
Software Requirements Specification

for

PATIENT PORTAL

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February 11, 2017

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1. Introduction

1.1 Purpose

The purpose of this document is to present a detailed description of the PATIENT PORTAL software system. It will explain the purpose and features of the system, the interfaces of the system, what the system will do, the constraints under which it must operate and how the system will react to external stimuli.

This document is intended for developers who can review project competences and easily understand where their efforts should be targeted, Project testers who can use this document as a base for their testing strategy in an organized manner and stakeholders who can understand and rectify the guidelines with respect to their deliverable requirements.

1.2 Product Scope

The PATIENT PORTAL is a web application that manages electronic patient records to provide rapid and efficient means to handle medical information of a clinic. It eliminates the traditional way of managing paper-based patient records which was more labour intensive and less efficient. The overall goal of the PATIENT PORTAL is to provide physicians, nurses, and clinical staff with a powerful, easy-to-use tool that securely assists them in gathering, storing, and manipulating patients' information.

1.3 Acronyms, abbreviations, notational conventions

Term	Definition
HIPPA	Health Insurance Portability and Accountability Act
IMS	Internal Messaging System
SOFTWARE REQUIREMENT SPECIFICATION	A document that completely describes all of the functions of a proposed system and the constraints in which it must operate.
SRS	Software Requirement Specification
SSN	Social Security Number
STAKEHOLDER	A person, group, or organization that is actively involved in a project, is affected by its outcome, directly or indirectly, or can influence its outcome.
UML	Unified Modeling Language
USER	A person who interacts or use the system or software product
WEB PORTAL	A Web portal is most often a specially designed Website that brings information together from diverse sources in a uniform way

Table 1-Terms

1.4 Overview

The upcoming sections of this document provides the description of the overview of functionality of the Patient Portal including the environment, user characteristics, product functions, constraints, assumptions and dependencies. The third section will focus on the functional and non-functional aspects including hardware, software requirements of the product which is merely for developers understanding in compliance with stakeholder needs.

2. External Interface Requirements

2.1 Functional Requirements

2.1.1 Use Case Diagram

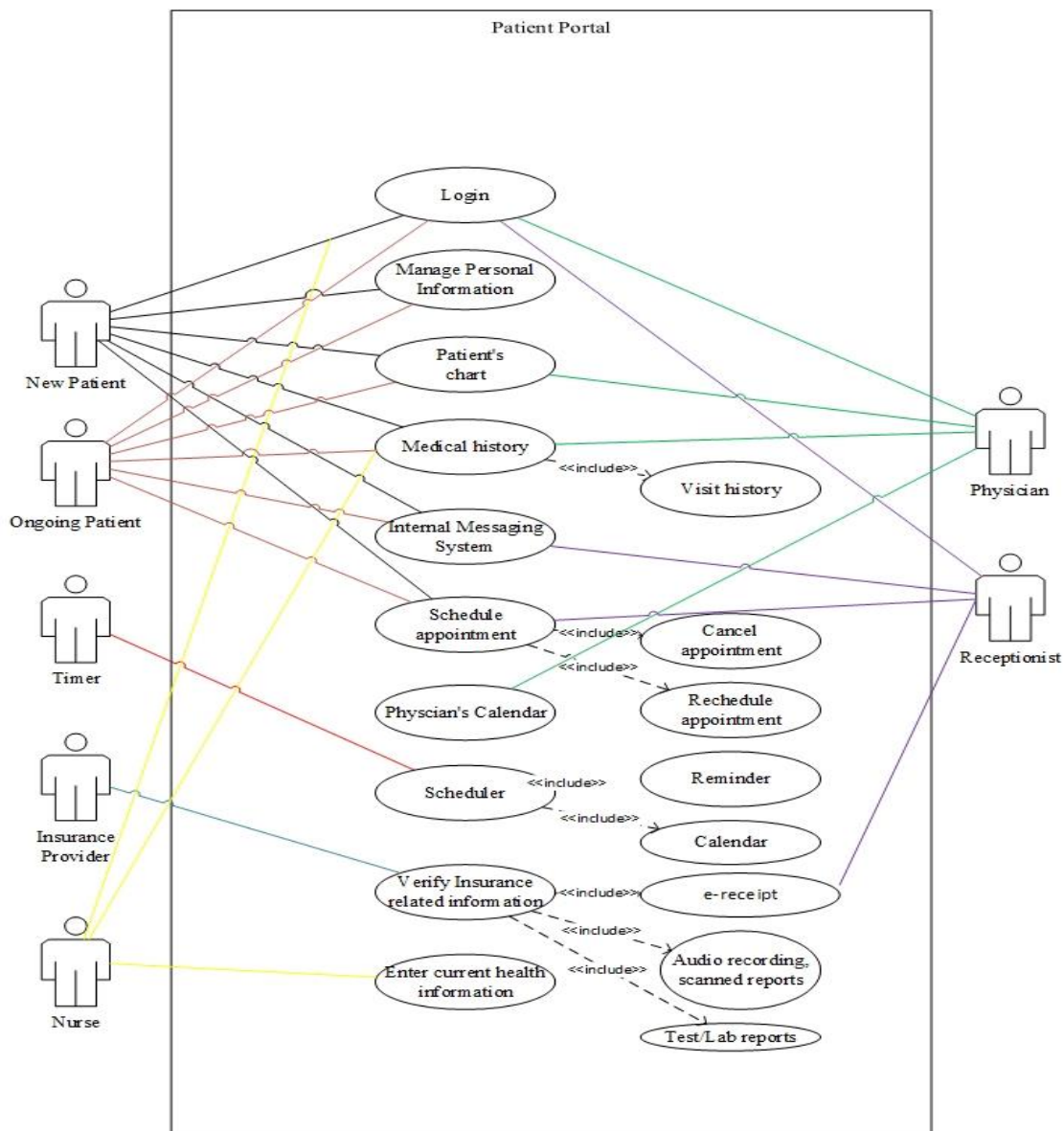


Figure 1- Use Case Diagram Patient Portal

This use case diagram illustrates the role and functionality of each actor in the entire system and the way they will be interacting with the PATIENT PORTAL. There will be 7 actors as new patient, ongoing patient, nurse, insurance provider, timer, physician and receptionist along the with some subsystem functionalities. This use case will help the designers and developers to analyze the requirements and design pattern to understand the overview of PATIENT PORTAL and stakeholder's expectations.

2.1.2 Functional Requirements-Patient

Use Case: Register	
Actors	New Patient, Receptionist
Description	User should visit to the clinic and contact the Receptionist to register an account on PATIENT PORTAL and enter the information like first name, middle name, last name, contact information, email address, local address, permanent address, SSN, and insurance related information.
Pre-condition	User must be able to run the portal on the browser, internet connection, requested information will be enter.
Post-Condition	User will be registered and User ID and password will be generated.
Comments	

Table 2- Use Case Register description

Use Case: Login	
Actors	New Patient, Ongoing Patient
Description	Patients should be able to Log in after entering their credentials. Session will be created for every logged in user and logged-in information can be stored on trusted devices to log-in automatically.
Pre-condition	Registration on PATIENT PORTAL
Post-Condition	Can access the features of the portal after successfully login
Comments	

Table 3-Use Case Login description

Use Case: View Sections/Features	
Actors	New Patient, Ongoing Patient
Description	Patients can view Medical Records, Medical History, Personal Information, Health related information (Patient's chart). They can schedule, reschedule and cancel appointment with the Physician
Pre-condition	User should be logged-in
Post-Condition	User can schedule appointment or log out from the session
Comments	

Table 4-Use Case View Sections/Features

Use Case: Managing information	
Actors	New patient, ongoing patient
Description	Patient should be able to add/delete/modify personal information, should be able to view medical records, medical history, billing information, insurance related information and can save the file in preferred file format or can take print out
Pre-condition	Patient should be logged in
Post-Condition	Patient's information updated

Comments	
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Table 5- Use Case Managing information description

Use Case: Scheduling appointment	
Actors	Patient, Receptionist
Description	A Patient schedule appointment, enter purpose of their appointment, enter preferred date, time and location. Additionally, patient can communicate also through IMS with the receptionist or can even phone call to request appointment.
Pre-condition	User must register for an account on the portal and verify their authenticity before scheduling appointment, Portal's own IMS should be setup rather than any other mailing domains, Receptionist should authentic him/her on the portal before any communication with the patient's request, Internet connection
Post-Condition	Appointment should be made along with the online payment and Reminder should be sent 24 hours prior to the actual appointment.
Comments	Session timeout on the payment window, Communication through IMS should be encrypted and secured, Receptionist must authenticate to access the scheduler on the Patient Portal.

Table 6- Use Case Scheduling appointment description

Use Case: Cancel appointment	
Actors	Patient, Receptionist
Description	Patient can cancel the appointment by confirming on Cancel Appointment. Additionally, Patient can communicate through Internal Messaging System with Receptionist on behalf of Patient to cancel the appointment.
Pre-condition	Appointment made already
Post-Condition	Cancelled appointment
Comments	

Table 7- Use Case cancel appointment description

Use Case: Reschedule appointment	
Actors	Patient, Receptionist
Description	Patient can reschedule appointment they need different time or not able to meet up due to some reason, the new selected information like (time, date) will overwrite the old information on the scheduler. Patient can also communicate through IMS or phone call with receptionist to reschedule the appointment.
Pre-condition	Appointment should be cancelled
Post-Condition	Appointment rescheduled and reminder is set 24 hours prior to actual appointment
Comments	

Table 8- Use Case reschedule appointment description

Use Case: Receive reminder	
Actors	Patient, Timer
Description	Timer will check the upcoming appointment time for the patient on portal and will send the reminder about the appointment 24 hours prior to actual appointment with the physician through email, text message or IMS.

Pre-condition	Patient should have the appointment made already on particular date and time, Internet Connection
Post-Condition	Patient will receive reminder
Comments	

Table 9- Use Case receive reminder description

Use Case: Internal Messaging System	
Actors	Patient, Receptionist
Description	Patient's assistance or communication tool through which patient can send and receive messages by entering the message into the query box and submitting send
Pre-condition	Patient should be logged in
Post-Condition	Patient is able to communicate through it securely
Comments	

Table 10- Use Case Internal Messaging System description

Use Case: Billing and payments	
Actors	Patient, Insurance company
Description	Patient should be able to access billing information through the portal in patient's chart and view their deducted or updated balance the insurance company has verified the claim and eligibility, Payment should be done securely through payment gateway providers on the portal
Pre-condition	Patient should be logged in
Post-Condition	Payment should be securely and successfully made for the treatment
Comments	

Table 11- Use Case Billing and Payments description

Use Case: Receive electronic receipt	
Actors	Patient, Insurance company
Description	Patient should receive an electronic, itemized receipt of the treatment which can be viewed in patient's chart
Pre-condition	Patient uses the PATIENT PORTAL and undergone a diagnosis or treatment
Post-Condition	Patient can see their e-receipt in patient's chart on the portal
Comments	

Table 12- Use Case Receive electronic receipt

Use Case: Patient's electronic chart	
Actors	New Patient, Ongoing Patient
Description	Patient can view the patient's chart on the portal which includes information like, medical information, billing information, e-receipts, prescriptions, Tests report, calendar
Pre-condition	Patient should be logged in
Post-Condition	Patient should be able to access the patient's chat on the portal
Comments	

Table 13- Use Case Patient's electronic chart description

Use Case: Language preference	
Actors	New Patient, Ongoing Patient

Description	Patient should be able to select preferred language in PATIENT PORTAL
Pre-condition	Patient should already have registered on the portal
Post-Condition	Patient should be able to see his/her account on the portal in selected language.
Comments	

Table 14- Use Case Language Preference description

2.1.3 Functional Requirements- Physician

Use Case: Physician's calendar	
Actors	Physician
Description	Physician should be able to check upcoming appointments on the calendar system with date and time
Pre-condition	Physician should be logged in
Post-Condition	Physician should be able to access calendar
Comments	

Table 15- Use Case Physician's calendar description

Use Case: Managing Patient's chart	
Actors	Physician
Description	Physician should be able to add/modify relevant information on the Patient's chart by clicking edit and then save.
Pre-condition	Physician should be logged in
Post-Condition	Physician should be able to access patient's chart
Comments	

Table 16- Use Case Managing Patient's chart description

Use Case: Add Prescription	
Actors	Physician
Description	Physician should be able to add drug prescription for the patient by accessing patient's chart under prescription section and clicking add and save.
Pre-condition	Physician should be logged in
Post-Condition	Prescription added in the patient's chart
Comments	

Table 17- Use Case Add prescription description

Use Case: Modify Prescription	
Actors	Physician
Description	Physician can modify Prescription based on medical history or information, severity and symptoms for the patient by accessing patient's chart under prescription section and clicking edit and save.
Pre-condition	Earlier medication was prescribed to the patient
Post-Condition	Patient will receive change to the medication in patient's chart
Comments	

Table 18- Use Case Modify prescription description

Use Case: Lab order	
Actors	Physician

Description	Physician can add required Tests to patient's chart by entering the names of the Tests and saving it.
Pre-condition	Physician should be logged in and Tests needs to be done
Post-Condition	Tests results will be posted in patient's chart
Comments	

Table 19- Use Case Lab Order description

Use Case: Enter Diagnosis	
Actors	Physician
Description	Physician can add required Tests to patient's chart by entering the names of the Tests and saving it.
Pre-condition	Physician should be logged in
Post-Condition	Patient can view the diagnosis report in patient's chart
Comments	

Table 20- Use Case Enter diagnosis description

Use Case: Add Medical Records	
Actors	Physician
Description	PATIENT PORTAL should be able to handle medical records in a variety of forms, such as images, scanned scripts, and audio recording.
Pre-condition	Medical records for the patients should be uploaded from reliable and authenticated user on the portal (physician, nurse, receptionist)
Post-Condition	Patient should be able to see medical records in patient's chart
Comments	

Table 21- Use Case Add Medical Records description

2.1.4 Functional Requirements- Receptionist

Use Case: Internal Messaging System	
Actors	Receptionist, Patient
Description	Receptionist should be able to use the Internal Messaging system on the Patient Portal to assist the Patients and sending them messages.
Pre-condition	Receptionist should be logged in
Post-Condition	Patient is able receive messages sent by the Receptionist
Comments	

Table 22- Use Case Internal Messaging System description

Use Case: Scheduler	
Actors	Receptionist
Description	Receptionist can access the scheduler in order to create an appointment for the patient. Click on Scheduler and then enter preferred date, the purpose of the appointment, physician's name, preferred time and submit.
Pre-condition	Receptionist should be logged in
Post-Condition	Patient is able view the upcoming appointment on the portal
Comments	

Table 23- Use Case scheduler description

2.1.5 Functional Requirements- Nurse

Use Case: Patient's current health information	
Actors	Nurse
Description	Enabling a nurse to enter into the system the patient's current medical conditions, such as the blood pressure and the weight into the patient's chart and submit
Pre-condition	Nurse should be logged in
Post-Condition	Updated information in patient's chart
Comments	

Table 24- Use Case Patient's current health information description

Use Case: Visit history	
Actors	Nurse
Description	Nurse can check the date when the patient visited previously by accessing the visit history of the patient in the PATIENT PORTAL.
Pre-condition	Nurse should be logged in
Post-Condition	Nurse should be able to access visit history section on the portal
Comments	

Table 25- Use Case Visit history description

2.1.6 Functional Requirements- Timer

Use Case: Send reminder	
Actors	Timer, Patient
Description	Timer will check the upcoming appointment time for the patient on portal and will send the reminder about the appointment 24 hours prior to actual appointment with the physician through email, text message or IMS.
Pre-condition	Patient should have the appointment made already on particular date and time, Internet Connection
Post-Condition	Patient will receive reminder
Comments	

Table 26- Use Case Send reminder description

2.1.7 Functional Requirements- Insurance Company

Use Case: Insurance Provider	
Actors	Patient, Insurance Provider/Company
Description	Insurance provider may verify the claim/eligibility of the patient's treatment, may view the relevant information from particular patient's electronic chart on the portal such as diagnosis report, billing information.
Pre-condition	Log in to the portal and access relevant information
Post-Condition	View treatment information and make alterations as per insurance policy
Comments	

Table 27- Use Case Insurance Provider description

2.1.8 Class Diagram

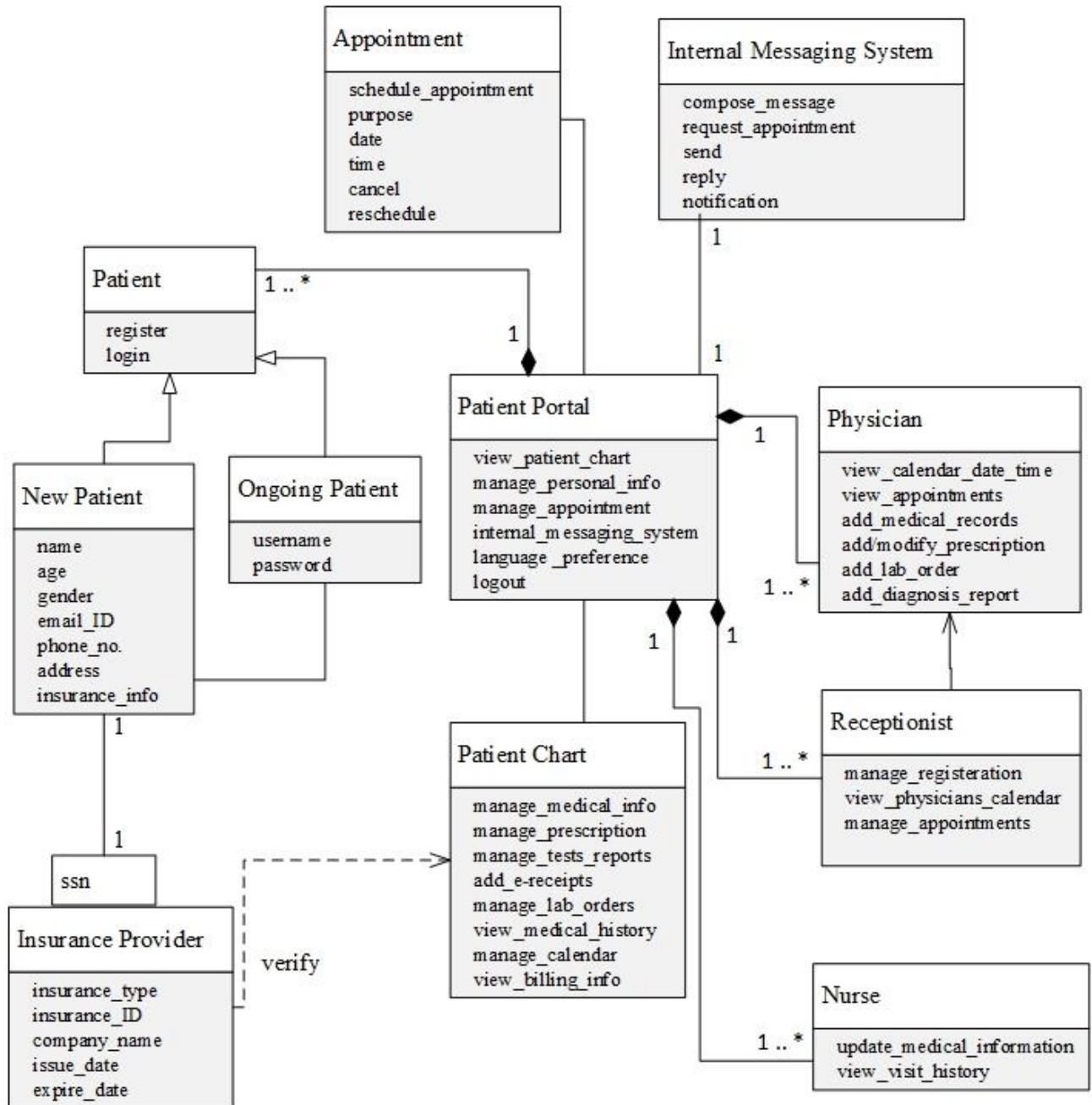


Figure 2- Class Diagram Patient Portal

This class diagram describes the structure of the Patient Portal by showing the system's classes, their inter-relationships, their attributes and the relationship among objects. This class diagram will help the developers to design and document the system's coded classes, also it will be helpful for business analyst to model systems from the business perspective.

2.2 Non-Functional Requirements

2.2.1 Usability

- The product should provide user-friendly interface.
- The product should be easy in usage and understanding to the users.
- The product should have proper documentation and troubleshooting key notes available online.
- It should provide multiple languages for the diversity of the users.

2.2.2 Performance

- The performance of the PATIENT PORTAL depends on internet connectivity strength, response time, load balancing, handling large multimedia data cluster etc.
- The product should be able to justify and manage such requirements to be a robust web portal.

2.2.3 Security

- Sensitive data transfers and storage, media storage, payments, keeping backup of all/any kind of personal and organizational data should be secured and safe over the network as well as at the time of server failure.
- Back-end security measures should be taken to ensure the protection of user's personal and sensitive information from the intruders.
- Product should support secure log in, multiple ways to authenticate and lock down of the account in case of intruder attack.

2.2.4 Reliability

- The product should handle or manage the smooth transition over the network file storage to comply large scale database servers.
- The product should be fast and fault tolerant to save the states or sessions of user in case of failure or unavailability of the internet connection.
- It should accommodate large number of users to access PATIENT PORTAL without any request allocation conflicts.

2.2.5 Maintainability

- For certain amount of time in a day, the product should backup and goes offline for back-end maintenance check without disturbing the availability aspect and users access to the portal.
- It should be scalable.

3. Requirements Table

Requirement Number	Name	Description	Related Requirement numbers and source	Related use case's numbers