Software Requirements Specification

for

Hajzi Application

Version 1.7 approved

Prepared by: Eyad Maccawy, Turki Alotaibi, Jawad Alotaibi, Enad Alharbi

Leader: Enad Alharbi

Organization: Umm-Al-Qura-University

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1- Introduction

1.1 Purpose

The main purpose of Hajzi Application is to serve hospitals to manage reservations. Specifically, Hajzi serves the patients by simplifying the reservation process and saving time and effort. Hajzi provides patients with essential options such as reservation, canceling, and rescheduling appointments. Additionally, Hajzi allows patients to choose the appropriate doctor and suitable time. This is the first release of Hajzi and Hajzi is a single system.

1.2 Document Conventions

- Fonts: for headings is bold Times new Romans and Arial for body.
- Size: 14 for headings and 11 for body.

1.3 Intended Audience and Reading Suggestions

This document is intended for Developers. The Reading Suggestions as follows:

- 1.4 Product Scope
- 2.1 Product Perspective
- 2.2 Product Functions
- 2.3 User Class Characteristics
- 2.4 Operating Environment
- 2.5 Design and Implementation Constraints
- 2.6 User Documentation
- 2.7 Assumptions and Dependencies

1.4 Product Scope

Hajzi provides a better way of reservation that you don't need to hire an employee to receive and enter the reservation information from patients to the system. So, it saves time, increases service quality, and it is more efficient than the other method, which requires the patient to call and reserve an appointment.

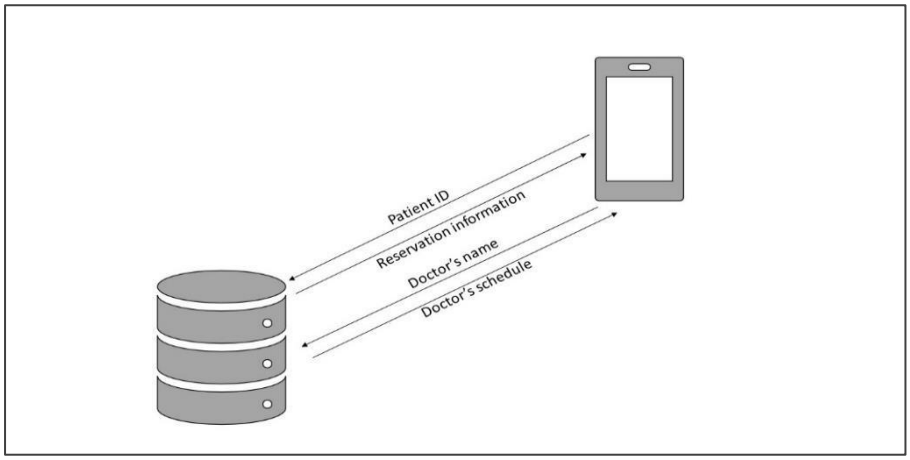
1.5 References

Reference for online appointment benefits:
(5) Advantages of Developing Online Appointment App for the Doctors | LinkedIn

2- Overall Description

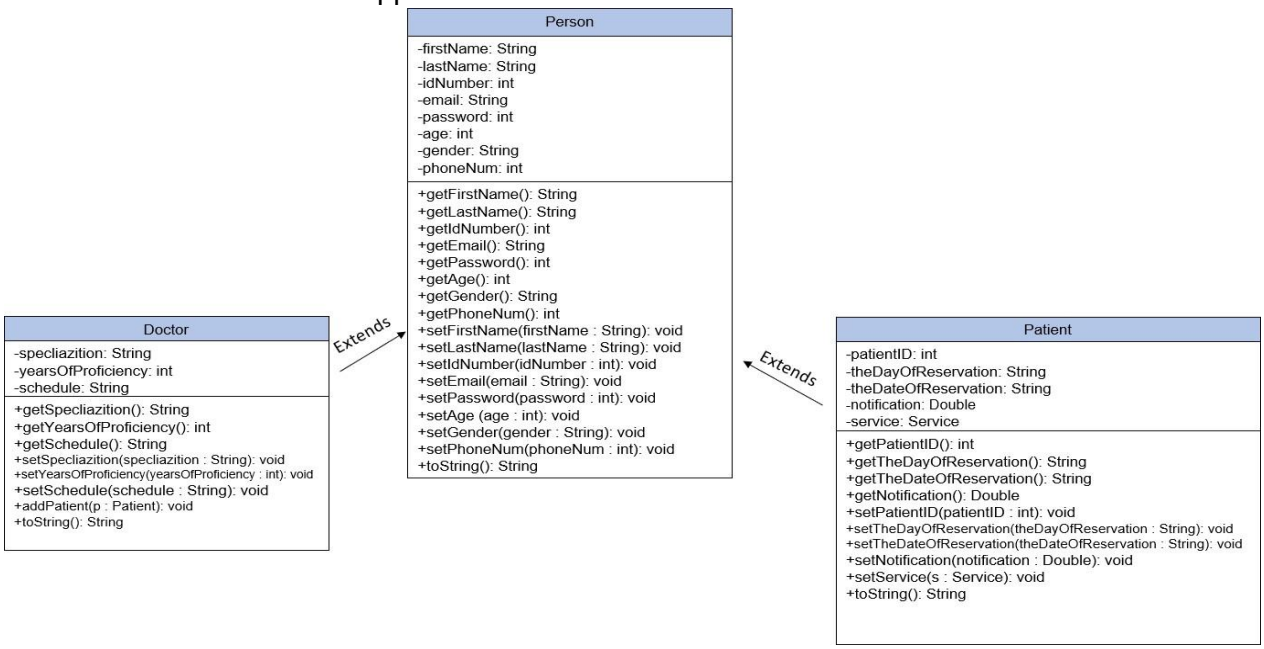
2.1 Product Perspective

Hajzi is a self-contained product.



2.2 Product Functions

1. (sign-up): To create a new account in Hajzi, the user must use the sign-up function if they don't already have one.
2. (login): The user must log in before using Hajzi. This function requires them to enter their ID number and password.
3. (setService): Gives the user the option to select the service they desire.
4. (setReservation): Allow the user to select an appropriate time for their appointment.
5. (getSpecialization): If user wants to know the specialization of a doctor.
6. (notification): Allows user to set a specific time and at this time Hajzi will send a message to him to remind him of the appointment.



2.3 User Classes and Characteristics

- Patient:
- Patient profile.
- Medical reports.
- Manage Appointments.
- Medication.
- Health Record.
- Visits.
- Service Rating.

- Doctor:
- Doctor's profile
- Salary Record.
- Absences.
- Schedule.
- Vacation Requests

- Admin:
- Manage Reservation.
- Report Generation.

2.4 Operating Environment

- Hajzi is Exclusive on an Android operating system.
- Platform: Android Studio.
- Language: Java.
- Database: NoSQL.

2.5 Design and Implementation Constraints

Database:
Hajzi Application must use NoSQL database.

Privacy and data security:
It is necessary for the user's data to be secure and private.

Timing requirements:
Hajzi must be developed within 5 months.

Software requirements:
At the very least, the Android phone used needs to be updated to Android 8 version.

2.6 User Documentation

Installation guide.

User's guide for:

- Admin.
- Patient.
- Doctor.

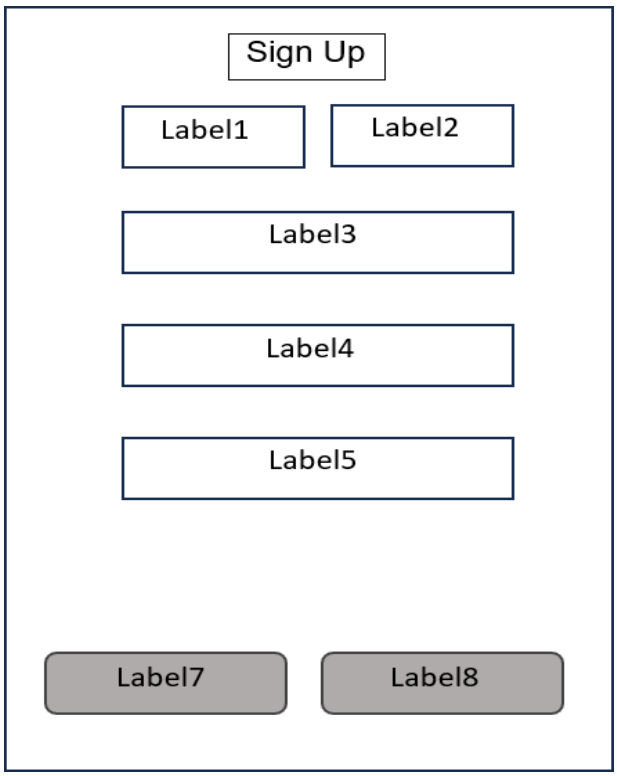
Short tutorial videos on how to utilize Hajzi functions for every type of user.

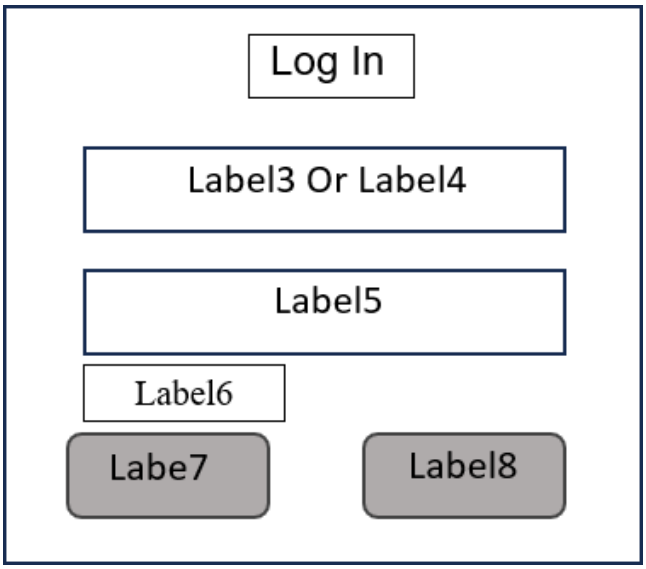
2.7 Assumptions and Dependencies

- In order to use the application, the user must be connected to the internet.
- To have access to the application, all types of users must log in / sign up.

3- External Interface Requirements

3.1 User Interfaces





Log In and Sign-Up requirements:

Inputs:

- Label 1: The user must enter his first name.
- Label 2: The user must enter his last name.
- Label 3: The user has to put his ID number.
- Label 4: This is where the user's email should be written.
- Label 5: The user enters the password he desires.
- Label 6: Forget password button.
- Label 7: Cancel button.
- Label 8: Confirm button.

Outputs: Access should be granted to the user if Login or Signup is successful, but error messages are generated due to incorrect input.

Constraints: Numbers should not be included in first name and last name labels. At least 6 characters are required for the password, which must include a mix of letters and symbols (!, @, #, $, %, &, *).

Clinic Search and appointments requirement:

Description: Users have the ability to search for a specific clinic and doctor at a specific time.

Inputs: The name of the clinic, the name of the doctor, and the time available.

Outputs: A list of clinics that are available with the doctor's name provided. Confirmation of the appointment or an error message.

Error Handling: Let users know if the clinic is not available.

3.2 Hardware Interfaces

Server Hardware
Description: *Hajzi application will run on servers hosted in UQU data center.*

Requirements: *The server hardware must meet or exceed the following specifications:*
Dual-core processors.
At least 16 GB RAM.
SSD storage that is at least 512 GB.

Database Server
Description: *Hajzi database will be hosted on a different server.*

Requirements: *The database server hardware must meet or exceed the following specifications:*
Quad-core processors.
At least 32 GB RAM.
SSD storage that is at least 1 TB.

3.3 Software Interfaces

Clinic Availability Service
Description: To ensure that information is up-to-date, it is necessary to interact with an external Clinic Availability Service.

Inputs: Clinic name, Doctor’s name, Date.

Outputs: Clinic availability status, Doctor’s name and date

Error Handling: if the clinic is not available display recommendations for clinics similar to the description entered, with a difference in doctor or time.

3.4 Communications Interfaces

Email Notifications:

Description: An email notification will be sent to the user that includes appointment details after they reserve an appointment.

Inputs: The email content and the email address of the user.

Outputs: Appointment details (Doctor's name, Clinic name, Date).

SMS Notifications:

Description: A text message that informs about whether the reservation was successful or not.

Input: User phone number (which is already linked to user's ID).

Outputs: Send a SMS that displays whether the reservation has been successful or not. If the reservation was successful, inform the user that an email has been sent to him that contains appointment information.

4- System Features

4.1 Sign-up Features

4.1.1 Description and Priority

Description: This feature allows users to sign-up into Hajzi application.
Priority: High.

4.1.2 Stimulus/Response Sequences

Stimulus: User initiates the sign-up process.
Response: *System displays the sign-up interface.*

4.1.3 Functional Requirements

REQ-1 The system shall provide a sign-up dialog with fields for First Name, Last Name, Email, ID, and password.

REQ-2: The System shall display an error message if one of fields is invalid.

4.2 Log in Feature

4.2.1 Description and Priority

Description: After the user complete Sign-up operation, and he want to get into Hajzi again all he needs to do is log-in with his ID/Email and password.
Priority: High.

4.2.2 Stimulus/Response Sequences

Stimulus: User initiates the log-in process.
Response: *System displays the log-in interface.*

4.2.3 Functional Requirements

REQ-3 The system shall provide a log-in dialog with fields for ID or Email, And Password.

REQ-4:The System shall display an error message if Email/ID or Password was invalid.

4.3 Reservation Features

4.3.1 Description and Priority

Description: The reservation feature allows users to search for appointments at a suitable time and manage their reservations.
Priority: High.

4.3.2 Stimulus/Response Sequences

Stimulus: User enters search information.
Response: System displays a list of clinics with time and doctor's name matching the information entered.

4.3.3 Functional Requirements

REQ-5 The system shall provide a user-friendly interface for users to view details of their reservations (displaying upcoming and past reservations).

REQ-6 The system shall validate any changes to reservation details to ensure they comply with hotel and availability.

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5- Other Nonfunctional Requirements

5.1 Performance Requirements

5.1.1 Response Time

Requirement: For all transactions, the system will respond to user interactions, including searches and reservations, within 2 seconds.

Rationale: The standard for most competitor hospital reservation applications is three seconds, so that's why two seconds were chosen.

5.1.2 Scalability

Requirement: The system should be constructed to handle only 20,000 concurrent users without increasing the maximum response time requirement.

Rationale: The expected number of concurrent users to serve would reach 20,000 users.

5.2 Safety Requirements

5.2.1 Logging and Auditing

Requirement: A comprehensive logging and auditing system must be established to monitor system activities, user actions, and security-related events Logs must be stored securely and reviewed regularly for potential security incidents.

5.3 Security Requirements

5.3.1 Data Encryption

Requirement: It is necessary to transmit and store all sensitive user data, which includes passwords and payment information.

5.3.2 Access Control

Requirement: To ensure that only authorized personnel have access to sensitive system functions and data, the system will implement role-based access control.

5.4 Software Quality Attributes

5.4.1 Maintainability

Requirement: The application should be easy to modify and maintain, so that new features and bug fixes can be added quickly and easily.

5.4.2 Usability

Requirement: The application should be easy to use for both patients and doctors. The user interface should be intuitive and easy to navigate.

5.4.3 Accessibility

Requirement: The application should be highly available and accessible to users 24/7.

5.4.4 Testability

Requirement: The application should be easy to test and debug.

5.5 Business Rules

5.5.1 Appointment Reservation Policy

Business Rule: Users cannot reserve an appointment only if they were registered in the application.

Requirement: The application must enforce users to register if they want to reserve an appointment.

5.5.2 Appointment Cancellation Policy

Business Rule: Users have the option to cancel their appointment at least within 48 hours.

Requirement: The application must provide users with cancellation policy instructions.

6- Other Requirements

Appendix A: Glossary

Users: *When the term user mentioned it refers to both patient and doctor.*

The Application: *it refers to Hajzi Application.*

Appointment: *A scheduled visit with a doctor.*

Reservation: *The process of making an appointment with a doctor.*

Cancellation: *The process of cancelling an appointment with a doctor.*

Patient: *A person who is receiving healthcare services.*

Doctor: *A licensed physician who provides medical care to patients.*

Appendix B: Analysis Models

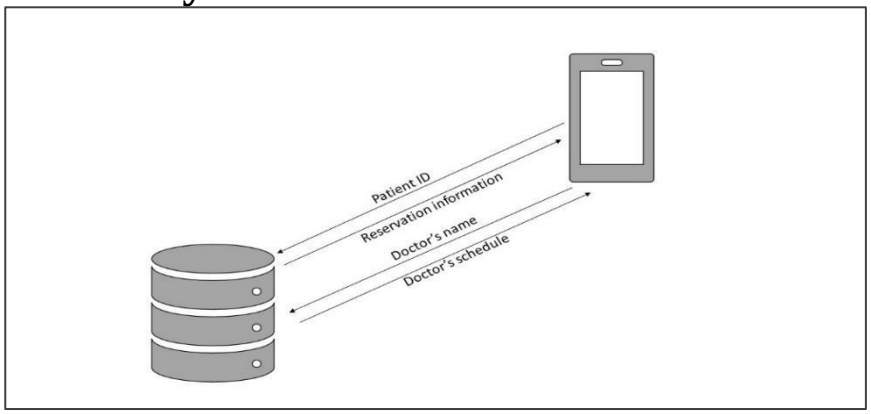

Figure 1: A simple diagram that shows the major components of the overall system, subsystem interconnections, and external interfaces can be helpful.

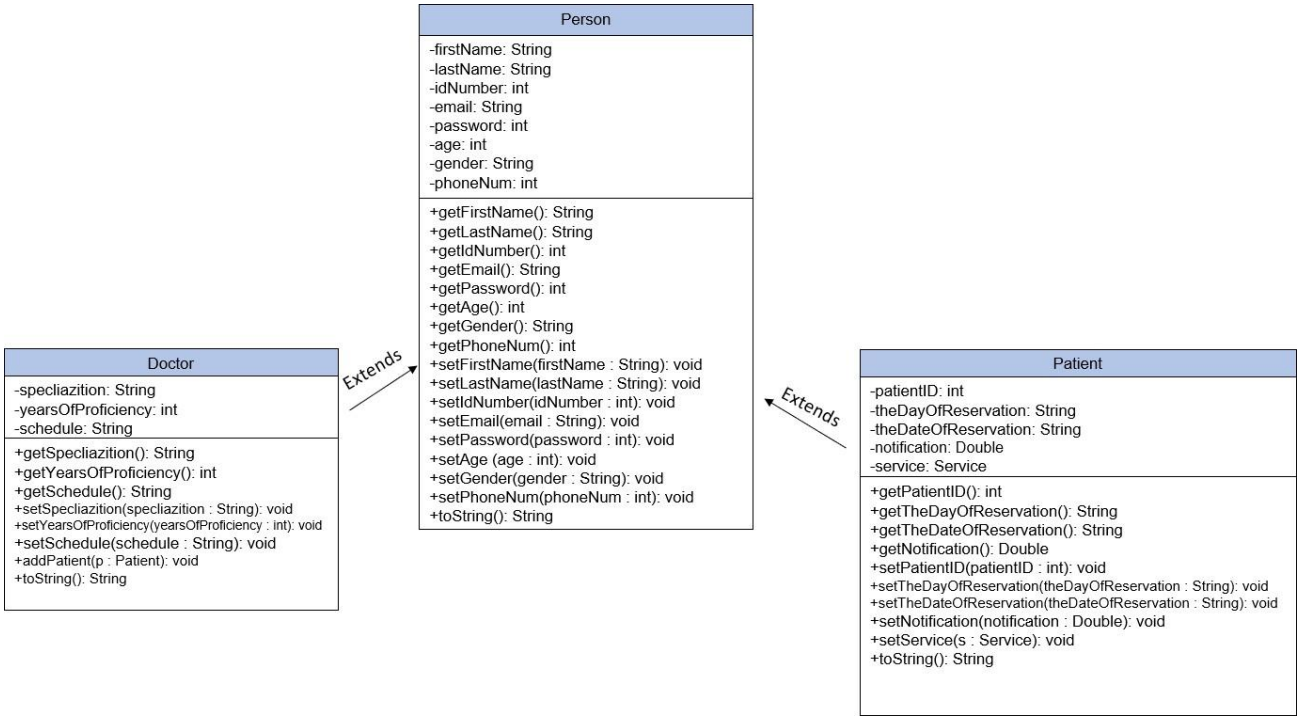

Figure 2: UML Class Diagram

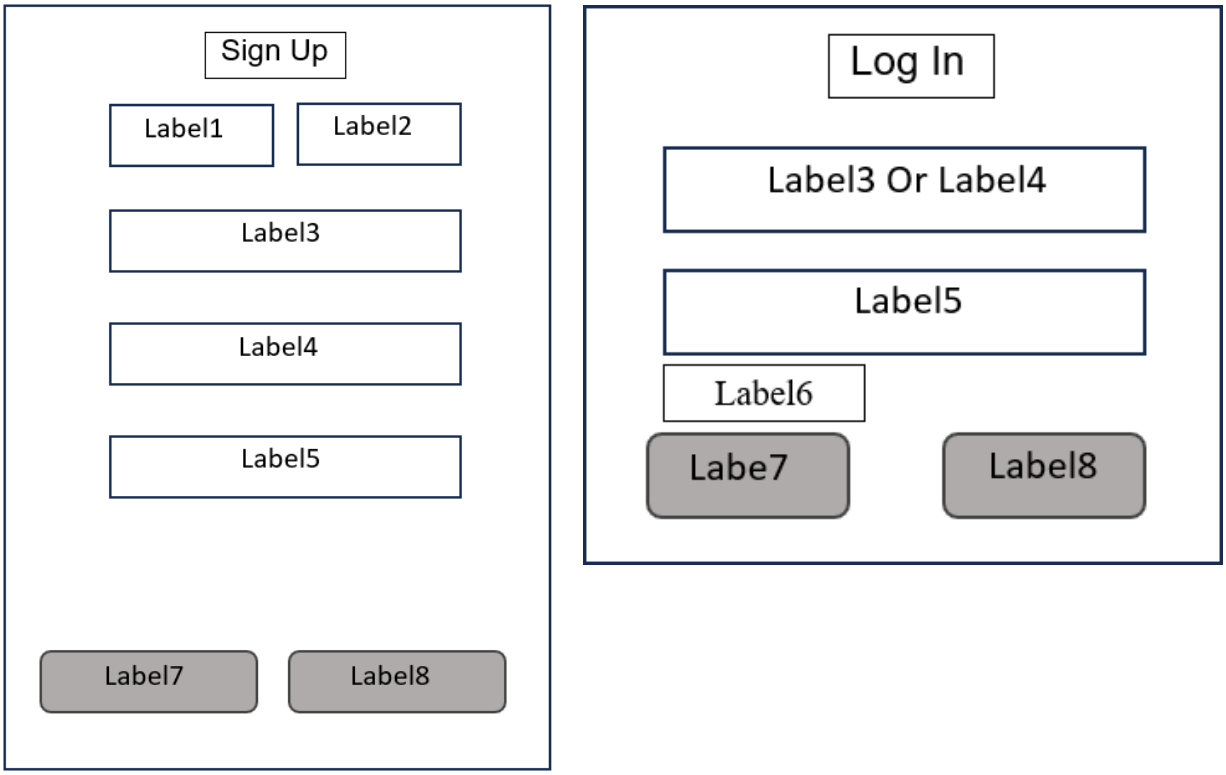

Figure 3 and 4: Sign-up and Log-in interfaces