Business Rules and Use Case Document

for

Clinic Scheduler Application

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Revision History

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| --- | --- | --- | --- |
| **Name** | **Date** | **Reason For Changes** | **Version** |
| Aditi Patil | 04/03/18 | initial draft | 1.0 draft 1 |
| Monica Das | 04/04/18 | baseline following changes after inspection | 1.0 approved |
| Ruting Bai | 04/05/18 | baseline following changes after inspection | 2.0 approved |
| Rounak Kulkarni | 04/06/18 | baseline following changes after inspection | 3.0 approved |
| Sweety Jain | 04/07/18 | baseline following changes after inspection | 4.0 approved |
| Vama Trivedi | 04/08/18 | baseline following changes after inspection | 5.0 approved |

**1.0 Business Rules(Partial)**

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| --- | --- | --- | --- | --- |
| ID | Rule Definition | Type of Rule | Static or Dynamic | Source |
| BR-1 | All the Users (patient, doctor, receptionist) should be registered. | Constraint | Static | CSA |
| BR-2 | Patient can schedule an appointment 24 hour in advance and not more than 30 days in the future. | Constraint | Static | CSA |
| BR-3 | Patient will be able to modify/cancel the appointment 3 hours before the appointment time. | Constraint | Dynamic | CSA |
| BR-4 | User will be able to search doctors using keywords like department, location. | Fact | Dynamic | CSA |
| BR-5 | The search results will show the most relevant products. | Computation | Dynamic | CSA |
| BR-6 | User Login information will be encrypted and stored in database to secure users’ information | Fact | Static | CSA |
| BR-7 | User will be able to narrow down the searches based on the price, ratings, timing. | Fact | Dynamic | CSA |
| BR-8 | Patient will be able to make multiple appointments with the same or different doctor. | Fact | Static | CSA |
| BR-9 | All appointments in a single order must be paid for by using the same payment method. | Constraint | Static | CSA |
| BR-10 | The payment credentials of the user must be encrypted and secured | Constraint | Dynamic | CSA |
| BR-11 | The invoice price will be calculated as the sum of all appointment prices plus applicable tax and service fees. | Computation | Dynamic | CSA; state tax code |
| BR-12 | Network transmissions that involve financial information or personally identifiable information require 256-bit encryption. | Constraint | Static | corporate security policy |
| BR-13 | Only users who are designated as Admin by the application can view all the scheduled appointments (for all doctors and all patients). | Constraint | Static | CSA |
| BR-14 | Receptionist will able to modify/cancel the appointments only before the cut off time i.e. 1 hour before the appointment time. | Constraint | Static | CSA |
| BR-15 | Patients and doctors will get an update for any modifications in the appointment via text and email. | Fact | Static | CSA |
| BR-16 | Each doctor can view all his scheduled appointments. | Fact | Static | CSA |
| BR-17 | Doctors will be able to add their availability before the cut off time i.e.24 hours | Constraint | Static | CSA |
| BR-18 | Doctors will be able to update their availability (modify/cancel) before the cut off time i.e.3 hours | Constraint | Static | CSA |
| BR-19 | CSA will not allow over writing of appointments. | Constraint | Static | CSA |
| BR-20 | Users will be allowed to write feedbacks. | Fact | Static | CSA |

**2.0 Use cases**

The various user classes identified the following primary actors and use cases for the Clinic Scheduler Application:

|  |  |
| --- | --- |
| Primary Actor | Use Cases |
| Patient | 1. Registration as a Patient  2. Login as a Patient  3. Schedule an appointment  4. Search for doctor using various filters  5. Modify/Cancel a scheduled appointment  6. Make a Payment  7. Give online Feedback |
| Doctor | 8. Registration as a doctor  9. Login as a doctor  10. View Scheduled Appointments  11. View medical history of the patient  12. Add medical records for the patient  13. Update medical records for the patient  14. Add availability  15. Update availability |
| Clinic Receptionist | 16.Registration as Admin  17.Login as Admin  18.View Scheduled Appointments  19.Add appointments for a patient  20.Modify/Cancel Scheduled Appointments |

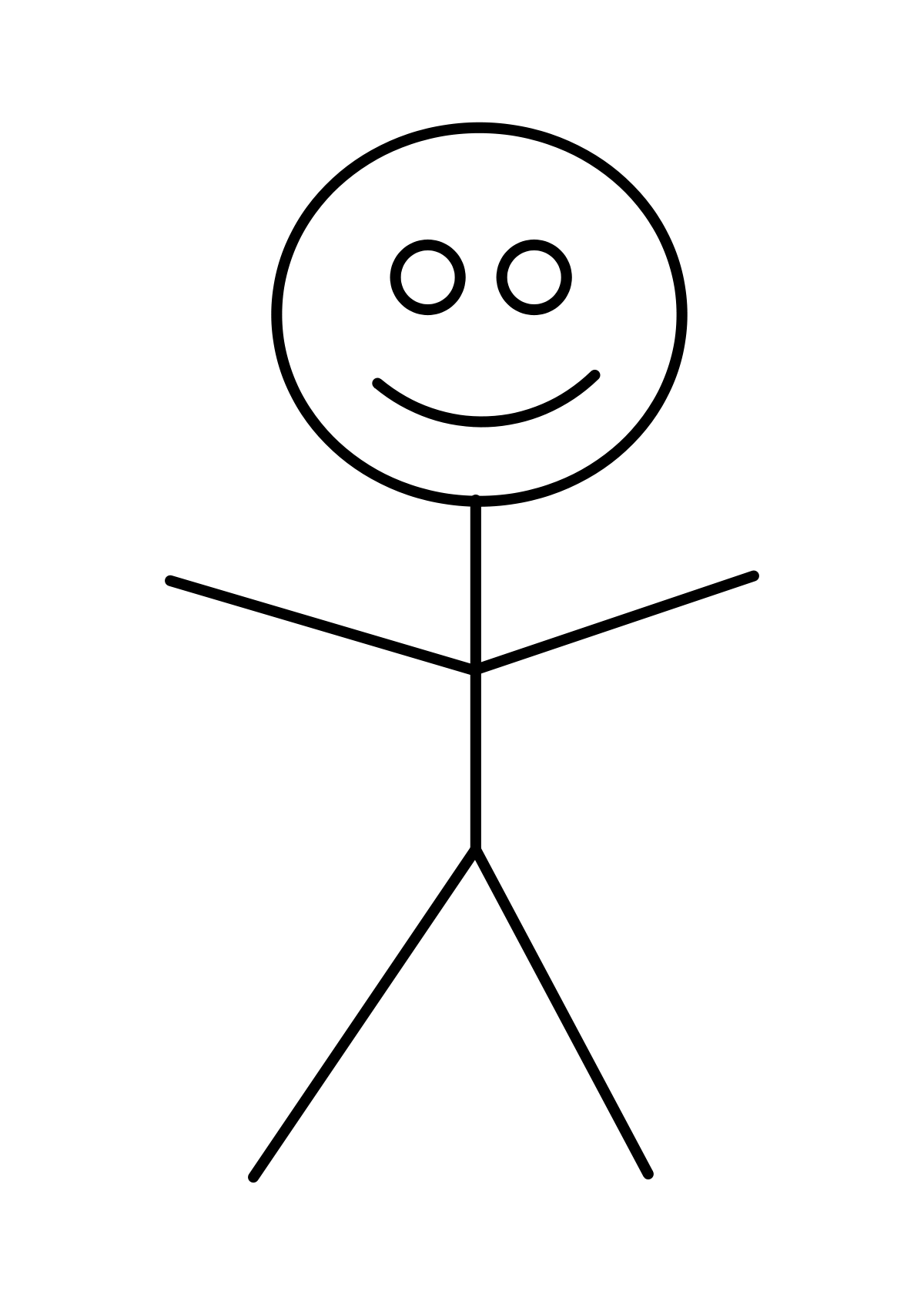
**2.1 Use case Priorities and Dependencies**

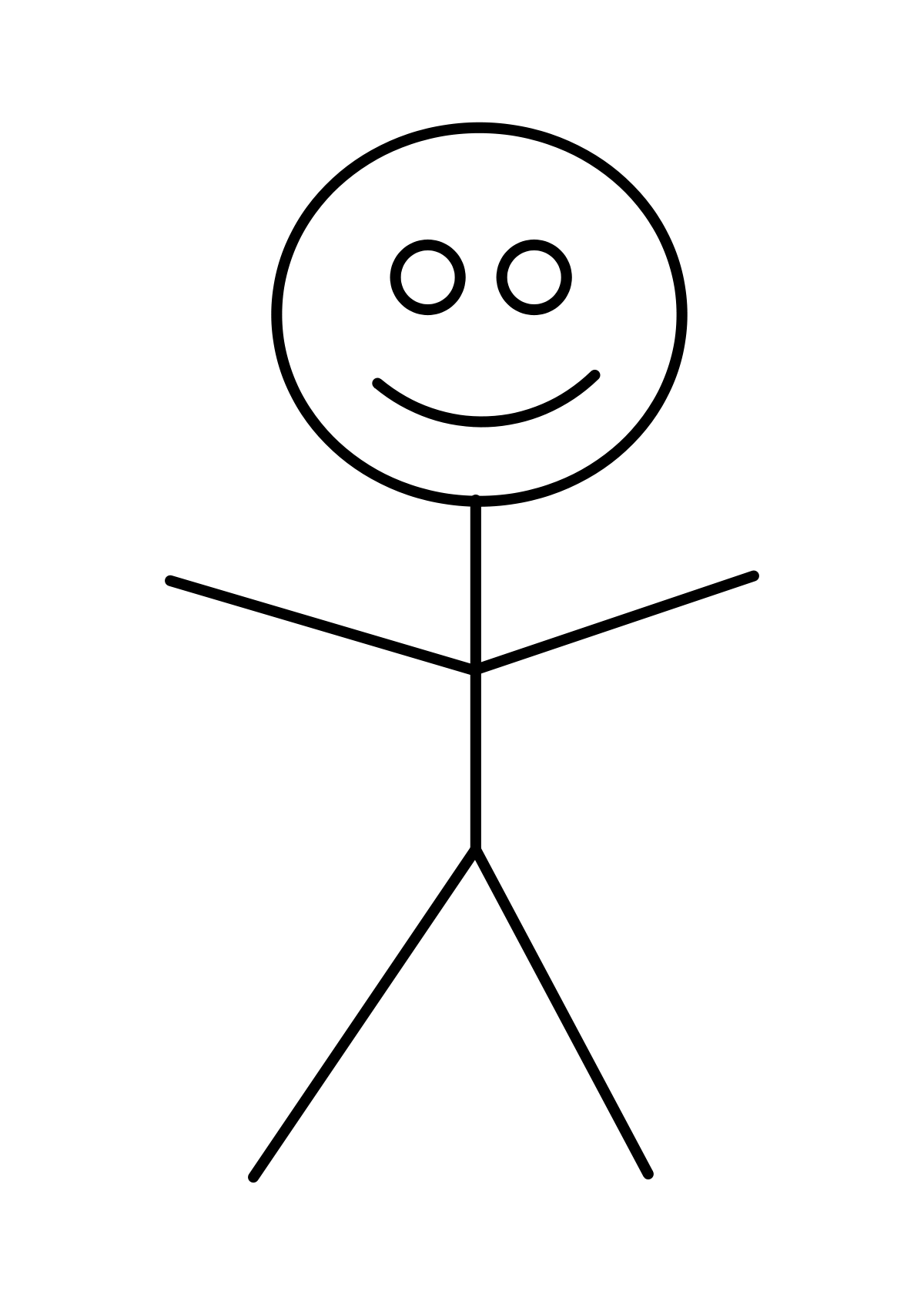
Brief description of the use cases identified above along with their priorities and dependencies.

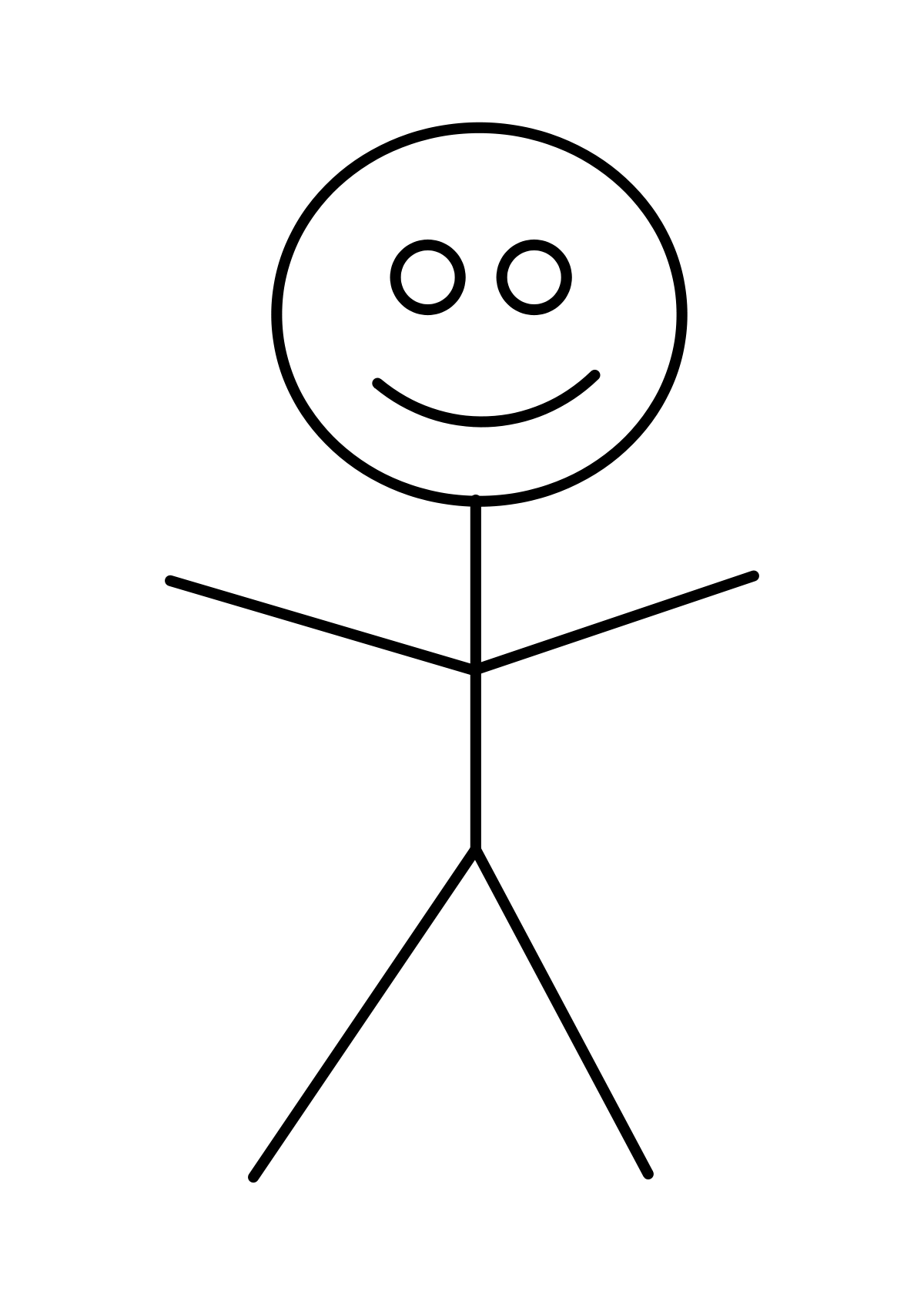
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use case No. | Primary Actor / Priority | Use Cases | Brief Description | Dependency |
| 1. | Patient /  High | Registration as a Patient | This use case describes that patient should be  able to register on the clinic scheduler application to schedule appointment through application. | User should have  1. Valid Data (E.g. Name, Phone Number) |
| 2. | Patient /  High | Login as a Patient | This use case describes that patient should be  able to login on the clinic scheduler application for scheduling appointment. | User should be  1. Registered as Patient |
| 3. | Patient /  High | Schedule an appointment | This use case describes that patient should be  able to schedule an appointment through the application. | User should be  1.Registered as Patient  2.Login as Patient |
| 4. | Patient /  Medium | Search for doctor using various filters | This use case describes that patient should be  able to search for various doctor as per their need. | User should be  1.Registered as Patient  2.Login as Patient |
| 5. | Patient /  High | Modify/Cancel a scheduled appointment | This use case describes that patient should be  able to modify/cancel a schedule appointment through the application. | User should be  1.Registered as Patient  2.Login as Patient  User should have  1.Schedule Appointment |
| 6. | Patient /  Medium | Make Payment | This use case describes that patient should be  able to make payment for a schedule appointment through the application. | User should be  1.Registered as Patient  2.Login as Patient  User should have  1.Schedule Appointment |
| 7. | Patient /  Low | Give online Feedback | This use case describes that patient should be  able to give online feedback for the overall services through the application. | User should be  1.Registered as Patient  2.Login as Patient |
| 8. | Doctor /  High | Registration as a doctor | This use case describes that doctor should be  able to register on the clinic scheduler application. | User should have  1. Valid Data (E.g. Name, Phone Number) |
| 9. | Doctor /  High | Login as a doctor | This use case describes that doctor should be  able to login on the clinic scheduler application. | User should be  1. Registered as Doctor |
| 10. | Doctor /  Medium | View Scheduled Appointments | This use case describes that doctor should be  able to view scheduled patient appointment through the application. | User should be  1.Registered as Doctor  2.Login as Doctor |
| 11. | Doctor /  Medium | View medical history of the patient | This use case describes that doctor should be  able to view medical history of the scheduled patient through the application. | User should be  1.Registered as Doctor  2.Login as Doctor |
| 12. | Doctor /  Medium | Add medical records for the patient | This use case describes that doctor should be  able to add medical record of the patient through the application. | User should be  1.Registered as Doctor  2.Login as Doctor |
| 13. | Doctor /  Medium | Update medical records for the patient | This use case describes that doctor should be  able to update medical record of the patient through the application. | User should be  1.Registered as Doctor  2.Login as Doctor |
| 14. | Doctor /  High | Add availability | This use case describes that doctor should be  able to add his/her availability for appointment through the application. | User should be  1.Registered as Doctor  2.Login as Doctor |
| 15. | Doctor /  High | Update availability | This use case describes that doctor should be  able to update his/her availability for appointment as per their situations. | User should be  1.Registered as Doctor  2.Login as Doctor |
| 16. | Clinic Receptionist /  High | Registration as Admin | This use case describes that clinic receptionist should be  able to register as admin on the clinic scheduler application. | User should have  1. Valid Data (E.g. Name, Phone Number) |
| 17. | Clinic Receptionist /  High | Login as Admin | This use case describes that receptionist should be  able to login on the clinic scheduler application. | User should be  1. Registered as Clinic Receptionist |
| 18. | Clinic Receptionist /  Medium | View Scheduled Appointments | This use case describes that receptionist should be  able to view scheduled patient appointment through the application. | User should be  1.Registered as Clinic Receptionist 2. Login as Clinic Receptionist |
| 19. | Clinic Receptionist/  High | Add appointments for a patient | This use case describes that clinic receptionist should be  able to add appointments for a patient who call or walk in to clinic for scheduling an appointment. | User should be  1.Registered as Clinic Receptionist  2.Login as Clinic Receptionist |
| 20. | Clinic Receptionist /  High | Modify/Cancel Scheduled Appointments | This use case describes that clinic receptionist should be  able to update/cancel appointments for a patient who call or walk in to clinic for updating /cancel an appointment or as per doctor availability | User should be  1.Registered as Clinic Receptionist  2.Login as Clinic Receptionist |

**2.2 Use Case Dependency Flow Diagram**

A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved.

Doctor

Client Receptionist

Patient

<Include>

<Include>

**2.3 Detailed Use Cases (High Priority)**

**2.3.1 Schedule an appointment**

|  |  |  |  |
| --- | --- | --- | --- |
| ID and Name: | **UC-3 Schedule an appointment** | | |
| Created By: | Monica Das | Date Created: | 04/01/18 |
| Primary Actor: | Patient | Secondary Actors: | Clinic scheduler Application |
| Description: | Patient accesses the Clinic Scheduler Application(CSA) from his system, searches for doctors based on specific needs like department, dates and location. Patient selects the desired appointment and then makes a payment to schedule the appointment. | | |
| Trigger: | A Patient indicates that he wants to schedule an appointment | | |
| Preconditions: | PRE-1. Patient is registered.  PRE-2. Patient is logged on into CSA. | | |
| Postconditions: | POST-1. Scheduled appointment is stored in CSA with a status of “confirmed”.  POST-2. User is sent a confirmation mail.  POST-3. The available appointment slots for the particular doctor is updated. | | |
| Normal Flow: | **1.0 Schedule a single appointment**  1.      Patient searches for doctors using different filters like department, location, time, date etc.  2.      CSA displays list of available doctors and their available appointment slots.  3.      Patient selects a particular doctor based on the specific needs and add it to the cart.  4.      Patient indicates to checkout.  5.      CSA displays the selected appointment, individual prices, and total price, including taxes and delivery charge.  6.      Patient either confirms the appointment (continue normal flow) or requests to modify the appointment. (return to step 2).       7. Patient specifies payment method.       8. Patient enters valid payment information.       9. Patient confirms to make a payment.  10.  CSA confirms acceptance of the order.  11.  CSA sends Patient an email message confirming appointment details, price, and cancellation/modification instructions.  12. CSA stores the appointment order, sends appointment information to Clinic Inventory System, and updates available appointment slots for the doctor. | | |
| Alternative Flows: | **1.1 Make multiple appointments (same doctor)**  1.      Patient selects multiple appointments for the same doctor.  2.      Return to step 4 of normal flow.  **1.2 Make multiple appointments (different doctors)**  1. Patient repeats steps 1 to 3 multiple times  2. Return to step 4 of normal flow. | | |
| Exceptions: | **1.0. E1 Requested time is after today’s cut off time**  1. CSA informs Patient that it’s too late to place an order for today.  2a. If Patient cancels the appointment process, then CSA terminates use case.  2b. Else if Patient requests another date & time, then CSA restarts use case.  **1.0. E2 No appointment slot  is available**  1. CSA informs the Patient that no slots are available for the selected date/time for the particular doctor.  2a. If Patient cancels the appointment process, then CSA terminates the use case.  2b. Else if Patient requests another date/time, then COS restarts use case.  **1.1. E1 Payment failed**  1. CSA informs Patient that the payment for the appointment has failed and provides option to retry making payment.  2a. If Patient retries making payment, then Return to step 8 of normal flow.  2b. Else if Patient cancels the payment process, then CSA terminates use case. | | |
| Priority: | High | | |
| Frequency of Use: | Approximately 200 users, average of one usage per day. Peak usage load for this use case is between 9:00 A.M. and 12:00 P.M. local time. | | |
| Business Rules: | BR-1, BR-2, BR-4, BR-5, BR-6, BR-7, BR-8, BR-9, BR-10, BR-11, BR-12, BR-19. | | |
| Other Information: | 1.      Patient shall be able to cancel the appointment process at any time prior to confirming it.  2.      Patient shall be able to view all the scheduled appointments within the previous six months and repeat one of those past appointment as the new appointment, provided that the same slot (date & time) is available for the selected doctor. (Priority = M)  3.       The default date is the current date if the Patient is using the system before today’s cut off time for the clinic. Otherwise, the default date is the next business day. | | |
| Assumptions: | Assume that 20 percent of the appointment booking will be for the Paediatric department. (source: previous 6 months of appointment data). | | |

**2.3.2 Modify/Cancel Scheduled appointments**

|  |  |  |  |
| --- | --- | --- | --- |
| ID and Name: | **UC-20 Modify/Cancel Scheduled appointments** | | |
| Created By: | Monica Das | Date Created: | 04/01/18 |
| Primary Actor: | Receptionist | Secondary Actors: | Clinic scheduler Application |
| Description: | Receptionist who use the CSA will be registered as an Admin and would be able to view all the scheduled appointments for the day. He/she will also be able to modify existing appointments for Patients. For e.g. Change in time/date, cancellation. | | |
| Trigger: | Receptionist indicates to view all the scheduled appointments.  Receptionist indicates to edit the scheduled appointments. | | |
| Preconditions: | PRE-1. Receptionist is registered as Admin.  PRE-2. Receptionist is logged on into CSA.  PRE-3. Receptionist is able view all the scheduled appointments for the day and make modifications. | | |
| Postconditions: | POST-1. Alert is sent to the doctor for the modified appointment.  POST-2. Alert is sent to the patient for the modified appointment. | | |
| Normal Flow: | **5.0 Modify/Cancel scheduled appointments**  1.  Receptionist indicates to view all the scheduled appointments for a particular day.  2.  CSA displays list of all the scheduled appointments for the day along with Patient details like name, phone number, time, date, and department.  3.  Receptionist selects the appointment which is to be modified.  4.  Receptionist makes the necessary modification for e.g. change in time/date/doctor or cancel the appointment.  5.  Receptionist indicates to update the information (saving the modified details).  6.Information about the update is sent to the doctor and the Patient through email and text alerts. | | |
| Alternative Flows: | None | | |
| Exceptions: | 5.0. E1 Receptionist will not be able to make changes after the cut off time for eg.1 hour before the scheduled appointment. | | |
| Priority: | High | | |
| Business Rules: | BR-1, BR-13, BR-14, BR-15, BR-19 | | |
| Other Information: | Expect high frequency of executing this use case within first 4 weeks after system is released. | | |