

**American International University-Bangladesh**

**SOFTWARE REQUIREMENTS ENGINEERING [C]**

FINAL TERM ASSINGMENT

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# **Group Member Contributions**

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| **Name** | **Date** | **Topic** |
| Alimul Mahfuz Tushar | 26 Nov 2022 | Use case and context diagram. |
| Jihad Shahariar Joy | 27 Nov 2022 | User Requirements |
| Ehsanuzzaman Shawon | 27 Nov 2022 | Requirement Development |
| Alimul Mahfuz Tushar | 28 Nov 2022 | Functional Requirements |
| Ehsanuzzaman Shawon | 28 Nov 2022 | Product Vision and Project Scope |
| Jihad Shahariar Joy | 28 Nov 2022 | Constraints |
| Ahmed, Md. Kaushiq | 29 Nov 2022 | Software Requirement Specification |
| Ahmed, Md. Kaushiq | 29 Nov 2022 | Validation and Verification |
| Reya,Rubina Islam | 29 Nov 2022 | Current Common Problem |
| Reya,Rubina Islam | 29 Nov 2022 | Business Requirement |

# **Current common problem**

Phone communication mistakes can have a range of negative effects, from discomfort and anxiety to serious threats to patient safety. In this case, a patient cannot schedule a regular appointment with a doctor. Additionally, if a patient needs emergency assistance, neither the hospital nor the doctor is accessible. These are the typically problems that patients have while trying to reach a hospital.

Due to this issue, the hospital is unable to properly receive patients because they are unable to keep their scheduled doctor’s appointments. Emergency patents, on the other hand, are unable to receive assistance promptly due to a poor connection, so they avoid going to the hospital. Therefore, the hospital author here lost contact with their patient.

# **Requirements**

## **Business Requirements**

* Here patient needs an auto call system, because of that they can contact hospital properly
* To build the auto call system we can develop a patient care or web base portal by which patient can contact hospital properly
* We can use Medical Service portal by using that a patient can take an appointment or cancel the appointment timely
* We can follow the Hospital Management tool to develop the system.
* The Stakeholders must be identified.
* A proper Effort estimation and Budget estimation must be done.

## **User Requirements**

The business needs for what users need from the system are outlined in the user requirements. The system owner, Quality Assurance, and mostly End-Users all contribute to writing user requirements. In the Performance Qualification or User Acceptance Testing process, these requirements are often tested.

* The system should have multiple Sign-Up Options for user's convenience.
* Simple Log-In interface.
* The login interface should have a two-step verification system, but the users should be able to log-in by one-step verification (password only) on already recognized device.
* Easy to use/understand user panel/dashboard.
* Quick response and less loading time.
* Search Doctor and Diagnostic Tests.
* The users must be able to browse every Doctor’s profile.
* The users must be able to check Doctor's Rating and Review.
* The appointment bookings should be flexible.
* Ability of appointment cancelation.
* Ability to print the appointment.
* View prescription/diagnostic report.
* View the list of available services.
* Proper profile management.
* Ability to view appointment history.
* Secured Payment environment with multiple options.

## **Functional Requirements**

* Customer, doctor should login to the system.
* Customer should be able to check his or her appointment.
* Customer could cancel his or her appointment.
* Customer should be able to see his appointments.
* Doctor should view his/her appointment.
* Doctor should view patients previous report if any.
* Hospital should add new doctor to system.
* Hospital should be able to remove doctor from the system.
* Hospital should update their schedule
* Hospital should be able to cancel any appointments.
* Hospital should be able to view total appointments in any periods.
* Hospital should be able to limit the number of appointments.
* Customer should be able to book diagnostic appointments.
* Customer should be able to pay on online.
* Customer should be able to print appointments slips.

## **System Requirements**

* Apache version 2.0
* Ngnix version 3.0
* PHP version 8.0
* MySQL Database
* Server OS windows 10 or above
* Android version minimum 11.0 or later

# **Requirements Development**

Requirements are discovered and improved throughout the phases of the product lifecycle. Impact on derived and allocated needs is examined for each stage of the product's lifetime, including design choices, following corrective actions, and feedback. The process of discovering, assessing, capturing, documenting, and validating the requirements for a certain project or program of work is known as requirement development. The Specification Manager, which enables the Analyst to enter, view, and manage requirements in textual form in a spreadsheet format, serves as the focal point for requirement development.

The Requirements Development process area includes three specific goals.

(1) Develop Customer Requirements

(2) Develop Product Requirements

(3) Analyze and Validate Requirements.

Requirements Gathering and eliciting requirements, requirements analysis, and requirements specification are all parts of development.

# **Product vision and scope**

The authority's ongoing struggle with providing excellent customer service will be completely transformed by this addition to the hospital system. The load that was too much for the old system, which consisted of the call-receivers on the other end of the customer service, will be reduced by the automation of the bulk of calls and the interactivity brought by the product. To increase the productivity of healthcare facilities and provide the service to as many people as possible who need it, this addition to the system is a need or perhaps the ultimate objective.

The project's scope includes ensuring efficient information exchange between the IT, Service, and IT departments, as well as the soon-to-be created Customer Care system. The customer will able to see doctors’ qualification and rating in detail that will help customer to choose easily. It's quite likely that someone will look up a few doctors online, confirm that they are part of their healthcare network, and scroll through available appointment times before seeing the doctor. It will remove customers struggles for getting appointment and improve the communication between the customer and hospital authority. In the following part, the Scope is illustrated in depth with the use of a context diagram.

# **Context and use case diagram**

Here is the context diagram showing all the features and high-level overview of the proposed system

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| --- |
| Figure 1: Context Diagram |

The following use care diagram is showing the high-level architecture of the proposed system.

|  |
| --- |
| Chart, diagram  Description automatically generated  Figure : Use case diagram |

# **Software requirement specification**

## **Abstract**

### **Purpose:**

The purpose of this document is to specify the requirements for the online doctor appointment reservation system (ODARS). And the stakeholders are administrative staff, doctors, patients, and developers.

### **Scope:**

The Online Doctor Reservation System is the proposed software. A fully functional web-based online system will be built for this project. Making an internet system for scheduling appointments with doctors is the goal of this project. Through a web browser, customers can easily book doctor appointments anywhere in the world. In order to make it easier for them, doctors can also register with this system, view appointments, and select available times for appointments. Administrators have access to the website and can change information on the website.

## **2. General Description**

### **Product Perspective:**

An online doctor appointment reservation system (ODARS) is a system that allows patients to book an appointment and doctors to manage appointments. Various stakeholders are involved in this system.

### **Product Functions:**

1. Provide an application that enables patients to book an appointment with any available doctor.
2. Doctors will be able to view their appointments and manage them properly.
3. Coordinate multiple calendars and find available appointment timeslots.
4. Reserve rooms for appointments.
5. Notify patients about an earlier available time slot.

## **3. User Characteristics**

The system will be put to use in a hospital. The primary users will be doctors and patients. Given that not all the users are computer literate. Some users may need to be trained on how to use the system. The system is also intended to be simple to use. It makes use of a graphical user interface (GUI).

**Patient:** The people who will make the appointments.

**Doctor:** The specialist for whom appointments are scheduled.

**DB Administrator:** They are in charge of maintaining and supervising the system’s database.

# **Constraints**

As this system is being developed in order to cope with the high number of telephone calls at the customer care service, it is easy to assume that it is being developed in a rush. Which might result in some errors and constraints. Some constraints are:

* **The short time period:** As the system is being developed in a rush, developers might get less time to develop the system.
* **Errors and bugs:** Less time will lead to causing errors and bugs in the system.
* **Missing requirements:** For the time shortage, some requirements might be missed when collecting requirements.
* **Anyone can create an account:** As the registration system has no way of verifying a legitimate person, anyone with an email, phone, or social media can create an account in this system.
* **One user with multiple accounts:** The registration system has multiple sign-in options and it may not limit one account per person resulting in many unnecessary accounts.
* **Unnecessary accounts with unethical users:** As anyone can create an account, unethical users might create an account for fun then make appointments and not attend it. Thus waste the precious time of the doctors and other patients.
* **Elderly patient's limitations:** Elderly patients would have a hard time adopting the online appointment and diagnostic system.

# **Verification and Validation**

**1. Verification**

**System design**

The system was built to meet its functional requirements. And we also make sure that the system we are using is functional such as fundamental design area, technical specifications. The tools that were mainly used are use cases, class diagram, E R diagram, and sequence diagrams. The design ensures that only allows authorized users access the system’s information.

**2. Validation**

Validation is a more comprehensive and timeless process, and it can’t be expressed in some steps. This is a process of the entire software development lifecycle. By using validation, we can ensure that the project can meet both user and business needs. Validation should occur in every aspect of our project. The techniques that should be followed are questionnaires, usability tests, and contextual observation of the users. To compete with the industry-level standards a project should be validated according to the process. All the functionalities stated in the requirement have been implemented, all were tested, and it showed that they are all working properly.

# **References**

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[Dhaka – Evercare Hospitals Bangladesh | Transforming Healthcare (evercarebd.com)](https://www.evercarebd.com/dhaka/)

Online Doctor Appointment System Solution | Online Doctor Appointment System – [Fullestop.com](https://www.fullestop.com/online-doctor-appointment-system.php?fbclid=IwAR3I5rUG2YCZn7XT7PinFCSFHcjHnI7VcdB-ctLCmXxY278hnJpNFqA8vwE)