Software Requirements Specification

For

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# Introduction

## Purpose

Many people spend huge amounts of money on dental treatment and their problems, and a person may move from one doctor to another and from one clinic to another, and in the end he may not reach what he wants.

On the other hand, many dental students are waiting for patients to come for treatment for free as well, even as it comes to saving the patient money for their treatment.

It is also possible that the refusal by the supervising physician, due to the failure to complete the conditions of the therapeutic case as required in that semester, and this leads to the patient's refusal and start looking for another again.

Just as this sometimes costs students a lot of effort and money, it can also cause embarrassment and psychological pain for the patient after their case has been rejected.

From here and after making a concrete investigation of this issue, we decided to help both students and patients by creating a mobile application that enables the doctor to easily find the patients with the required specifications as per the specifications preset by the supervising doctor.

## Document Conventions

This Document was created based on the IEEE template for System Requirement Specification Documents.

## Intended Audience and Reading Suggestions

* Typical Users, such as dental students who are looking for specific cases to treat.
* Patients who need free dental treatment in university hospitals
* Programmers who are interested in working on the project by further developing it or fix existing bugs.

## Product Scope

**The project provides the following features:**

* Allows the dentist to search for patients in an easy and concise manner.
* The application provides the ability to upload images to better illustrate the required cases.
* It also allows the patient to search for a suitable dentist.
* The treatment service is provided by the doctor to the patient free of charge.
* It allows the patient to browse the cases required by dentists.
* Provides an easy way to communicate and confirm appointments and agree on them between the doctor and the patient.
* Patients can evaluate the doctor after treatment to ensure the quality of treatment services provided.

## References

* [Software requirements specification (SRS) Project X 1 Introduction. studylib.net. (2020, June 21). Retrieved April 5, 2022, from https://studylib.net/doc/15699454/software-requirements-specification--srs--project-x-1--in...](mailto:samirawaheed2000@gmail.com)
* [Patients. Patients // School of Dentistry // Marquette University. (n.d.). Retrieved April 5, 2022, from https://www.marquette.edu/dentistry/patients/](mailto:samirawaheed2000@gmail.com)
* [Incremental Development · Software Development Glossary by DeepSource](https://deepsource.io/glossary/incremental-development/)

# Overall Description

## Product Perspective

It is a new stand-alone system. It is a mobile phone application for a mobile phone that enables the doctor to obtain patients with the specifications he wants easily and enables the disease to display its condition and the patient treatment for free and facilitate the method of communication between the patient and the doctor by providing the data of each.

## Product Functions

* Enable the doctor to publish the requirements he wants.
* The patient can explain his condition.
* The doctor and the patient can attach pictures for further clarification.
* Enable the patient and the doctor to enter their data to facilitate communication between them.
* The patient can evaluate the treatment to ensure the quality of the treatment service.

## User Classes and Characteristics

Users of the system are dentists and patients. The users should be able to display their cases and any attached files or images that clarify their cases whether the user is dentist or patient and there will be communication between users to help each other get the right dentist or patient. The dentist should be able to do the following functions:

* Search for the required cases and browse patients’ cases to get cases that meet his/her requirements.
* Upload images to clarify the required cases.
* Communicate with patients that meet his/her requirements to make appointments to handle the case.

The patient should be able to perform the following functions:

* Search and browse for suitable dentist can handle his/her case.
* Upload attachments to clarify the case.
* Communicate with the dentist that can handle his/her case to make appointments.
* Evaluate the dentist and service.

## Operating Environment

The operating environment for the system is as listed below:

* Operating system: Android, IOS, Windows.
* Database: SQL Server database.
* Platform: Flutter for building mobile application UI, ASP.Net C# for backend development.
* Client/Server System.

## Design and Implementation Constraints

* There will be interfaces of other applications like Google map.
* Technologies and tools used are Flutter framework and dart language for building mobile application UI, Asp.Net C# for backend development, SQL Server for building database, Adobe XD for designing interfaces of the system.
* It is expected for the system to be delivered in a month.
* Communication protocol used in the system is HTTPS.
* There are some security considerations like encrypting data, using good cryptography and good tools, using high level authentication and testing repeatedly.

## User Documentation

<List the user documentation components (such as user manuals, on-line help, and tutorials) that will be delivered along with the software. Identify any known user documentation delivery formats or standards.>

## Assumptions and Dependencies

The application is developed in flutter, so the app will be available for Android 9.0 and later and IOS users.

# External Interface Requirements

## User Interfaces

<Describe the logical characteristics of each interface between the software product and the users. This may include sample screen images, any GUI standards or product family style guides that are to be followed, screen layout constraints, standard buttons and functions (e.g., help) that will appear on every screen, keyboard shortcuts, error message display standards, and so on. Define the software components for which a user interface is needed. Details of the user interface design should be documented in a separate user interface specification.>

## Hardware Interfaces

The project is a mobile application, so it only needs a device that supports the Android or IOS operating system

## Software Interfaces

The user does not need any external tools to run the application, he just downloads it from the store

## Communications Interfaces

The application needs an internet connection to connect to the databases

# System Features

## System Feature 1

**3.1.1 Description and Priority**

This Application maintains information on doctors or especially dental students who are about to graduate, so they need certain patients with the required specifications, patients, therapeutic cases as required in Students’ semester, and bookings. Of course, this project has a high priority because it is very difficult to travel across countries without prior reservations.

**3.1.2 Stimulus/Response Sequences**

* Search for a doctor/patient for a certain cases
* Displays a detailed list of available doctors/patients for the needed cases and make a “Reservation” or Book an appointment.
* Cancel an existing Reservation.

**3.1.3 Functional Requirements**

Distributed database:Distributed database include data of all cases and the description of the case who doctor and patient needs.

Student / Patient system: A Student/Patient system is a distributed system in which:

* Some sites are patient’s sites and others are doctor’s sites.
* All the data resides at the server sites.
* All applications execute at the client sites.

# Other Nonfunctional Requirements

## Performance Requirements

* Ensure that only the necessary data is sent in the response to reduce the response time.
* Ensure that the server capabilities are compatible with the number of potential requests from users.
* Compressing large data during the request and decompressing it during processing after the response.
* Keeping an empty amount of storage space to keep up with data growth.
* Back up data periodically.

**Security**

* Ensure that all delivered system secured and trusted.
* Ensure that password saved using hashing algorithm.
* Ensure that password rules are clear and strong.
* The system should use a security protocol when sending data over the internet.
* Ensure that each user can only access, manage the system according to his own restrictions (account type & ID) and permissions specified by the admin.
* The user’s account will be blocked after a number of failed attempts to login and a verification mail will be sent to user via the E-mail.
* There will be a verification email sent to users after registering for to ensure that there is no impersonation.

**Logs**

* Ensure that system have fully detailed action logging, with easily retrieval interface.

**Errors exception and handling**

* Everything that will happen in the system must be recorded in a deep report for the admin.
* Ensure that the system will keep record of every error.
* Ensure that error messages are clear to the user.
* Ensure that all the errors of the system will be handled by the admin.
* Ensure that standard error pages will appear in case of any errors.

## Safety Requirements

If there is extensive damage to a wide portion of the database due to catastrophic failure, such as a disk crash, the recovery method restores a past copy of the database that was backed up to archival storage (typically tape) and reconstructs a more current state by reapplying or redoing the operations of committed transactions from the backed up log, up to the time of failure.

## Security Requirements

## Security systems need database storage just like many other applications. However, the special requirements of the security market mean that vendors must choose their database partner carefully.

## Software Quality Attributes

* **Availability:** The approved appointment should be available on the specified date and specified time as many customers are doing advance reservations.
* **Correctness:** The Cases must be compatible as it described by the patient and the doctor.
* **Maintainability:** The by the supervising physician should maintain correct schedules of the appointment.

## Business Rules

**Dental Students:**

* Describing the therapeutic case that he need.
* Approving or refusing cases if they compatible or not.

**Patients:**

* Describing its therapeutic case.

Approving or refusing appointment if it is suitable or not.