1. Preface:

This is the ‘System Requirements Specification’ document (generally known as ‘SRS’ document) of a software system named ‘Medical Information System Application'. It is an official statement of what the system developers should implement. It should include both user requirements and system requirements .The SRS is technical specification of requirement of Medical Information System Application. This specification describes what the proposed system should do without describing how it will do it. It also describes complete external behavior of the proposed system.

2. Introduction

2.1 Purpose

SRS or say ‘System Requirements Specification’ is a description of a software system to be developed. SRS is the agreement document between the client and the Software developer. This ‘System Requirement Specification’ document assures the project management stakeholders and client that the development team has really understood the business requirements documentation properly. This document breaks the deliverables into smaller components which makes the participants of the project what is to be done clearly. It consists of functional and non-functional requirements and also includes a set of use cases that describe the user interactions which the software must provide. This document forms the basis for a load of other important documents such as the Software Design Specification. It basically helps in validating with the client that the product which is being delivered, meets what they asked for.

The characteristics of a Software Requirement Specification

2.1.1 Clarity

This SRS will clearly state what the users/customers expect in the system.

2.1.2 Accuracy

We will ensure the accuracy of the system and data entered to the database.

2.1.3 Consistency

The document is consistent and it helps the readers to understand the requirements well.

2.1.4 Unambiguousness

The SRS doesn’t contain any ambiguous information.

2.1.5 Completeness

This contains all requirements specified by the user.

2.1.6 Ranking for importance and stability

This ranked the requirements according to the order of priority and preference.

2.1.7 Modifiability

This document can be modified when the development team and user feels the need.

2.1.8 Verifiability

The user/client will be able to verify that the agreed product meets the requirements specified.

2.1.9 Testability

This will make it easy to generate test cases.

2.1.10 Traceability

Each requirement stated in the SRS is associated with a source such as a use case or an interaction document.

2.2 Document Conventions

This document is prepared using Microsoft Word 2013 and has used the font type ‘Roboto’. The fixed font size used is 11pt and 1.5 line spacing. It has used the bold property to set the headings of the document. All pages are numbered except the cover page. Use case scenario is written according to Alistair Cockburn’s template. Standard IEEE template is the template used to organize the appearance of the document and its flow.

2.3 Intended Audience and Reading Suggestions

The intended audience of this document is client and specific employees like manager and receptionist, consultant and system operator of ‘Chandanaish Health Complex’, and project team, supervisor with the objectives to refer and analyze the information. The SRS document can be used in any case regarding the requirements of the project and the solutions that have been taken. The document would finally provide a clear idea about the system that is being built.

2.4 Product Scope

Currently ‘Chandanaish Health Complex’ is using a manual system to handle hospital processes. When patients arrive they make an appointment at the reception to consult a Doctor.These are being recorded in a file. Then again the patients diagnosed symptoms related disease details, ward details and other necessary details are being recorded and those files are being stored in special locations. Calculation of bills and inventory are done manually.

As the current system is a file based one, management of the hospital has to put much effort on securing the files. They can be easily damaged by fire, insects and natural disasters. Also could be misplaced by losing data and information. Limited storage space of the files is another issue that they currently face when the management is manually done. There occurs an issue with the organization of data information and schedules and running the process methodically which leads to the manual system malfunctioning. If we want to check a previous record of a patient or other details. Management will be in a great problem. It’s a tough and time taking process to search for a record in a file. Keeping files takes much time and wastes much precious man hours.

The tendency of making mistakes is high when functioning manually. It is hard to rely on the accuracy of calculations done manually too. It is more obvious for problems to arise.

We plan to overcome the above mentioned problems through a standalone application, to manage the major functions of the Hospital System.

The Medical Information System Application we are going to implement will be covering all basic processes done in the hospital. It will record the patient's details and handle the outpatient department and emergency department, ward management, laboratory management, Transport Management, Pharmacy Management. It will help the administration to manage the doctors and nurses. It will ensure the security of data.

In the OPD(Outpatient Department) unit, with the OPD and Consultation Management system, the manual doctors channeling details entering process has automated. So the staff does not need to spend time on writing appointment records and updating them in files. And the number issuing process becomes easier and efficient. And keeping track of patients and medical prescription details allow them to review the details whenever needed.

Ward Management records details of surgeons, in- patients who are assigned for Wards, different ward details and surgery details. The pharmaceuticals used within the theatre are managed as well. Food menus for the patients according to their diseases based on wards is systemized too. All are digitized in a systematic way. So the details of surgeons, patients and surgeries are well organized and can be easily accessed whenever needed. Surgery reports, Ward progress reports, In-ward patient progress details are generated and history can be tracked too.

The transport management handles all the data of ambulances. It manages the time slots of ambulances, driver’s and employee details of the transport section and provides bill generating facilities. And reliable time slot management provides the facility of checking the availability of the ambulances whenever required, and deciding about a possible time they can fulfill a request.

The system developed for Emergency Treatment & Equipment Management automates the current processes of patient registration and proposes a better way to keep records of equipment and medicines related to the emergency treatment unit in a computer based file system. The proposed system provides a simple interface to gather quick information of the patient and record them. So that in a case of special request by an external party, details of the patient history can be accessed and viewed.

The Pharmacy Stock Management system is responsible for proper management of drug stocks, pop ups the notifications of expiry dates of stock items. This system allows the client to keep track of medicine stocks , notify the personnel when the stock is running out of items and help the manager to reduce stock levels and eliminate stock waste.

The Lab Management System records sample collection details, keeps track of lab resources and participates in lab reports conclusion generating. This increases the accuracy of the report generating process and saves a lot of time in manual handling of report details and improves the efficiency and the productivity of the organization.

Our goal is to make a client satisfied system by fulfilling the client requirements and improving the current manual system with client needs which are not even particularly mentioned but what we have suggested by analyzing and got approved by the client to improve the standard of the system and of the management of the hospital to its utmost.

**3. Glossary**

Glossary define the technical term used in the document. A glossary, also known as a vocabulary or clavis , is an alphabetical list of terms in a particular domain of knowledge with the definitions for those terms.

The glossary for this document is given in table I.

**Table I : Glossary**

|  |  |
| --- | --- |
| **Technical Term** | **Description** |
| Authentication | The process or action of verifying the identity of a user or process. |
| Backup | A copy of a file or other item of data made in case the original is lost or damaged. |
| Constraints | The limiting barrier of an action or a system. |
| Credentials | A group of information proving a user's identity or qualifications. |
| Database | A collection of information organized into rows, columns and tables, such a way that a computer program can quickly access, manage or update desired pieces of data. |
| Encryption | The process of converting information or data into a code, especially to prevent unauthorized access. |
| Login | The process by which an individual gains access to a computer system by identifying themselves. |
| On-line | Operating being connected to a computer or telecommunication system such as internet. |
| Response Time | The length of time taken for a system to react to a given event. |
| Server | A computer or computer program which manages access to a centralized resource or service in a network. |

**4. User Requirements Definition**

Requirement represents a need that an Information System should fulfill. After talking with the client and properly discussing with them, some requirements are discovered. Requirements can be functional (what the software or component should do, a functionality), non-functional (how the system will do, that is, constraints or qualities).

|  |  |
| --- | --- |
| Requirement Type | Definition of Requirements |
| Functional Requirements | 1. The application must have an authorization option. 2. Receptionist will be able to add a patient entry. 3. Doctor’s will be able to view patient profiles. 4. Authority can access the system database when it’s required. 5. Add patients' diagnosis history to the patients database. 6. Patients can view the schedule of counselling doctors. 7. Search option for all users. 8. Patients can add problems what they faces. 9. Patients can view prescription in mobile application. 10. Keep the records of indoor and outdoor patients. 11. Patients can view the results of diagnosis. 12. Every user have limitation of data access by their level. 13. The application must have a reminder option for users. 14. Authorities can create, modify and remove patients, chart, appointment etc. 15. Application will provide the information for transport. |
| Non-functional Requirements | 1. System must be highly secure and reliable. 2. System must be available all time. 3. System must be maintainable. 4. System must ensure data integrity. 5. System must be usable by all registered users. 6. System must be scalable. 7. System must have the capacity to take a huge load. 8. System must be manageable by authorities. |

Table I : Definition of User Requirements

**5. System Architecture**

Systems Architecture is a generic discipline to handle objects (existing or to be created) called "systems", in a way that supports reasoning about the structural properties of these objects. It is a response to the conceptual and practical difficulties of the description and the design of complex systems.

Mobile Application

Users

Database

Fig I: System architecture.

**6. User Requirements Specification**

Here the requirements for the system are specified.These requirements are so important to be implemented. Some functional requirements are enlisted which will describe how the system should react to particular inputs, how the system should behave in particular situations and In some cases, what the system should not do. Except these statements of services there are some non-functional requirements which will be applied to the system as a whole rather than individual system features and services.

|  |  |
| --- | --- |
| Requirement Type | Specification of Requirements |
| Functional Requirements |  |

**7. System Model**

System modeling is the process of developing abstract models of a system, with each model presenting a different view or perspective of that system. It’s represent aspects of system and its environment. It is about representing a system using some kind of graphical notation, which is now almost always based on notations in the Unified Modeling Language (UML). Use Case is one of them.

**Use Case:**

A use case is a term that describes how a user uses a system to accomplish a particular goal. A use case acts as a software modeling technique that defines the features to be implemented and the resolution of any errors that may be encountered.

Use cases define interactions between external actors and the system to attain particular goals. There are three basic elements that make up a use case:

• Actors: Actors are the types of users that interact with system.

• System: Use cases capture functional requirements that specify the intended behavior of the system.

• Goals: Use cases are typically initiated by a user to fulfill goals describing the activities and variants in attaining the goal.

|  |  |
| --- | --- |
| Use Case | Title |
| UC1 | Registration System |
| UC2 | Login System |
| UC3 | Booking Appointment |
| UC4 | Issue Clinic Number |
| UC5 | Search Info |
| UC6 | Manage Profile |
| UC7 | Reminder System |
| UC8 | Calculate Bill |
| UC9 | Pay Bill |
| UC10 | Manage Ambulance |
| UC11 | View Doctors Schedule |
| UC12 | View Diagnosis Result |

Data Entry Operator

Receptionist

Administrator

Doctor

Patient

Nurse