface
- 5) Mouse – Standard mouse with 2 buttons and touchpad.

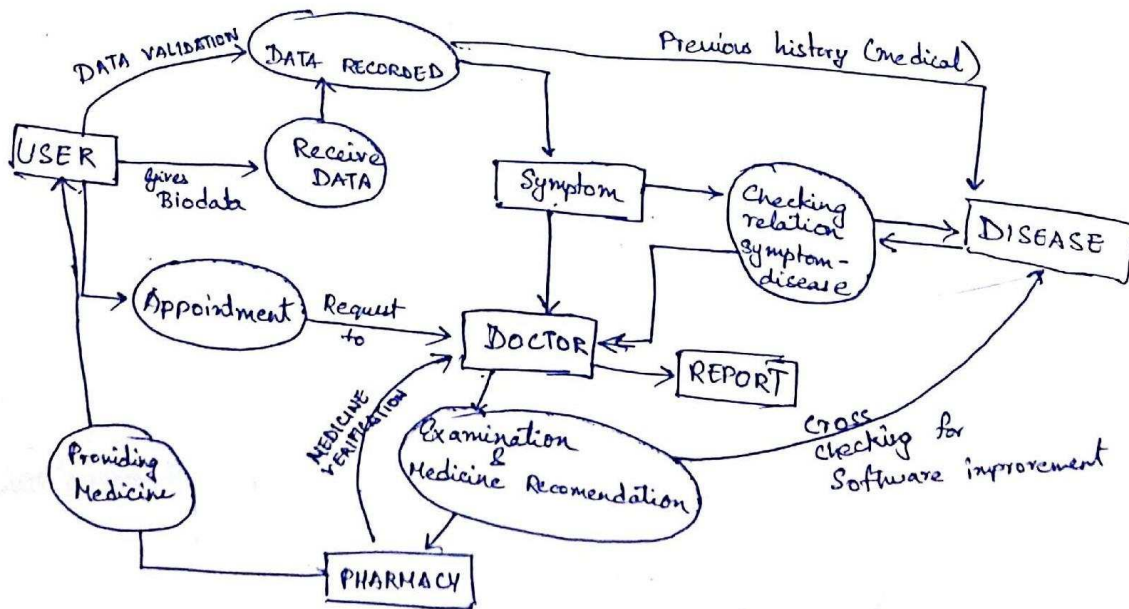
### **3.3 Software Interfaces**

- 1) Front end – HTML, CSS, JavaScript.
- 2) OS – Subline Text
- 3) Back end – SQL Server

### **3.4 Communications Interfaces**

Windows, HTML, CSS Website.

## 4. Domain Model



## 5. System Features (Use Cases)

A use case is a methodology used in system analysis to identify, clarify, and organize system requirements. The use case is made up of a set of possible sequences of interactions between systems and users in a particular environment and related to a particular goal. It consists of a group of elements (for example, classes and interfaces) that can be used together in a way that will have an effect larger than the sum of the separate elements combined. The use case should contain all system activities that have significance to the users. A use case can be thought of as a collection of possible scenarios related to a particular goal, indeed, the use case and goal are sometimes considered to be synonymous.

### 5.1 Health Maintenance System

**5.1.1. Name:** Health Maintenance system for concerned Users

**5.1.2 Goal:** To find the correct connection between the disease and symptom and provide accurate predictions of the disease and fixing an appointment

**5.1.3. Input:** User Inputs data of his own details including symptoms and past medical history

**5.1.4. Output:** Accurate prediction for disease from symptoms and fixing appointment.

**Main Scenario:**

**5.1.6. Pre-condition:**

User must be aware of the symptoms the person is having and reporting it accurately

**5.1.7. Steps:**

**Step1:**

The user inputs a series of answers to some basic question along with symptoms

**Step2:**

The data is processed and matched with a disease profile

**Step3:**

The disease according to its severity is given a ranking and the user is prompted to make a doctors' appointment

**Step4:**

The doctors meet with their patient and recommends medicine and pharmacy.

**Step5:**

The User gets a medical certificate and medicines and is treated for the disease.

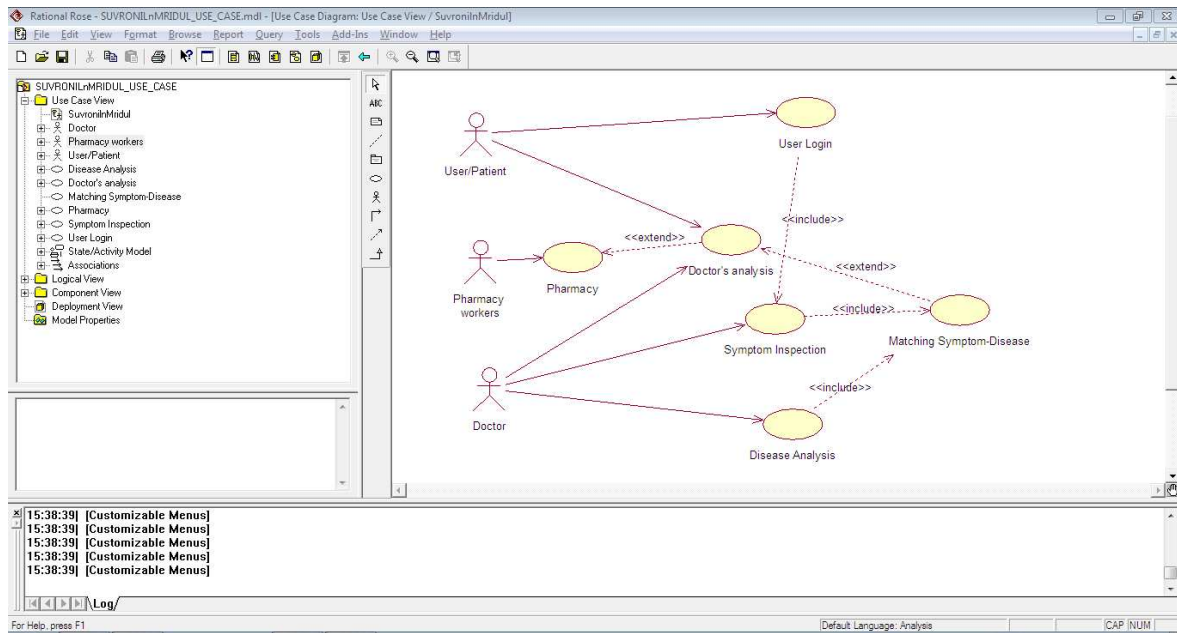
**Post-condition:**

The User must attend for a re-appointment.

**Exceptional Scenario 1:**

If the severity of the disease is not high, then appointment not required.

## Example



## 6. Other Nonfunctional Requirements

### 6.1 Performance Requirements

The system might require heavy databases as it has to handle millions of data and hence would require hardware with better processors. The website to be made has to try to not lag so as to satisfy the user as soon as possible considering the urgency of any medical treatment

### 6.2 Safety Requirements

There are possibilities that the system might describe a wrong disease considering the number of similar symptoms shared by in-numerous diseases. There is no reason to worry as there is an option of cross checking with doctors appointed considering their time of diagnosis

### 6.3 Security Requirements

Due to security reasons it is recommended to give the patients name and identification as a proper certificate would be issued if a dire diagnosis occurs. The certificate would be issued digitally and credentials would be taken from what the user has input. Incorrect authentication can lead to problems with the legal system. The software is not responsible for such an event.

## **6.4 Software Quality Attributes**

The software is a website which would provide accurate disease predictions for concerned users and potential patients. Doing a herculean task requires a robust network and great user interface which we provide.

## **7. Other Requirements**

There are other requirements we would cover after the SRS. Some of them are initialized below:

## **Appendix A: Glossary**

### **Software engineering**

The establishment and use of sound engineering principles in order to obtain economically software that is reliable and works efficiently on real machines.

The application of a systematic, disciplined, quantifiable approach to the development, operation, and maintenance of software; that is, the application of engineering to software.

The systematic activities involved in the design, implementation and testing of software to optimize its production and support. [Canadian Standards Association]

### **Software entropy**

The amount of disorder in a software system

### **Software metric**

A software metric is a combination from measures of attributes belonging to a software product, or to its development process, which shows quantitatively some of its characteristics

### **Ease of use**

The ease with which people of various backgrounds and qualifications can learn to use software products and apply them to solve problems. It also covers the ease of installation, operation and monitoring.

### **Engineering**

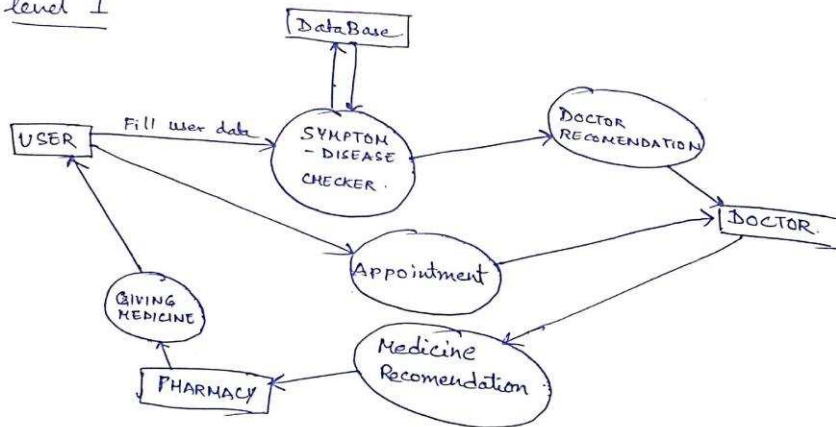
The profession in which a knowledge of the mathematical and natural sciences gained by study, experience and practice is applied with judgement to develop ways to utilize, economically, the materials and forces of nature for the benefit of mankind [Accreditation Board for Engineering and Technology, 1996]

## Appendix B: Analysis Models

Level 0



level 1



level 2

