

Software Engineering Project – Phase II: User requirements and application specifications

Project Topic: Dental Clinic Management App

Development Model

In general, our team has decided to adopt the *Waterfall Model* for the development of this software. Nonetheless, there are many times throughout the development process in which requirements may change or modifications have to be done for the system to provide a better experience. As a result of this, many aspects of Agile Development will be present as well. The main reasons for choosing the Waterfall Model are as follows:

Well-defined and clear planning: As the work for the project is organized in groups, it is essential to have milestones that are well-defined and easily understandable by all members. This can make project planning and the management of deadlines and timelines easier.

Documentation: As the experience of the team members with previous projects in the field of software development is limited, an emphasis on documentation guarantees that there is a better understanding of the requirements, design, and implementation as well during the process.

Linear development process: When applying the Waterfall Model, it is easier to understand what needs to be done and when. This also helps us determine if the tasks that are finished need improvement or changes when that process is finished.

Teamwork: When roles and responsibilities are made clear, the division of work within a team produces better results. In this case, each phase of the development process is completed before moving to the next one, and this allows each member to have a better view and understanding of their role.

Detection of issues early on: Since everything in the development process is performed in a step-by-step manner when problems arise it is easier to witness and improve them early on than to deal with delays or other similar issues.

Minimal involvement of the customer: Sometimes, it is not easy to maintain constant communication with the customer, so the requirements should be specified since the beginning together with the input and feedback during the requirements gathering phase.

User Requirements

Functional Requirements:

- The application should allow patients to book appointments with dental students or dentists.
- The application should allow dental students and dentists to view their upcoming appointments and patient information.
- The application should allow patients to view their treatment history and progress.
- The application should allow dental students and dentists to view a patient's treatment history and progress.
- The application should allow patients to cancel or reschedule appointments.
- The application should allow patients to upload and access their dental records and X-rays.
- The application should allow patients to receive reminders for upcoming appointments and follow-up visits.
- The application should allow patients to communicate with their dental students or dentists through an in-app messaging system.
- The application should allow dental students and dentists to generate and print invoices for patient services.

Non-functional Requirements:

- The application should be secure and protect patient data privacy.
- The application should be reliable and available 24/7.
- The application should be responsive and fast, with minimal loading times.
- The application should be easy to use, with a simple and intuitive user interface.
- The application should be compatible with different operating systems and devices.

Domain Requirements:

- The application should be able to provide educational resources to patients, such as oral health tips or FAQs.
- The application should have a feedback system that allows patients to rate their experience and provide suggestions for improvement.
- The application should comply with the regulations and standards of the healthcare industry.
- The application should allow for the scheduling of multiple appointments over some time, such as for a complex treatment plan.

Application Specifications

The Dental Clinic Management System application will be developed using web technologies such as PHP, HTML, JavaScript, and CSS. That means that this application will be accessible through a web browser on desktop and mobile devices.

The user interface is intended to be designed as a simple and easy interface to navigate, with a clean design. HTML, CSS, and JavaScript will be used to provide a responsive user experience. Within this application, patients will be able to book appointments with dental students and dentists, the application will also allow patients to upload and access dental records.

A messaging system will also be a feature of the application, which will be made available to improve communication between both parties. The application will also provide a feedback system as a means to improve the quality of work and learning processes. As for some other technical aspects, this system will use PHP to handle user authentication and provide data security and it will also use HTTPS to encrypt data transmission between the device and server.