Software Requirements Specification Document

Title:

Software Requirement Specification for CAREHUB

Objective (Purpose):

The online **HMS (Hospital Management System) i.e CAREHUB** which is a Web Application to provide complete solution for patients. It will enable patients to browse with help of Receptionist to make appointments removing the tedious long-standing queues to get fast seamless service of medication in hospital **starting from appointment upto medicines.**

User requirements

The user requirements specify what the **CAREHUB** (HOSPITAL MANAGEMENT SYSTEM->**HMS**) system must be capable of doing to solve the problems of the set of potential users of HMS. The system owners and end-users write them with information from Quality Assurance. The user requirements are identified using natural language, along with diagrams for a broader understanding.

The user requirements can be categorized into two major categories, which are:

Scope

The scope of a hospital management system (HMS) is extensive, covering various aspects of hospital operations. An HMS typically includes functionalities like patient registration, appointment scheduling, electronic medical records (EMR), billing, inventory management, pharmacy management, and laboratory management.

Functional requirements

Functional requirements define the function of the device, explaining the actions taken by the HMS system clearly and quantitatively. These requirements define the capabilities of the HMS system, as well as its process or workflow. It also determines the form of input and output desired. Some of the functional requirements of the HMs system are:
 Registration

The admin is the only user who can register **doctors, receptionist, lab incharge, ward incharge and pharmacists.** The patient can register through the registration module. In addition, the system should allow a receptionist to register new patients into the system.

Authentication

The user (patients) should be able to create an account in the HMS system through the registration module (form). The following details should be entered in the registration module:

- User_id
- firstname
- lastname
- address
- email

- Age
- username
- password

The system must enable registered users including all categories of users to log in through the login module, by entering the username and password.

Manage Account

Users of the HMS system should have the ability to manage their account including changing their password.

Input validation

The system should validate all inputs entered by the user to ensure that the user does not leave any blank required fields. This is also important to ensure that the inputs are entered in the correct format and does not exceed the size specifies.

Unique Username (ID)

The username of each user in the HMS system should be unique. Equally important, the system should verify that the username, which is entered in the registration form, is not already used by another user in the system.

Allot patients for doctors

The system shall enable **Receptionist** to view doctors' status (Schedule) to allot patients successfully for the concerned doctors in terms of their problem.

Appointment List

The receptionist shall be able to view the full appointment list.

Booking an appointment

The system shall provide the available appointment to receptionist and patients in order to book a new appointment.

Updating Schedules

The system shall update the schedules of users automatically whenever a new appointment is booked or a patient is redirected.

Inform (Notify) Users

The system shall inform doctors, receptionist, lab assistants, pharmacist whenever an action has to be taken by them.
Creating Prescription

The doctor shall user the system to create/enter a prescription for the patient. On the other hand, the patient also should have access to view the prescription through his/her account.

Redirecting Patients

The system shall enable doctors to redirect the patient for diagnosis via lab test.

Generating Reports

The system shall enable lab assistants to generate test reports like X-Ray images, CT scan, MRI reports.

View Reports by patient

The patients shall use the system to view their test results reports as well as doctors' advice and prescription.

View Reports by doctor

The system shall allow doctors to view the patients' reports and enter required advice for the patient, as well as new prescriptions if needed.

Examination and Medicine Costs

The system shall allow lab assistants and pharmacist to enter the costs of the examinations and medicines.

Check Out (Payment)

The system shall allow the receptionist to create and order invoice for payment through the billing module after status of patient from in to out . The receptionist shall watch the payment history of the patients.

Non-Functional Requirements

The non-functional requirement defines the operational requirements off the system, as well as the constraints to be followed in order to improve the system's functionality. The following are some of the non-functional requirement that needs to be considered in the HMS system:

Availability

The system must be available 24/7.

Capacity

The system must support a load of 3000 users at a time.

Performance

- **Response Time**: The system must respond within 2 seconds after verifying the details and other data of the patient. In other words, the time to load a web page over a 56Kbps modem connection should not exceed 2 seconds.
- **User Interface**: User interface display shall response within 5 seconds.
- **Conformity**: The system should be in accordance with Windows Accessibility.
- **Virus Protection**: Devices in the hospital that use the system must have firewalls enabled and an Active Anti-Virus in usage.

Durability

In case of failure, the system should be recovered by itself within 10 seconds, and the server must receive a comprehensive crash report stating the problem occurred.

Adaptability

The system (web application) must be adaptive and responsive to support devices of all types. 21

Security

- **Modification**: Changes in the system like (insert, erase, and update) is coordinated and performed by the Admin only.
- **User Rights**: users' activity of the system should be controlled so that each user can access the allowable activities only.
- **Data**: the transaction data should be transmitted in an encrypted form.
- **Database Protection**: the database should be protected by a strong password.

Safety and Maintainability

A backup of the database should be performed every week, so that the system can be recovered in case of any database damage, which may be occurred due to a catastrophic failure, such as a disk crash.

Accessibility

The system can be accessed by the Admin and many other users but the access level is controlled of each user as per their scope of work.

System Requirements

System requirements define the specifications required to use the system. The following are some of the System requirements that need to be considered for the HMS system:

The system needs to run seamlessly with 2 GB of Random Access Memory (RAM).

The system needs a minimum Internet speed of 500 kbps to successfully refresh and load pages/modules.

The system (webApp) needs internet connectivity to work to access.

Conclusion

In conclusion, this report discusses a case study of an online web-based **CAREHUB** -> Hospital Management System(HMS). The aim, objectives, background and problem statement of the project, followed by, the system description, its main actors and modules are clearly stated. The UML , DFD ,E-R diagrams and behavioural diagrams described the system and illustrated the relationship between objects, and the processes flow of the HMS system,

which helps to better understand the system. The discussed design of the interfaces provides good user experience and offers accessibility features for users of the system. Through the identified verification tools, the HMS system was ensured to work as per the expectations.

References

Hospital Management System(HMS) UI Design. [Online]. Available at: https://www.behance.net/gallery/3431329/Hospital-Management-(HMS)-UI-Design.

Creately, 2019. *DataFlow Diagram - Creately.* [Online]. Available at: https://app.creately.com/diagram/K73lE9bKGf4/view.

Encyclopedia, 2019. *User requirements specification.* [Online]. Available at: https://www.encyclopedia.com/computing/dictionaries-thesauruses-pictures-and-press-releases/user-requirements-specification.

GeeksForGeeks, 2019. *Unified Modeling Language (UML) | Sequence Diagrams.* [Online]. Available at: https://www.geeksforgeeks.org/unified-modeling-language-uml-sequence-diagrams/.

Jamsheer K., 2018. *12 Best Software Development Methodologies with Pros & Cons*. [ONLINE]. Available at: https://acodez.in/12-best-software-development-methodologies-pros-cons/.

KnowledgeHut, 2019. *7 Basic Quality Tools for Efficient Project Management.* [Online]. Available at: https://www.knowledgehut.com/blog/project-management/7-basic-quality-tools-for-efficient-project-management.