Vezeeta

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Software Engineering – Team 3

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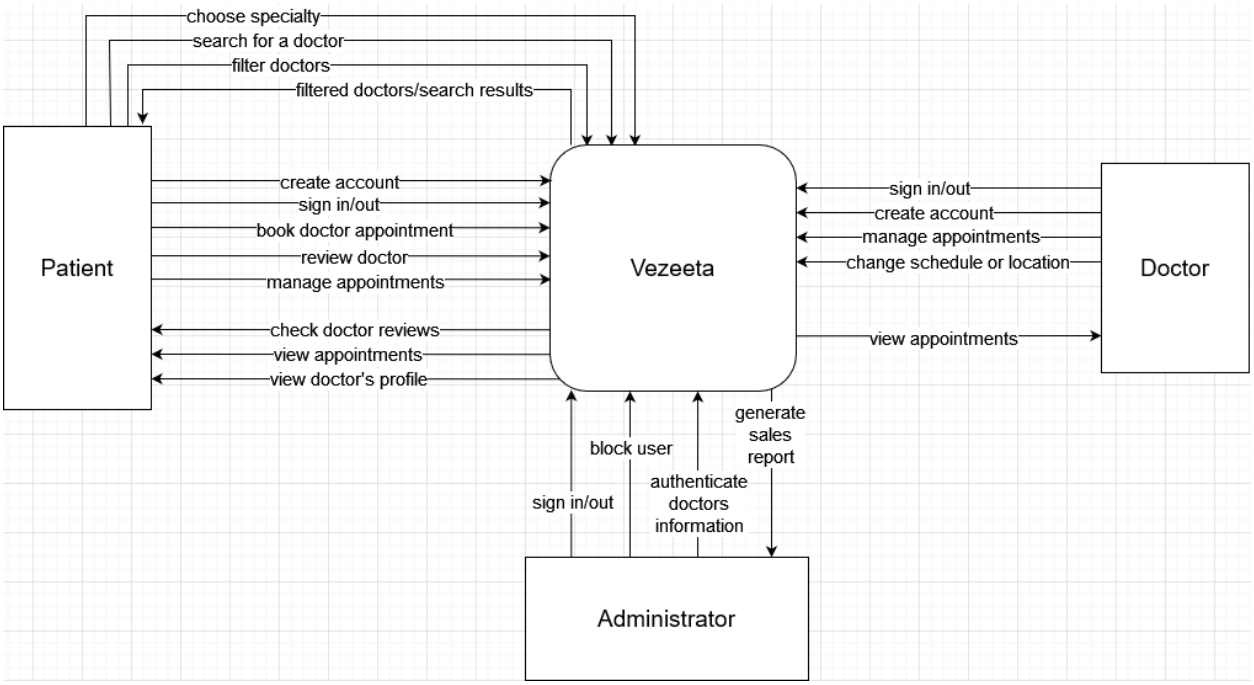
Introduction

Vezeeta is a healthcare system that connects patients with doctors. It aims to make healthcare services easily accessible online. Vezeeta strives to make finding and booking an appointment at the best clinics with the top reviewed doctors a seamless and straight forward process that anyone can complete in 1 minute. In order to accomplish this, Vezeeta's system is delivered to both patients and doctors as a mobile application that offers many functionalities. For doctors, they can register their schedule and specialty and view a list of upcoming appointments. For patients, they will have an account that includes their appointments and they will be able to search for a doctor in a certain geographic location and of a certain specialty. Patients will also be able to review doctors and see past users' reviews before making a reservation. Users will also be able to manage and cancel their appointments at any time with ease. Vezeeta's profit is based on percentage and base commissions on each appointment. What makes Vezeeta special in the market is the fact that it is the first healthcare provider of that kind in the Middle East. With these features, the entire process of making a reservation is revamped and overhauled to be easier and less time consuming.

Context Diagram



User Requirements

- The system shall enable patients and doctors to create an account.
- The system shall enable patients, doctors and admins to sign in and out.
- The system shall allow patients to book appointments.
- The system shall allow patients to search and browse for available doctors.
- The system shall allow patients to display doctors based on specific attributes.
- The system shall allow patients to modify or cancel their appointment.
- The system shall allow patients to view doctors' profiles.
- The system shall allow doctors to set their available time.
- The system shall allow administrator to manage & access data base.
- The system shall allow administrator to authenticate doctors' information.
- The system shall allow administrator to generate sales reports.
- The system shall allow patients to review doctors.
- The system shall allow patients to see doctors' reviews
- The system shall allow administrator to block users.
- The system shall allow doctors and patients to view their appointments.
- The system shall allow doctors to modify their schedules by adding or removing time slots, and shall also allow them to change their location.

Functional Requirements

1. **Create Account**

Description	The system shall allow the patients to create an account by entering their name, age, gender, phone number, email and password. It also allows doctors to create an account by entering all of their details and adding their available schedule, however in this case the creation of account awaits the approval of the admin.
Inputs	Patient name, phone number, age, gender, email and password in case of patient. In case of doctor, doctor details and schedule.
Source	User input.
Pre-conditions	All fields are not empty. User doesn't already have an account with the same credentials.
Post-conditions	Account created and a user object is created and added to the database. Patient is redirected to home page. In case of doctor, the doctor shall wait for approval from the admin.

Outputs	Patient notified through an email that their account has been created and redirected to home page. Doctor will wait for an email approval from the admin.

2. **Authenticate Doctors Information:**

Description	The system shall allow admins to approve the creation of a doctor's account, deletion of their account and modification of certain aspects of doctor's profiles and changes should be reflected in the database.
Inputs	In case of addition, all doctor's details and schedule. In case of delete, doctor id. In case of modification, doctor's id and the edited details.
Source	Doctor's details from the information provided by the doctor. Doctor id from database.
Pre-conditions	In case of creation of account, the doctor shall not have any other account. In all cases, all information shall be valid and true.
Post-conditions	In case of addition, a new doctor's profile is created and added to the list of doctors available. In case of modification, the change is reflected on the doctor's profile. In case of deletion, the profile will be added to the list of unavailable doctors and removed from the available doctors list, also all upcoming reservations for that doctor will be deleted. All changes should be reflected in the database.
Outputs	List of available doctors is updated. Doctor is sent an email approving creation of account or deletion or modification. In case of deletion, a text message is sent to all cancelled appointments informing them with the cancellation.

3. **Sign In**

Description	The system shall allow patients, doctors and admins to sign in using their email and password.
Inputs	User email, user password.
Source	User input.
Pre-conditions	Both the email field and password field aren't empty and the user isn't signed in. Email and password field should match an account in the database; user should already have an account.
Post-conditions	User would be able to access all features by directing them to the signed in interface.
Outputs	If the credentials are wrong show error message, if they are right sign in the user to the main screen.

4. **Book Doctor Appointments**

Description	The system shall allow the patient to book a consultation with a specific doctor in their desired time slot on a specific day from the doctor's schedule with available time slots.

Inputs	patient id, doctor id, time slot, date
Source	Patient id from patient account, doctor id from doctor account, date and time slot from doctor's schedule.
Pre-conditions	Patient chooses a time slot. The time slot should be available in the doctor's schedule. User should be signed in.
Post-conditions	Time slot will be marked unavailable. The specified appointment is added in the database in the patient's and doctor's booked appointments.
Outputs	Notify the patient with the booked appointment date and time by a text message. Time slot marked on schedule in doctor's profile as booked.

5. **Choose Specialty to Browse for Doctors**

Description	The system shall allow the patients to choose a specialty and browse for its available doctors. The patient chooses the specialty and all the available doctors in that specialty are displayed.
Inputs	Specialty Category
Source	Desired specialty from list of specialties saved in the database.
Pre-conditions	Patient views list of specialties.
Post-conditions	Current list of doctors in memory will be replaced by the filtered list of doctors.
Outputs	Display current list of doctors according to chosen field to patient to choose from.

6. **View Doctor's Profile**

Description	The system shall allow patients to view doctors' profiles.
Inputs	Doctor profile including doctor details, reviews and schedule.
Source	Doctor profile using doctor id from the database.
Pre-conditions	User clicks on doctors' profile.
Post-conditions	Find doctor's profile that matches the doctor's id and load it to memory.
Outputs	Doctor's profile will be displayed on screen and patient should be able to view reviews, book appointment and submit a review.

7. **Change Schedule or Location**

Description	The system shall allow doctors to modify their schedules by adding or removing time slots on a certain date or generally starting from a certain date, and shall also allow them to change their location.
Inputs	Modified schedule and the certain date. Doctor id. Location.

Source	Doctor id from doctor account. All else from user input.
Pre-conditions	Doctor should be signed in. Dates shouldn't be past dates.
Post-conditions	Changes are reflected in the database in the doctor's profile matching the doctor's id.
Outputs	All changes should be reflected on the doctor's profile. In case of change of location, a text message is sent to all patients who have future bookings with that doctor to inform them of this change.

8. View Appointments

Description	The system shall allow doctors and patients to view their appointments.
Inputs	Patients id in case of patient. Doctor id in case of doctor.
Source	Patient id from the patient's account. Doctor id from the doctor's account.
Pre-conditions	Should be a registered user and signed in. View appointment button should be pressed.
Post-conditions	List of matching appointments with user id will be saved to memory.
Outputs	List of matching appointments will be displayed on screen with the newest or upcoming appointments first and the oldest last.

9. Review Doctor

Description	The system shall allow the patient to enter their appointment's review for the doctor.
Inputs	Patient id, date, doctor id, review
Source	Patient id from patient account, review from user input, date from system, doctor id from doctor account.
Pre-conditions	The patient had a previous appointment with the specified doctor and attended to it. The patient should be signed in.
Post-conditions	Save review to the doctor's reviews in the database.
Outputs	Display the review in the doctor's list of reviews.

10. Check Reviews

Description	The system shall allow patients to see the reviews for a specific doctor.
Inputs	Doctor id, doctor reviews.
Source	Doctor id from doctor account, reviews on the doctor's profile from database.
Pre-conditions	The patient clicks on check reviews button, doctor has reviews in the database.

Post-conditions	Reviews for doctor will be copied from database to memory. If there are no reviews in the database a message should appear stating that.
Outputs	Display the doctor's list of reviews for the patient.

11. Manage Appointment:

Description	The system shall allow patients and doctors to cancel or modify a reservation prior to the appointment time if they so choose. In case of modification the patient and/or doctor shall choose the new time slot.
Inputs	Id of the appointment at issue, patient id, doctor id, new time slot in case of modification.
Source	Database of appointments, new time slot in case of modification from patient's and/or doctor's choice from the doctor's schedule.
Pre-conditions	Time of action must be at least an hour before the registered time of appointment. New time slot shall be available in the doctor's schedule in case of modification. Users should be signed in.
Post-conditions	Patient's appointment is canceled and set as available again in the doctor's schedule. New time slot is set as unavailable in case of modification. New appointment in case of modification is added to the doctor's and patient's list of appointments.
Outputs	Patient and doctor receive a text message confirming the success of the appointment cancellation or modification specifying the new time slot.

12. Search for Doctor

Description	The system shall allow the patients to search for a specific doctor by typing in their name in the search bar or by selecting at least one of the following (Specialty, City, Area, Insurance Type) and the system displays the matched doctors.
Inputs	Name of doctor or one of the following (Specialty, City, Area, Insurance Type).
Source	Name of doctor from user input or the following (Specialty, City, Area, Insurance Type) from a list from the database and the user chooses.
Pre-conditions	Search bar not empty and patient clicks on search button.
Post-conditions	Current list of doctors in memory will be replaced by the doctors matching the user input.
Outputs	Display current list of doctors according to the entered name or by choosing a list of attributes to patient to choose from.

13. Generate Sales Report

Description	The system shall allow admins to generate sales reports according to specific attributes (Specialty, City, Area, Insurance Type) or for a specific doctor in order to aid in sales decisions in the future. These reports could be used to find trends and patterns to improve their service and ensure sales growth.
Inputs	Doctors' schedules.
Source	Database.
Pre-conditions	Admins should be signed in. Doctors should be available.
Post-conditions	Sales reports created in order to manage sales decisions.
Outputs	Sales decisions are taken based on analysis of sales reports.

14. Filter Doctors Based on Specific Attributes

Description	The system shall allow the patients to display doctors matching their requirements by filling at least one of the following (Title, Subspecialty, Gender, Available Time, Appointment fee) and the system displays the matched doctors.
Inputs	At least one of the following (Title, Subspecialty, Gender, Available Time, Appointment fee).
Source	The following (Title, Subspecialty, Gender, Available Time, Appointment fee) from a list in the database.
Pre-conditions	Should already have chosen a specialty or searched for a doctor. Filter button pressed and at least one filter attribute is chosen.
Post-conditions	Current list of doctors in memory will be replaced by the doctors matching the user input.
Outputs	Display current list of doctors according to the chosen list of attributes.

15. Block User

Description	The system shall allow admins to block users in case of any violation.
Inputs	Patient id of the patient the admin wants to block.
Source	Patient id of the patient the admin wants to block from the database.
Pre-conditions	The block button is pressed and id of the patient the admin wants to block is found in the database. The patient should not be already blocked as well. Admin should be signed in.
Post-conditions	The patient's account will be removed from the list of the current patients accounts and added to the list of blocked patients accounts. The patient won't be able to use their account anymore.

Outputs	The patient won't be able to use their account anymore. All of the patient's reviews will not be visible anymore. An email will be sent to the patient to inform them that their account is blocked and that they won't be able to create another account.

16. **Sign Out**

Description	The system shall allow patients, doctors and admins to sign out of their accounts.
Inputs	User id.
Source	From user account.
Pre-conditions	User is signed in, clicks on sign out.
Post-conditions	Delete user credentials from his device's memory. Redirect the user to the signed-out interface.
Outputs	Sign user out and send the user to the sign in screen.

Non-functional Requirements

Reliability

- The system should be available when requested for service by users: The system should work 24/7, it should always be up and running so that whenever the user wants to use it, it's available.
- The system should have a very low failure rate: The failure rate should be kept as minimal as possible, preferably less than 0.01.
- It should be able to respond to 100 account at the same time.

Speed

- The load time for the user interface should take less than 2 seconds.
- The log in information should be verified within 5 seconds.
- Queries shall return results within 5 seconds.
- The system should be set up on a dedicated computer machine for s 24-hours a day and 7-days a week availability.

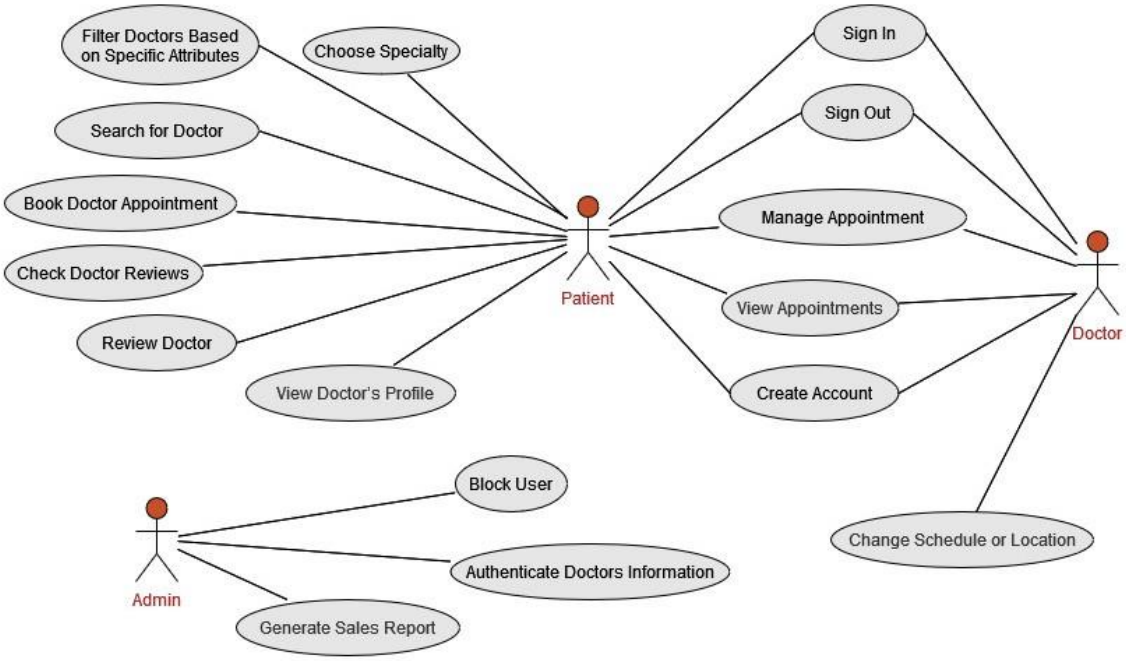
Ease of Use

- Patient should be able to use the application fluently by maximum 20 minutes.

Robustness

- The system should not be down for more than 5 minutes per day.
- When system fails, the data corruption percentage shall not increase more than 0.002%.
- In case that the application process cannot connect to the database, the application process shall not mutate to a zombie process but terminate with an error message.

Use Case Diagram



Sequence Diagram for Book Appointment