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Note: This is not the finished documentation as there are still diagrams and other information that needs to be gathered and put together

1. **Executive Summary**

**1.1 Overview of Dent0**

Observing some of the basic public and private services our country has to offer we have come up with a management system for Dental clinics. Although unfortunately a majority of people do not pay attention to their health until it becomes too late, we have tried to make the process of finding a dentist and making an appointment with them much more interacting and doable with a few clicks of a button.

We heard a saying not too long ago saying “Smile while you still have teeth”, with our management system we aim to make it much easier for people to have easy access to Dentary Medical Assistance and extend that “while” for as a long as we can.

The goal of this project is to develop a web-based dental management system that makes it easy for patients to find new dentists and schedule appointments with them. The system will allow patients to search for dentists based on location, availability, and other criteria, and will provide detailed information about each dentist, including their qualifications, ratings, and reviews.

The information people have about registered dentists is too limited and usually it is done by referral to one another or from word-of-mouth.

Once a patient has found a dentist that they would like to see, they will be able to schedule an appointment directly through the system. The system will also include features such as appointment reminders and the ability for patients to manage their appointments and personal information.

For Dentists, the system will provide an easy way to manage their appointments, patients information and also can be used to manage the billing process. Dentists will also be able to update their availability and view their schedule through the system which would be a huge help for them, especially when it comes to private clinics where things are handled using the “old ways”.

The system will also be able to handle multiple practices and dental clinics, so dental practices and clinics will be able to use it to manage multiple locations and providers.

* 1. **PURPOSE & SCOPE OF THIS SPECIFICATION**

The purpose of the specification document for the Dent0 dental management system project is to define and detail the requirements, features, and functionalities of the system. It serves as a guide for the development team to understand the scope of the project and to ensure that the final product meets the needs and expectations of the users.

* **Scope of Specification:**

The scope of the specification document for the dental management system project will include the following:

* User interface requirements: The document will outline the needs and expectations of the patients, dentists and clinic staff in terms of features and functionalities of the system.
* System requirements: The document will define the technical and operational requirements of the system, including the hardware and software needed to run the system.
* Functional requirements: The document will detail the specific functions and features of the system, such as the ability for patients to search for dentists, schedule appointments, manage their personal information and for dentists to manage their appointments, patients information and billing process
* Non-Functional requirements: The document will detail the quality attributes of the system such as performance, usability, security and accessibility
* Test and Deployment: The document will also outline the testing and deployment strategy for the system, including any necessary testing frameworks, and cloud deployment platforms.

The scope of the specification document will be used as a base to manage the requirements and implementation of the project, keeping track of what features are being developed and what still need to be done. The document will be reviewed and updated as the project progresses to ensure that the final product meets the requirements and expectations of all stakeholders.

1. **Product/Service description**

**2.1 Product Context**

Our software is related and will work with Dental clinics which and/or private Dentists that are in need of a management system. It is an independent system which will be available for 4 level of Users: Admin, Dentist, Assistant and Patient. These levels are connected to each other.

It will need to have access to the Databases of these clinics or Dentists in order to ensure all information exchanged is up to data and all data is managed through our system.

The system will have a user-friendly interface that allows for easy navigation and data access.

* 1. **User Characteristics**

**Admin**

* Install and configure features
* Manage permissions
* Can log in and log out of their account
* Admin can create or remove Dentist and Assistant accounts
* Reset or change Dentists and Assistant passwords
* Admin will not have access to private information on Patients user account

**Dentist**

* Can log in and log out of their account
* Can submit/share health related reports to each Patient account
* Can manage their appointments
* Upload and/or change their weekly schedule
* Can opt to have their account removed
* Can log in and share internal information to Assistant account
* Can update list of the available Check-ups the Dental Clinic has to offer

**Assistant**

* Can log in or log out of their account
* Can add new Patient account
* Can contact Patient and Doctor
* Can update Clinic Inventory
* Can manage Dentist appointments
* Can update list of the available Check-ups the Dental Clinic has to offer
* Can manage online billing transactions

**Patient**

* Patient will need to accept the initial or updated T&C before having full access to their account
* Can log in and log out of their account
* Can manage current and future appointments
* Can create profiles within their account for minors
* Can search for Dentists
* Can view examination reports and download them
* Can view past appointments with their respective examination reports
* Can contact Dentist and Assistant
* Can request for their account to be deleted
  1. **Assumptions**

It is assumed that at least one Dentist and Assistant account have already been created by the Admin.

It is assumed that when writing the examination form of the patient the only person responsible for that is the doctor

It is assumed that all Dentist accounts created have a valid License to operate

It is assumed that all Sensitive Health Data of patients and their management comply with the Ministry of Health and Social Welfare policies and regulations

It is assumed that the system will have access to Governmental Databases to complete authentication process for Patients and Dentist when creating new accounts for them

* 1. **Constraints**

Our system is constrained by the Internet connection that each user uses to access their respective account.

The reliability and dependency on the Government Database when creating new User accounts for Patients and Dentists

* 1. **Dependencies**

Our management system is dependant on the parallel function with an older system.

In this way our system is dependant with the older system since the data and the older system itself should be ensured to be up-to-date and accurate at all times

1. **Requirements**

**3.1 Functional Requirements:**

* Patients will be able to search for dentists based on location, availability, and other criteria such as specialization
* Patients will be able to view detailed information about each dentist, including their qualifications, ratings, and reviews
* Patients will be able to schedule appointments with dentists directly through the system
* Patients will be able to manage their appointments and personal information
* Patients will be able to create child accounts for their children/minors
* Patients will be able to manage the kids account details and appointments
* Dentists will be able to update their availability and view their schedules
* Dentists will be able to manage their appointments and patients information
* Assistant will be able to manage the billing process
* Assistant will be able to manage appointments and the dentists schedule
* System should handle multiple practices and dental clinics
* Admin can manage the system users and also have access to analytics and reporting

|  |  |  |  |
| --- | --- | --- | --- |
| Req# | Requirement | Comments | Reviewed and approved by |
|  | User Registration | User ID, password, phone number and other data retrieved from Government Database should be provided | Alban Hysaj  Alket Sula  Alba Gjini |
|  | User Login | Access is strict, User ID and password must be provided | Alban Hysaj  Alket Sula  Alba Gjini |
|  | Login Failure | Assisiting user to reset their account login credentials | Alban Hysaj  Alket Sula  Alba Gjini |
|  | Editing Information | Each user can manage/edit their personal information | Alban Hysaj  Alket Sula  Alba Gjini |
|  | Displaying/Downloading information | Specific type of users can download information found within the account | Alban Hysaj  Alket Sula  Alba Gjini |
|  | Role Management | Only Admins can assign roles to other users. Admin can create other Admin usersc | Alban Hysaj  Alket Sula  Alba Gjini |
|  | Adding a ReCaptcha verification to avoid suspicious trafficking | Security | Alban Hysaj  Alket Sula  Alba Gjini |
|  | The software should have a hierarchal system with 4 levels of users:   * Admin * Dentist * Assistant * Patient | Maintaining/regulating data access | Alban Hysaj  Alket Sula  Alba Gjini |
|  | Limited data access for each specific user, respective to their permissions | Maintaining/regulating data access | Alban Hysaj  Alket Sula  Alba Gjini |
|  | Software sends notification before each appointment | Server Connectivity to ensure proper functionality | Alban Hysaj  Alket Sula  Alba Gjini |
|  | The software should be able to retrieve PII(Personally Identifiable Information) for each user from the older system it will be working with | Data handling/Databases | Alban Hysaj  Alket Sula  Alba Gjini |
|  | The software should not allow minor accounts to be created without an exisiting adult account | Security | Alban Hysaj  Alket Sula  Alba Gjini |
|  | Dentists, Assistants and Patients can cancel appointments at any time | Functionality | Alban Hysaj  Alket Sula  Alba Gjini |
|  | Child accounts can be created as secondary profiles inside Adult accounts | Functionality |  |

**3.2 Non-Functional Requirements:**

* The system should be easy to use and navigate
* The system should have a high degree of security to protect patient information
* The system should be highly responsive and should have minimal load times
* The system should be accessible via multiple devices and platforms (e.g. desktop, mobile)
* The system should be able to handle a high volume of requests and users
* The system should be built using modern web technologies and follow accessibility standards
* The system should be scalable and easily maintainable for future updates and enhancements
  + 1. **Product Requirements**
       1. ***User Interface Requirements***

The user interface should be organized in 6 main interfaces

* **User login and authentication**

1. Enter your User ID in the field labeled “UserID”  
2. Enter your Password in the field labeled “Password”  
3. Click the Log In Button and complete reCaptcha to authenticate and log in

* **Password reset**

1. User will be prompted to confirm their phone number or email address in order to receive a code, that once verified will let them enter their new password
2. Enter Email or Phone number in the field labeled “Phone Number or Email”
3. Enter the code that was sent to email or phone number
4. Enter the new password in the field labeled “New password” and verify it by entering it in the field labeled “Verify password”

* **Dentist Interface**

1. The header bar containing the website logo, AssistantPanel and a Menu on the right side of the page. The Menu has these options:
2. The “**Chat with Patient**” Menu will all allow the Dentist to chat with the patients
3. The “**Enter an appointment**” Menu will allow the user to fix an appointment with the  
   patient.
4. The **“Patient List”** Menu will display all who are currently working with the Dentist or will be working in the future (Have an appointment)
5. When selecting a patient from **“Patient List”** the Dentist will be able to see perscriptions or notes that have been left for the specific Patient.
6. The “**Log Out**” will return the user to Log In page.
7. The “**Home**” button returns user to home page.
8. The “**Change Password**” Menu will allow user to change their profile password.
9. The **“My Details”** Menu will allow the Dentist to review and update exisiting information about their profile such as the services the Dentist might offer

* **Assistant Interface**

1. The header bar containing the website logo, Doctor Panel and a Menu on the right side of the page. The Menu has these options:
2. The “**Chat with Patient**” Menu will all allow the Assistant to chat with the patients
3. The “**Enter an appointment**” Menu will allow the Assistant to fix an appointment with the patient.
4. The **“Patient List”** Menu will display all who are currently working with the Dentist or will be working in the future (Have an appointment)
5. The **“Payments”** Menu will display all pending payments from previous Patients haven’t completed their payments yet
6. The “**Log Out**” will return the user to Log In page.
7. The “**Home**” button returns user to home page.
8. The “**Change Password**” Menu will allow user to change their profile password.

* **Patient Interface**

1. The header bar containing the website logo, Patient Panel and a Menu on the right side of the page. The Menu has these options:
2. The “Search” Menu will allow the Patient to search for a Dentist and get relevant results, based on distance, reviews, availability etc.
3. The “**Chat with Dentist**” Menu will all allow the Patient to chat with their Dentist
4. The “**Enter an appointment**” Menu will allow the Patient to request/reschedule an appointment with the Assistant or Dentist
5. The **“Payments”** Menu will display all pending payments from their previous appointments
6. The **“Visits”** Menu will allow the Patient to view details about their past and future appointments, together with perscriptions issued by the Dentist
7. The **“Add Child”** Menu will allow the Patient to add a profile to their account for a family member who is under the age of 13.
8. The “**Log Out**” will return the user to Log In page.
9. The “**Home**” button returns user to home page.
10. The “**Change Password**” Menu will allow user to change their profile password.
    * + 1. **Usability**

* The software is easy to work with.
* Admins will be the only ones who can add other Admins, Dentists and Assistants
* The system has the right instructions to make registration steps easier.
* After Dentists and Assistants are registred the Admin can remove or manage their accounts
* The system is conceptualized to be easy to learn and to use
* Any options the user will interact with should be self explanatory and their usage easy to comprehend
  + - 1. **Efficency**

Efficiency:

• Each operation will be executed in a real time.

Performance:

• The software will be based on web and has to be run from a web server.  
• The software shall support all the users who must have access to the system at any time  
• The software will take initial load time depending on internet connection strength which also  
depends on the media from which the product is run.  
• The performance will depend upon hardware components of each user.

Satisfaction:  
• This will take into consideration satisfaction of each user who has access and needs to use our system.

Latency:  
• Internet latencies since the system is web based.

* + - 1. **Dependability**
* Our system depends only on the Internet connection
* Patients depend/rely on Assistants and Doctors
* Assistants depend on Dentists
  + - 1. **Security**

To protect the system from malicious or accidental access, modification, disclosure, destruction, or misuse we will take the following precautions:

* Encrypt the most sensitive information such as passwords using hashing method to protect privacy:
* The Assistant/Dentist is responsible for the personal data authenticity of the user they enter, hence the system is not responsible.
* The system will validate passwords, and each data for special characters and other specific conditions before inserting it in the database.
* Each Patient will see only the information related to themselves
* Each Dentist will only see the data of every Patient who has worked, will work or is currently working with them