Software Requirements Specification

for

Pashe Achi

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Chapter 1

Introduction

1.1 Purpose

"Pashe Achi" is a web application which is developed and designed to provide benefits through the internet. A patient will be able to search for specialist doctors in their area, book and cancel appointments online, and they can also check if the doctor they need is available at that time. Moreover, a patient can access his appointment history and share his reports. Via this web application, doctors will be able to view and cancel their appointments. The main aim of our project is to save time and money by selecting doctors and health-related tests at a preferable cost. Our system will make the appointment process more convenient, easier, and secure. The system provides excellent data security at all levels of user activity, as well as accurate and secure storage and backup facilities.

1.2 Intended Audience

This Software Requirements Specification is intended for:

- Developers
- End users

1.3 Intended Use

Developers: The developers can evaluate the project's proficiencies. Also, they can decide where to focus more and give more efforts in order to improve and add additional features to this system. This Software Requirements Specification is the guideline for the future development of the system. So, the developers may upgrade the project further for betterment.

End-users: The end-users of this application are those who want to know about what this system can do and what services it can provide. To use the application correctly, this will be the user guide for the end-users.

1.4 Product Scope

Our proposed Web Application, "Pashe Achi", can be used by both doctors and patients. They can create an account, log in, log out and delete their account whenever required. Patients can not only check the list of doctors from different hospitals under the specialities section, but they can also use the ChatBot to receive suggestions of doctors with other specialities based on their symptoms. Making an appointment has never been easier. Using our web application, one can book appointments with a few clicks, where they will receive an OTP verification for confirmation of appointment. One can easily compare the availability, fees, ranking and shortest distance of different doctors and hospitals from the patient's location. After the doctor's visit, patients can also rate the doctors based on their recovery, behaviour and hospitality. Lastly, patients can donate to us on our website if they find us helpful.

1.5 Risk Definition

Due to time-constraint, it may be difficult to manage project scope, leading to the proposed features remaining incomplete. Moreover, a web-based application entails considerable risk of poor internet connectivity on the user's end. This may prove to be fatal when it comes to emergency situations where the user may not be able to get any use out of the web platform. Hence, the users are required to have a stable internet connection and not depend on the web platform for emergency doctor consultation. Furthermore, there is a risk of data breach where sensitive information of the patients may be exploited by the attacker. Lastly, the primary features strictly requiring the database would not work in case of a database failure. In such unfortunate cases, our design would return an internal server error while simultaneously trying to reconnect to the database in short bursts of time.

Chapter 2

Overall Description

2.1 User Classes and Characteristics

User	**Patient**	Can view the list of doctors based on specialities, seek suggestions from chatbot, search for doctors based on availability, fees, rating and distance, add ratings, make or cancel a doctor's appointment, make an online payment for donation.
	Doctor	Can view or remove appointments, view ratings.
Admin		Manage the system.
System		Authentication, notification.

2.2 User Needs

We have 2 types of users- doctor and patient. User needs are listed below based on our users:

Doctor: Doctors can check their appointment lists. They can view the patient's basic information from the appointment list such as the patient's name, age, disease type etc. Moreover, doctors can cancel their appointments through the system. They can also view their ratings given by the patients.

Patient: Patients can easily get information about the type of doctors they need. For specific details such as name, fees, working hours of doctors etc., they can see doctors' profiles. Besides, they will get really quick replies from the chatbot of our application. Patients can conveniently take appointments of doctors through our system. After visiting the doctor, they can also give ratings to the doctors. This rating will help the other patients to make decisions about which doctors they want to see.

2.3 Operating Environment

- Operating System: Windows.
- Database: Django Database and Firebase Realtime Database.
- System: Server system.
- Platform: Web.

2.4 Constraints

For every project, there are some restrictions and risks that we need to consider in order to resolve and ensure our project's ultimate success. Time, scope and cost are the three primary constraints that we need to take into consideration.

- **Time Constraint:** It is a challenge to complete the entire complex project in such a short time. Target dates for each step of the project must be taken care of, along with the final deadline. We must be careful of time management, scheduling meetings to divide the work equally in order to reach our goals.
- **Scope constraint:** Scope comprises of the specific objectives of our web application, development process, features and functions along with the required tasks we need to complete for building our application.
- **Cost constraint:** This consists of the overall budget of our project, which does not only include the cost of the resources but also includes both fixed as well as variable costs of various supplies, licenses, quality control, labour along with the financial influence of our team members.

  On the other hand, we will also face issues in designing the database system, implementing proper API usage, and designing complex relational data dependencies that we need to fix and resolve.

2.5 Assumptions

The user is assumed to be familiar with the web browser since the application is web-based. To communicate with the chatbot, we are assuming that the user knows English. To access the web browser, the user is assumed to have a smartphone, laptop, or desktop computer, or some other preferred electronic device, and a stable internet connection. The user also requires an email or contact number to verify confirmation to book or cancel an appointment. We are further assuming the availability to access accurate information about the doctors and health-related tests.

Chapter 3

Requirements

3.1 Functional Requirements

1. As a user(patient/doctor),
   I need to register my identity
   so that I can use all the features of the web application.
   Confirmation:
   - Users (patients/doctors) need to insert his/her name, age, gender, blood group, email address, contact no, home address, occupation.
   - User (Doctor) must insert his/her specialized field and the hospital they are designated.
   - Users' registration will not be completed if any of the fields remains empty or any information seems invalid.
   - Users (patients/doctors) will get a confirmation email on the email address they provided earlier to verify their account.
   - Users (patients/doctors) can also login to their account using their Google/Facebook account

2. As a user(patient/doctor),
   I need a separate profile
   so that I can manage information about myself.
   Confirmation:
   - Users (patients/doctors) can update information in their profile.
   - Users (patients/doctors) can upload their display picture.
   - Users (patients/doctors) can get auto-update of BMI upon choosing to update their height and weight.
   - Users (doctors) can upload a medical license for system verification.
   - Users (patients) can upload NID for system verification if they want to rate a doctor.
   - Users (patients) can use the ID for uploading a medical prescription if they want to give ratings to a doctor.
   - Users (patient) can remove their uploaded reports.
   - Users (patient) can turn off notifications from their profile.
   - Users (patient) can add their reference on their profile.
   - Users (patient) can use the ID to seek an appointment and give ratings to doctors.
   - Users (patient) can delete their profile from the system.

3. As a patient,
   I want to view the doctor list
   so that I can get a basic idea about the doctors.
   Confirmation:
   - A patient can see detailed information of doctors.
   - A patient can find his/her doctor with a specialized field.
   - A patient will be notified if a new doctor is added in the list.
   - A patient will be notified if a doctor is reassigned/shifted.

4. As a patient,
   I want to search for the doctors
   so that I can find any specific doctor easily.
   Confirmation:
   - A patient can search by a doctor's name.
   - A patient can search by a doctor's specialized field.
   - A patient can search by doctor's availability.
   - A patient can search by a doctor's working place.
   - A patient can search by a doctor's e-mail.
   - A patient can search by fees of doctors.
   - A patient can search by a test name.

5. As a patient,
   I want to make an appointment
   so that I can be sure about the time when to visit the doctor.
   Confirmation:
   - A patient can select the doctor nearest to him/her.
   - A patient can view the available doctors on scheduling time.
   - A patient can select his/her preferable time from the scheduling time.
   - A patient will get OTP verification code for the confirmation of the appointment.
   - A patient can check his/her update on appointment scheduling.

6. As a user(patient/doctor),
   I need to view my appointment list
   so that I can keep track of my scheduled appointments.
   Confirmation:
   - Users (patients/doctors) can view the scheduled appointments.
   - Users (patients/doctors) can remove an appointment.
   - Users (patients/doctors) can view if an appointment has been cancelled.
   - Users (patients) will be asked to reschedule the appointment if it gets cancelled.

7. As a patient,
   I want to add ratings to a doctor's profile after visiting him
   so that I can help others to make decisions about visiting a doctor.
   Confirmation:

- A patient can upload his medical prescription/reports in order to add ratings (out of 5 stars).
- A patient can upload his/her NID which is needed to verify the ratings.
- A patient can rate a doctor based on his service.
- A patient can rate a doctor based on his behavior.
- A patient can rate a doctor based on accurate diagnosis.
- A patient can rate a doctor based on waiting time (if the doctor was not able to see him/her at the given time).
- A patient can make comments about the service of a doctor.

8. As a doctor,
   I need to check my ratings
   so that I can check the status of my own ratings.
   Confirmation:
   - Doctors can view his ratings (out of 5 stars) given by each patient.
   - Doctors can view his feedback/comments given by each patient.

9. As a patient,
   I want to communicate with the system
   so that I can get suggestions based on my queries.
   Confirmation:
   - A patient will be asked about his/her symptoms.
   - A patient will be suggested one or more doctor's names according to his/her disease.
   - A patient will be displayed an invalid message if he/she sends inappropriate texts.

10. As a user(patient/doctor),
    I need to track my medication schedule
    so that I do not miss out on any doses of my prescribed medication, especially the time-sensitive ones.
    Confirmation:
    - Users can manually enter their medication schedule with dosage and duration.
    - Users can set a reminder before every scheduled dosage.
    - Users can remove the medicine from the schedule upon completion.
    - Users can keep notes of any side effects they may have been facing for use during the next scheduled appointment with a doctor.

11. As a user(patient/doctor),
    I could make a donation
    so that I can help the owners of the web application in order for them to improve and update their features.
    Confirmation:
    - Users (patients/doctors) can contribute to the owners if they liked the web application and found it useful as well as helpful.
    - Users (patients/doctors) can make a donation to the web application.
    - Users can pay via bank account/bkash/rocket/nagad.
    - Users will receive an email notification after the successful transaction of money along with a thank you message.

3.2 Non Functional Requirements

- **Performance:** Our web application will be accessible by users worldwide and monitored exquisitely by our admin team. Due to this reason, our app, including all its features, can be utilized simultaneously by several clients. At the same time, our system performance will not be affected.
- **Safety:** This section provides a detailed specification of the user interaction with the software and the time measurement based on the system's performance. To prevent data loss, all data must be transferred to a cloud storage service, which will provide a backup and restore option. So, if a user's device is damaged or lost, or if he switches devices, he can log into his account and recover all of his data. This cloud service can provide safe and convenient access from everywhere, as well as the ability to retrieve data that has been damaged.
- **Security:** The system will not reveal any personal information of the users. Personal information will be safe and secured and should be stored in the system in encrypted form. The system will be able to deny access to unauthorized visitors. Moreover, it will not simultaneously allow multiple visitor access. No unauthorized device can access the system. After inactivity for many days, a user will be automatically logged out of the system.
- **Quality:**

  -Maintainability:

  1. The admin team will constantly monitor if there is an occurrence of database failure.
  2. The team will take proper security measures when it comes to cases of data breach.
  3. The team will ensure that the user information is verified.
  4. The team will ensure that the users remain under the web platform's community guidelines when giving ratings.
  5. The team will continue to gather more hospitals under one platform.

  -Reliability:

  1. The system will make sure to verify all users either through NID (in case of patients) or through medical license (in case of doctors), so there is a free flow of reliable information.
  2. The system must be recoverable quickly in case of uncertain failures.

  -Scalability:

  1. System must be easily extendible.
  2. System must be able to cope with increasing load.

  -Usability:

  1. The admin team will push updates and continue towards making the interface more user-friendly.