InteractiveHealthCareSystem

Software Requirements Specification

Version 3.0

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The DevelopmentTeam

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Revisions/Updates to SRS

Version #	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	**Clinton Jarboe**	***02-23-2015***	***Arpan***	***02-23-2015***	**Test Plan draft**
2.0	**Bhardwaj**	**03-17-2015**	**Arpan**	**03-20-2015**	**Fine tuning of requirements and grouping of functionalities.**
3.0	**Bharadwaj**	**03-23-2015**	**Clinton**	**03-23-2015**	**Adding Requirements for Extra Credits**

Changes made Version 3.0 in brief:

- Adding Requirements for Extra Credits.

Changes made Version 2.0 in brief:

- Added table grouping the functionalities by user
- Refined Login Feature.
- Refined Naming of some features.
- Added some Non functional Requirements.

1.0 – Introduction

1.1 -Purpose

The purpose of thissoftwarewillbefor the everydayuse of medicalprofessionals and theirpatients. Itwillbe designedwith ease of use beingat the forefront.This means thatanyone willbeableto use the softwarewith littleeffort, therebyimproving efficiency.The vast improvementthatthe abilityto access andcreaterecords automatically,withouthavingto manuallycopyoutand file allgiveninformation, cannotbe overstated.This softwarewillalso allow for thefilingof othermedical informationsuch as prescriptionsand also provides patients with a convenientwayto add new ailments, change contactinformation, andrequesta different doctor.Adatabase is storedof allcriticalinformation.

1.2 – Scope of Project

This software system is an InteractiveHealthcare Systemdesigned toimprove communication and schedulingbetweenhealthcarepractitioners, withthe goalof improvingoverallefficiency for the healthcare facility.Thesystemallows for quickcommunication of thepatient's symptoms, as wellas quick treatmentsuggestion for non-emergencycases.

Specifically,thesystemallows patients tosubmit their healthcare concerns,whichare evaluated bya healthcareprovider,who thensuggests treatmentor notifiesadministrativestaff to schedule an appointmentwith thepatient.Thesystemcontains a relationaldatabase between symptom reports, treatments, patients, and practitioners.

1.3 – Glossary

Appointment	An appointmentfor aspecificpatient to meetwith his doctor.
Client	The front-end portionof the system, whichruns on individualdevices.
Database	The back-end portionof the system,stored on a central server.
Doctor	Amedicaldoctor inthe system.
Healthcarepractitioner	Anydoctor or nurse in thesystem.
Nurse	Amedicalnursein the system.
Receptionist	An administrativeworker at thehealthcarefacility.
Patient	Apatientof thehealthcarefacilityin thesystem.
Suggestedtreatment	Acourse of treatmentrecommended bya healthcare practitionerthrough thesystem.
Symptomreport	Areportof symptomssubmitted bya patientto his doctor through thesystem.
User	Anydoctor, nurse, patient,or receptionist inthe system.

1.4 – Overviewof Document

The nextsection,OverallDescription, contains abreakdown of usecases for users of thesystem. This is used to establish a basis for understanding thetechnicalspecifications provided in the following chapter.

The third chapter is Requirements.Thesesections breakdown the functionaland database featuresof the systemfor thepurpose of reference bythesoftware's developers.

2.0 –Overall Description

2.1 –System Environment

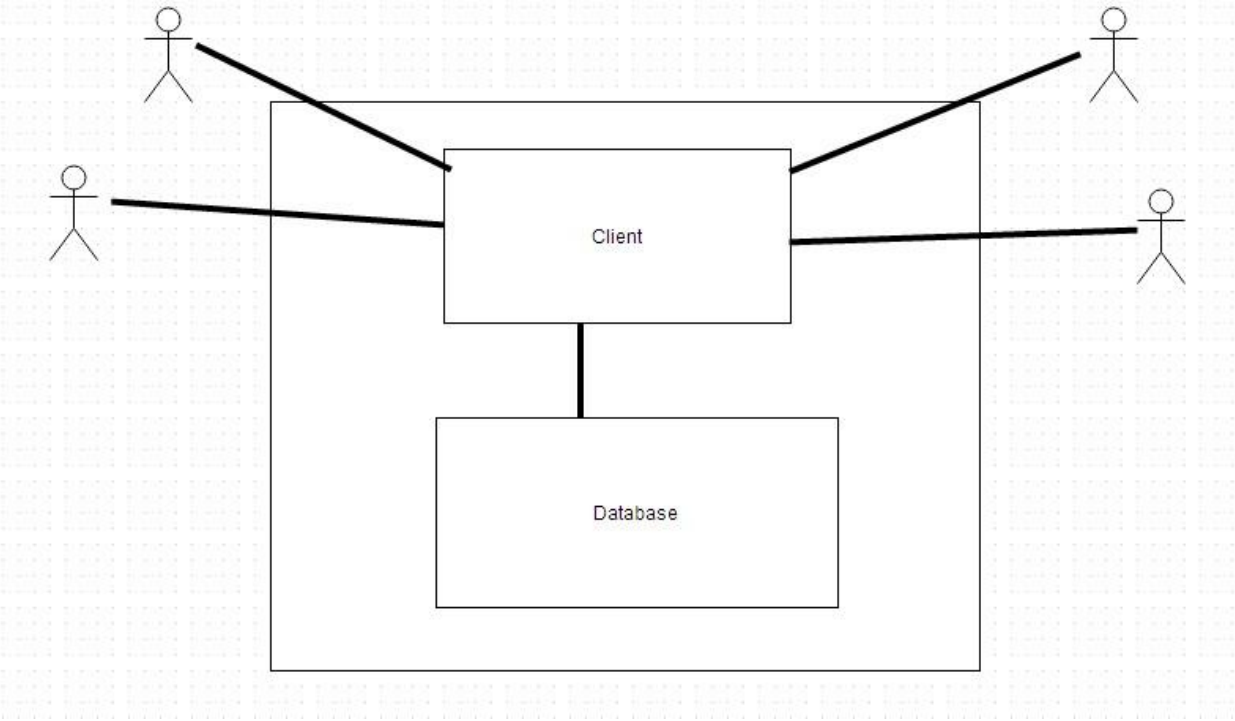


Fig.2.1 - Interactivehealthcaresystem

Thesymptomreportsystemhasfouractorsandonecentralsystem. Thepatientsubmits reportsandviewsappointmentsthrough theclient. Thenurseanddoctorviewsymptom reports, andthereceptionist anddoctorsetandmodify appointments through theclient. The clientalsoautomaticallyschedules appointmentsforthepatient ifthesituationis severe enough.

2.2 - Functional RequirementSpecification

2.2.1Log in

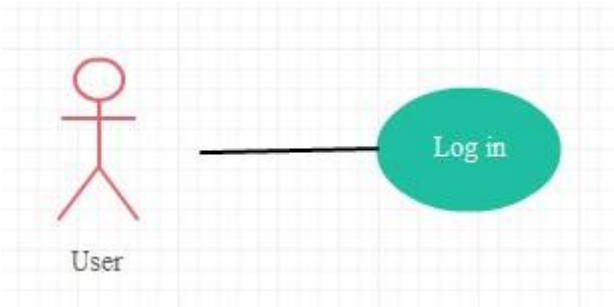


Fig 2.2 - Login UseCase

The User accesses the clientbyenteringhis userID andpassword.

Initial step-by-step description

1. The User enters hisuser type,user ID and password
2. He is able toview a 3-panehomepage windowwith one pane containing hisreport history anda buttontocreate a new report, andanother containing his appointments. The third pane contains anysuggestedtreatments from their healthcarepractitioners

2.2.2View reports

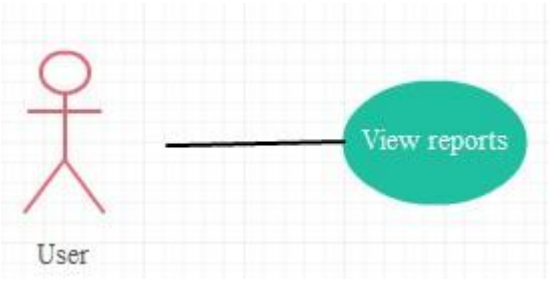


Fig 2.3 - View reports usecase

The User is able toview his pastreports.

Initial step-by-step description

Before this step hasbeeninitiated,theuser hasalready loaded the client and loggedin.

1. The User is shown a list of his pastreports in descendingchronological order.

2.2.3Submit Report

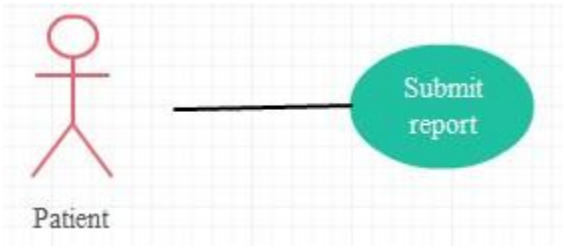


Fig.2.4 - Submitreportusecase

The patientsubmits a report of theircurrentsymptoms andseverityfor use byhealthcare practitioners.

Initial step-by-step description:

Before this step hasbeeninitiated,thepatienthas alreadyloadedthe clientand logged in.

1. the patientselects the symptomsthatthey arecurrentlyexperiencing
2. the patientrates theseverity of those symptoms
3. if the situation is severe,the patient is advisedtoseek emergencycare
4. the patientchooses torequest anappointment, sending anautomated email tothe Receptionist anddoctor

2.2.4Viewappointments

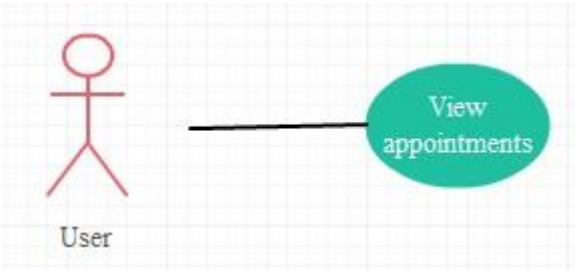


Fig 2.5 - View appointmentsusecase

The patientviews their pastandupcoming appointments.

Initial step-by-step description:

Before this step hasbeeninitiated,thepatienthas alreadyloadedthe clientand logged in.

1. the patientis shown a list of appointments in descending order, with upcoming appointments highlightedatthe top

2.2.5Suggest care

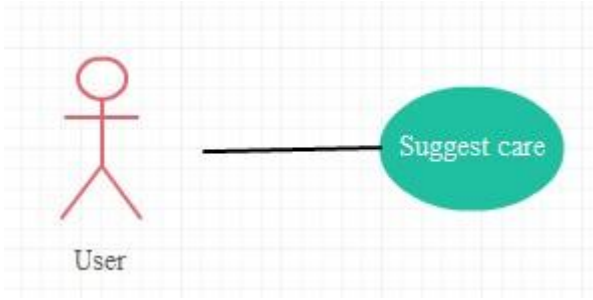


Fig.2.4 - SuggestCaseUseCase

The Authorized user suggests carefor the patient'ssymptoms.

Initial step-by-step description:

Before this step hasbeeninitiated,theuser mustbe viewing apatient'srecord.

1. The User maywrite a note tothe patientsuggesting care(ie ice, rest, schedule an appointment)
2. The User maycheck a box tosubmit anappointmentrequesttothe receptionistfor the patient

2.2.6Newappointment

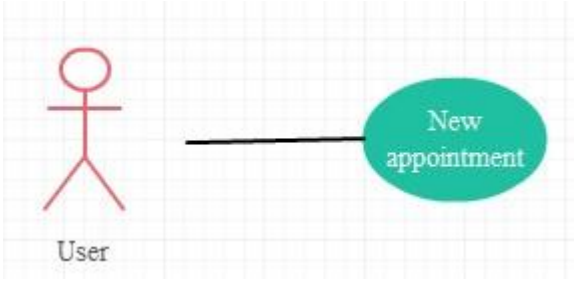


Fig.2.7 - New Appointmentusecase

The authorized User can schedules anappointment.

Initial step-by-step description:

Before this step hasbeeninitiated,thereceptionisthasalreadyloadedthe clientandlogged in.

1. The user selects'schedule new appointment'from their homepage
2. The user enters hisname,ID, time anda date or foradifferentpatientwithproper Authorizationtovisittheir doctor. This mustbe more than 15 minutes after anyexisting appointmentforthatdoctor
3. The User submits thenewappointment and it is addedtothe schedule
4. anyexisting appointmentrequestfor thatpatientis marked fulfilled

2.2.7Modifyappointment

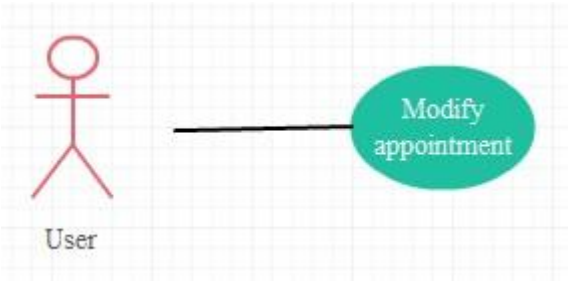


Fig.2.8 - Modify Appointmentusecase

The User modifies anexisting appointmentfor a patient.

Initial step-by-step description:

Before this step hasbeeninitiated,thereceptionisthasalreadyloadedthe clientandlogged in.

1. The User selectsan appointmentfrom thelist
2. The User maymodifythe time or dateofthe visit
3. The User may cancel the appointment altogether
4. The User submits all changes.

Functionalities as per users

So summarizing the use cases as per the users as follows

Functionality	Patient	Health Care Professional
Login	Yes	Yes
View Reports	Yes	Yes
Submit Symptom Report	Yes	No
New Appointment	No	Yes
Modify Appointment	No	Yes
View Appointments	Yes	Yes
Suggest Care	No	Yes

2.3 Usercharacteristics

The doctor, nurse, receptionist, andpatient areexpectedtobe able tofill outforms ona computer. All are expected tobe familiar withbasicUIfeatures likedropdownmenus, checkboxes, andform submissions.

2.4 Non-functional requirements

The user softwarewill run asanapplicationor applet onuserdevices.

The SQLdatabasemustbe hosted onaserverwith high-speedinternetin order tosynchronize efficiently.

The Application will provide best results With JDK (8.0 or more) in a resolution of 640X480 or more With more than 512 Mb Heap Memory.

The User can install the Application using the installer Provided.

3.0. Requirements Specification

3.1 ExternalInterfaceSpecification

We arenotusing anyexternal interface atthis moment.If we decideto addanyexternal interface atalater stage of software developmentwe will add ittothedocuments.

3.2 FunctionalRequirements

3.2.1User Login

UseCase Name	User Login
Xref	Section 2.2.1
Trigger	Theuser a **health careprofessional or anpatient**wants to Login
Precondition	Theuser hasvalid username andpassword.
Basic Path	1.User Navigates tothe loginpage. 2.SelectsHealth careprofessional or patientfrom user type. 3.User enters username andpassword. 4.User clicks onsubmitbutton. 5.User navigates tohis homepage
Alternate Path	There are no alternate paths available.
PostCondition	If User has entered Wrong password more than thrice his session is locked.
ExceptionPath	Gets an invalidcredentials errorfor improper credentials If user Enters wrong password more than 3 times his session is locked
Others	The passwords are protected in Db using Hash function.

3.2.2Submit Report

UseCase Name	SubmitReport
Xref	Section 2.2.3
Trigger	**Patient**clicks a link ona homepage(SubmitReport)
Precondition	ThePatientis able tologin
Basic Path	1. User Logs intohis home page. 2. User Clicks onSubmitReportButton. 3. User Describes his conditions 4. User rates his symptomson a scale of 1 to10. 5. User clicks submitbutton. 6. System prompts the User tomake anappointment basedhis symptoms.
Alternate Path	There are no alternate paths available.
PostCondition	Patientis able tosubmithis form
ExceptionPath	If patientdoesn’trate anyof the symptomhe getsan error prompt
Other	NA

3.2.3View Reports

UseCase Name	View Reports
Xref	Section 2.2.2
Trigger	Health care professional or Patient clicks views reporthistory onhomepage.
Precondition	Theuser is able tologin
Basic Path	1. User Logs intohis home page. 2. User views reporthistory of himself if apatient, orhis patients if ahealthcarepractitioner.

	3. User hastheoptiontointeractwithpastreportsin Differentwaysdepending on his userprofile.
Alternate Path	There are no alternate paths available.
PostCondition	There are no post condition available.
ExceptionPath	There is no reports
Other	NA

3.2.4ViewAppointments

UseCase Name	View Appointments
Xref	Section 2.2.4
Trigger	Heath Care Personal or Patient LogsintohisHomepage.
Precondition	ThePatienthasatleast one scheduled Appointments
Basic Path	1. User Logs intohis home page. 2. HisAppointments are displayedon chronological order 3. TheAppointmentDate, Time, doctorandhospital are shown in atable.
Alternate Path	1.User Makes anewAppointment. 2.After Successful creationallthe appointments areshown.
PostCondition	Useris abletosubmithis form
ExceptionPath	Gets an error you have no appointments if he has no appointments
Other	NA

3.2.5NewAppointment

UseCase Name	New Appointment
Xref	Section 2.2.6

Trigger	Health care professonalLogs intohis Homepage.
Precondition	Theuser hasauthorization tocreate an appointment andis able tologin.
Basic Path	1. TheReceptionistselects'schedule new appointment' from their homepage 2. TheReceptionistselectsapatient aswell as a time and a date forthepatienttovisittheir doctor. This must be more than 15 minutes after anyexisting appointmentfor thatdoctor 3. TheReceptionistsubmitsthenew appointment and it is added tothe schedule 4. Anyexisting appointmentrequestforthatpatient is marked fulfilled
Alternate Path	NA
PostCondition	Receptionistis successful in submittingthe Request.
ExceptionPath	NA
Other	NA

3.2.6ModifyAppointment

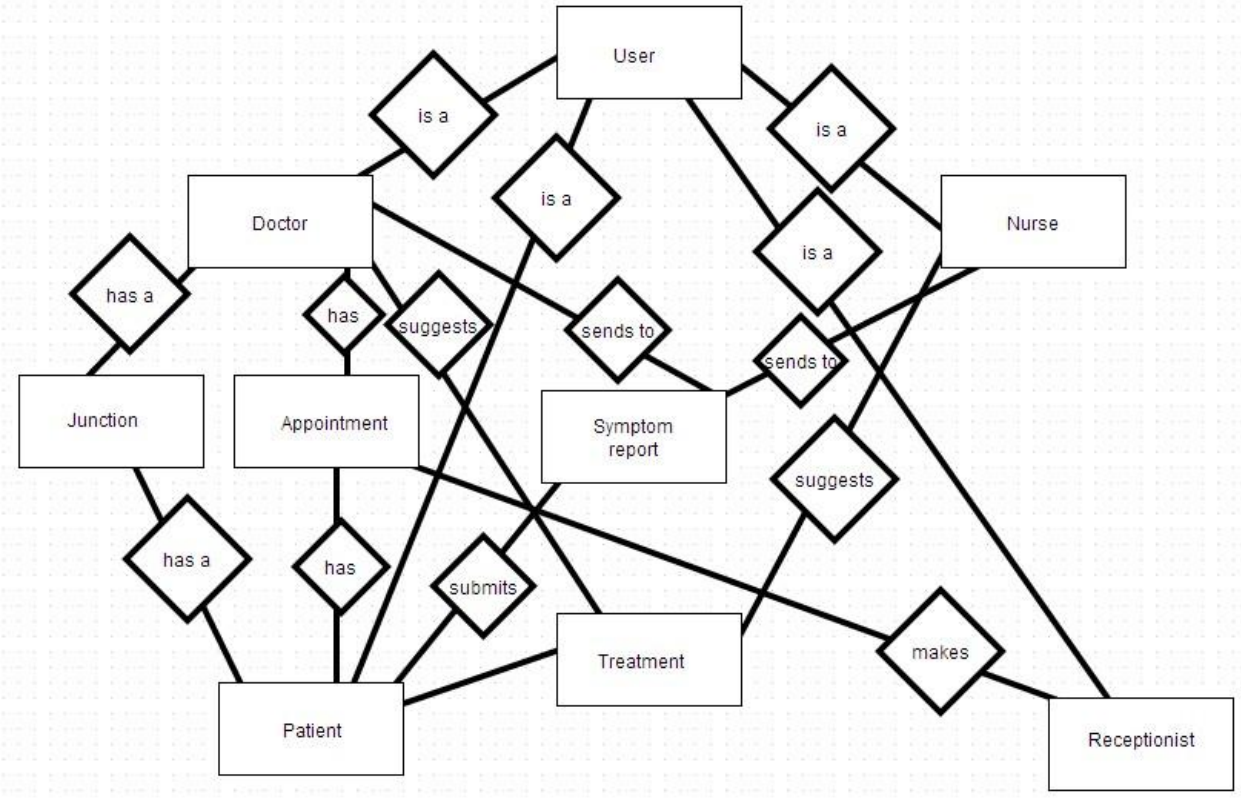
UseCase Name	Modify Appointment
Xref	Section 2.2.7
Trigger	The Health care professionalLogs intotheir Homepage.
Precondition	ThePatienthasatleast one scheduled Appointments
Basic Path	1. Thereceptionistselects anappointment fromthe list. 2. the receptionistmaymodifythe time or dateofthe visit 3. the receptionistmay cancel the appointment altogether 4. the receptionistsubmits all changes

Alternate Path	NA
PostCondition	Receptionistis successful in submittingthe Request.
ExceptionPath	NA
Other	NA

3.2.7Suggest Care

UseCase Name	SuggestCare
Xref	Section 2.2.5
Trigger	Health care userLogs intotheir Homepage.
Precondition	TheUser is able tologintotheSystem.
Basic Path	1. TheUser maywrite anote tothe patientsuggesting care(ie ice, rest, schedule anappointment) 2. TheUser maycheck a box tosubmit anappointment requesttothe receptionistfor the patient
Alternate Path	TheUser canclick onSubmittedreportandwritecare.
PostCondition	TheUser is able toCompletethe session successfully.
ExceptionPath	
Other	

3.3 - Logicalstructureof the data



User dataentity

DataItem	Type	Description	Comment
Username	Text	Firstletter of firsttime and lastname, plus a number ifneeded	Primarykey- unique
Password	Text	Theuser'spassword	Hashed
LastName	Text	Theuser'slastname	
FirstName	Text	Theuser'sfirstname	
Email	Text	Theuser'semail	
Phonenumber	Int	Theuser'sphone number	

Type	Text	Thetype of user	Patient,Doctor, Receptionist, Nurse

Symptom report dataentity

DataItem	Type	Description	Comment
Primarykey	Int	For indexing	Nofunctional use
Symptoms	Text	Alist of symptoms beingexperienced	Symptomsseparated by commas
Severity	Text	Alist of the severityof thosesymptoms	Intsseparatedby commas
Score	Int	Used for determining whether to recommend anER visit.	
Date	Datetime	Thetime anddate of the reportsubmission	

Patient-Doctor Junctiondata entity

DataItem	Type	Description	Comment
Primarykey	Int	For indexing	Nofunctional use
Patient	Text	Thepatient	Correspondsto patientusername
Doctor	Text	Thedoctor	Correspondstodoctor username

Appointment dataentity

DataItem	Type	Description	Comment
Primarykey	Int	For indexing	Nofunctional use
Patient	Text	Thepatient	Correspondstoa patientusername
Doctor	Text	Thedoctor	Correspondstoa doctorusername
Date andtime	Datetime	Thedate andtime of the appointment	
Date made	Datetime	Thedate andtime the appointmentwas made	

Suggestedtreatmentdata entity

DataItem	Type	Description	Comment
Primarykey	Int	For indexing	Nofunctional use
Patient	Text	Thepatientfor whom the treatment is suggested	Correspondstoa patientusername
Symptomreport	Int	Thesymptom report the suggestionis in response to	Correspondsto primarykey of a symptom report
Date	Datetime	Thedate andtime the suggestionwas made	
Recommendation	Text	Thedoctor or nurse's recommendedcourse of actionfor the patient	

3.3.2Security

The central database is storedon a securedserver ator leased bythe healthcarefacility. The server will haveitsown securitytopreventunauthorizedaccess of anytype.

The software will runon individuals' computers, andthus will useahashedpasswordtoprotect the confidential information accessed.Differentuser profile types will have differentlevels of read, write, anddelete accesstothe server data.