CREST CARE HOSPITAL MANAGEMENT SYSTEM

1. Project Vision Document : Manusha Anjaana Liyanage
2. Initial Requirement Model : Manusha Anjaana Liyanage
3. Proposed Architecture : Prabashi Mithma
4. Project Initial Plan : Prabashi Mithma
5. Master plan : Theekshana Ravinath
6. Risk List : Theekshana Ravinath
7. Technical Competency Demonstrator : Kushal Regmi
8. Inception Phase Project Status Assessment : Kushal Regmi

Hospital Management System
Vision

1. Introduction

As a team we hope to build up a system which mostly important in the real world when working with patients and hospitals. Our main thought is to build a hospital Management System to enrich the quality of the service carried out by the doctors and nurses toward the patient.

The main goal of this project is, use the new online system instead of the old legacy system used by the Hospitals to treat the patients. However we identify our stakeholders as the Patient, Doctor, Nurse and instead of that we are going to count the details about the Staff members including the nurses, details of the wards, details of the rooms, Handling of appointments, Handling all the schedules of the operating rooms, Payment details, medical reports and lastly the system would handle all the invoices.

Any way this computerized system would be really speed when considering to the old legacy system. All the functionalities and the explanation about the system would be done below in this document.

2. Positioning

2.1 Problem Statement

The problem of	The problem with the old legacy system. Very difficult to retrieve, find and process information The generated information from various transactions takes time and effort to be stored at right place Specific details of the information such as patient details or child's immunization details are difficult to make because it requires paperwork. Preparing reliable and timely reports. This is a daunting activity as information from various registers is difficult to obtain. Manual calculations are prone to error and this can lead to accurate information taking a lot of time.
Affects	Patients, Doctors, Staff members
the impact of which is	The accuracy of the details of on-going old legacy system is doubtful and it takes more time to decide as it needs to check with different registers. The payments would be wrong as all these functionalities are handled by a human being.
a successful solution would be	The successful solution is the Online web-based Hotel management system which facilitates the patients, doctors, and the staff members to have a reliable service. This allows the management to maintain the patients easily and help to provide prescriptions, precautions, and other advices. Except this it maintains the level of users.

2.2 Product Position Statement

For	Patient
Who	Hospital
The (product name)	The hospital management system
That	Good solution for the past legacy system. Easily recognize the needed information and generate the needed outputs. Maintain different types of user levels. Manage all the functionalities inside the hospital to make the system convenient and reliable. Easy to handle Maintain all the billings, prescriptions etc.

3. Stakeholder Descriptions

3.1 Stakeholder Summary

Name	Description	Responsibilities
Project Manager	The person who manages the project	Organizing and motivating the project team Resource planning Time management Cost estimating and developing the budget Ensuring the customer satisfaction Analyzing and managing the project risk Monitoring the progress Producing the reports and necessary documentation
Business Analyst	The person who analyses a business domain	Planning and monitoring the project Eliciting the requirements Organization of the requirements Translating and simplifying the requirements Requirement analysis
Software Engineer	The person who design, develop, maintain and evaluate the system	Developing and directing the software system Improve the system quality and resolving the issues. Identifying the opportunities for improvement Maintain and improve the code
Software Analyst	The person who study about the software domain and prepare software requirement document	Maintain and manage all the system Interfere with the end users Resolve the complex issues Analyze and develop the testing

Name	Description	Responsibilities
		Develop the modifications and the changes needed.
Administrator	The person who control the system in the hospital	Register patient, staff, room, ward, Operating room, payments, appointments, admission, medical report Update patient, staff, room, ward, Operating room, payments, appointments, admission, medical report Search the details of patient, staff, room, ward, Operating room, payments, appointments, admission, medical report Delete patient, staff, room, ward, Operating room, payments, appointments, admission, medical report
Front Officer	The person who handles the system without the staff handling	Register patient, room, ward, Operating room, payments, appointments, admission, medical report Update patient, room, ward, Operating room, payments, appointments, admission, medical report Search the details of patient, room, ward, Operating room, payments, appointments, admission, medical report Delete patient, room, ward, Operating room, payments, appointments, admission, medical report
Patient	The person who get the service from the system	Register to the system. Update the necessary details when needed. Making the appointment Settle down the payments
Doctor	The person who treat the patient	Update the patient details. Add the medical reports and update and delete them Search the medical reports

3.2 User Environment

This is a web-based application that uses the web browsers as clients. And this includes

- © Display reports in Graphical Form
- © Provide product information online
- © Provide task information for workers on site via mobile devices
- © Allow remote works to enter job completion and get sign off on site

© Order Goods with Online Catalogue, easy searching allows customer to keep track of orders and budgets

4. Product Overview

4.1 Needs and Features

Need	Priority	Features	Planned Release
Add the details of the patients	1	Using a database to add the details of the patients.	20/04/2020
Search the details of the patients easily	2	Using the search bar, it can easily search the details of the patient.	25/04/2020
Update the content of a patient	3	Use the feature of the update to make any changes of the patient details.	04/05/2020
Delete the patient details	4	Under a given circumstance if the patient is not necessary to the database, there is a feature which can make the data removed	06/05/2020
Register a new staff member to the company	8	Use the register member option in the system to add the member details.	23/05/2020
Search the details of the staff member to make a change to his address (update and search)	9	Use the search bar given to the staff member and change the given address of the staff member to the new address and save it properly	25/05/2020
Delete the details of the staff member	10	Use the delete option which available for the staff member to delete the data of the staff member when needed.	03/06/2020
A new building was made and need to add the details of the building and need to add the count of operating rooms that have and need to update the details of the current rooms and wards available	12	Still in the system we have an option named the Operating rooms and the rooms and the ward. So then from those options you can add all the details of the new buildings and the changes done to the current buildings could be included.	04/06/2020
The patient needs to make the payment	7	The front person can log in to the system and he has a option to pay the bill. Then he can ask the details of the patient while taking his patient ID to find all the necessary details input to the system to finalize the bill.	19/05/2020
The front person has mistakenly inputted the persons bill. So, he needs to re do the payment by deleting the followed bill and need to update the relevant field	11	This can be done by the Payment option and this make the front person to edit the details of the patient and remake the mistake by deleting the wrong payment details.	03/06/2020
A new patient needs to make an appointment and he need to change the appointment made his mother and once the same time he needs to delete the appointment made for his father as he was passed away.	6	This can be done using the appointment register. At the same time, the user can add his patient details, update the mother’s details and delete the father’s details.	15/05/2020
Doctor need to search for a specific report of a patient, and he need to update the details of the patient.	5	Doctor can able to use the medical report section to handle all the tasks like delete update, add and search.	09/05/2020

5. Other Product Requirements

Requirement	Priority	Planned Release
Security	4	05/06/2020
Audit	5	07/06/2020
Performance	3	06/06/2020
Capacity	10	15/06/2020
Availability	2	06/06/2020
Reliability	6	10/06/2020
Integrity	9	13/06/2020
Recovery	11	14/06/2020
Compatibility	7	10/06/2020
Maintainability	8	10/06/2020
Usability	1	06/06/2020
Documentation	12	15/06/2020

Hospital Management System

Short Use Case Descriptions

1. Use Case 1

When Front Officer
Wants to add patient they need to enter to the system first and he need to choose the option add patient
So that he can add the details of the patient to the system

2. Use Case 2

When Front Officer
Wants to search the details of the patient and update his name as R.Devin in place of K.Devin so they first log in to the system and go to patient details section and he would search the K.Devin and by clicking the update details , he is able to update the name
So that Front Officer can update his details and search the details he needed.

3. Use Case 3

When admin
Wants to delete the details of a patient they must go to the option of delete patient details and then he needs to choose the needed patient to be deleted and then need to delete it.
So that admin would be able to delete the patient details.

4. Use Case 4

When admin
Wants to add the new room is which newly built
they log to the system and go to the option register the room and add the details ask and make save it
So that Add a new room to the system

5. Use Case 5

When front officer
Wants to search for a room which has entered before and he need to update the room number they search the room by the search tab, and he update the details from the buttons given
So that he can search and update the details of the rooms

6. Use Case 6

When admin
Wants to remove an old room they need to log to the system and go to the option delete room and delete the need room from the system
So that he can remove/ delete the room

7. Use Case 7

When Patient
Wants to make a payment they log to the system and do the payment from their specific logins
So that then they can make a payment

8. Use Case 8

When Admin
Wants to Register a staff member they log to the system and from the staff adding option he can add the details of the new staff member
So that he can add new staff member to the system

9. Use Case 9

When Doctor
Wants to Add medical report they need to log in to the system and add the medical report to the specific patient needed.
So that they can add a new medical report to the system.

10. Use Case 10

When the doctor
Wants to delete the medical report of a patient they need to search the specific patient and delete that
So that he can remove that patient from the system.

11. Use Case 11

When the admin
Wants to search for the appointment details they need to log to the system first and go to the appointment section and he need to use the search bar to find the details
So that he can find the necessary details of the patient.

12. Use Case 10

When the patient

Wants to place an appointment they need to log from their logins and need to make an appointment from the appointment bar
So that he makes an appointment

13. Use Case 10

When the doctor
Wants to search the medical report of a patient they need to search the specific patient from the search bar given in the system
So that he can search the patient from the system.

Descriptive Use Case

Title	Add patient to the system
Actor	Front officer
Normal Flow	1. Log in to the system 2. Go to the patient management 3. Select add patient 4. Add the details of the patient 5. Save the details
Pre-condition	New patient is available
Post Condition	Check the patient is added to the system by searching the patient name.

Title	Update medical report
Actor	Doctor
Normal Flow	1. Log in to the system 2. Go to the Medical report 3. Search the medical report no to find the report 4. Select field to be updated 5. Make the change to the data 6. Save the details
Pre-condition	Mistake in the medical report/ New details need to be added to the report
Post Condition	Check the report is changed by searching the medical report ide

Title	Register the details of the staff member
Actor	Admin
Normal Flow	1. Log in to the system 2. Go to the staff management 3. Select add staff member 4. Add the details of the staff member 5. Save the details
Pre-condition	New staff member is joined to the company
Post Condition	Check the staff member is added to the system by searching the staff member name

Title	Search the medical report
Actor	Doctor
Normal Flow	1. Log in to the system 2. Go to the medical report management 3. Search the medical report id
Pre-condition	Medical report needed to be searched

Post Condition	Able to find the medical report

Title	Delete the operating room
Actor	Admin
Normal Flow	1. Log in to the system 2. Go to the operating room management 3. Search the room no 4. Delete the room from the delete button 5. Save the details
Pre-condition	The operating room is no more available
Post Condition	Check the operating room is gone by searching it id again.

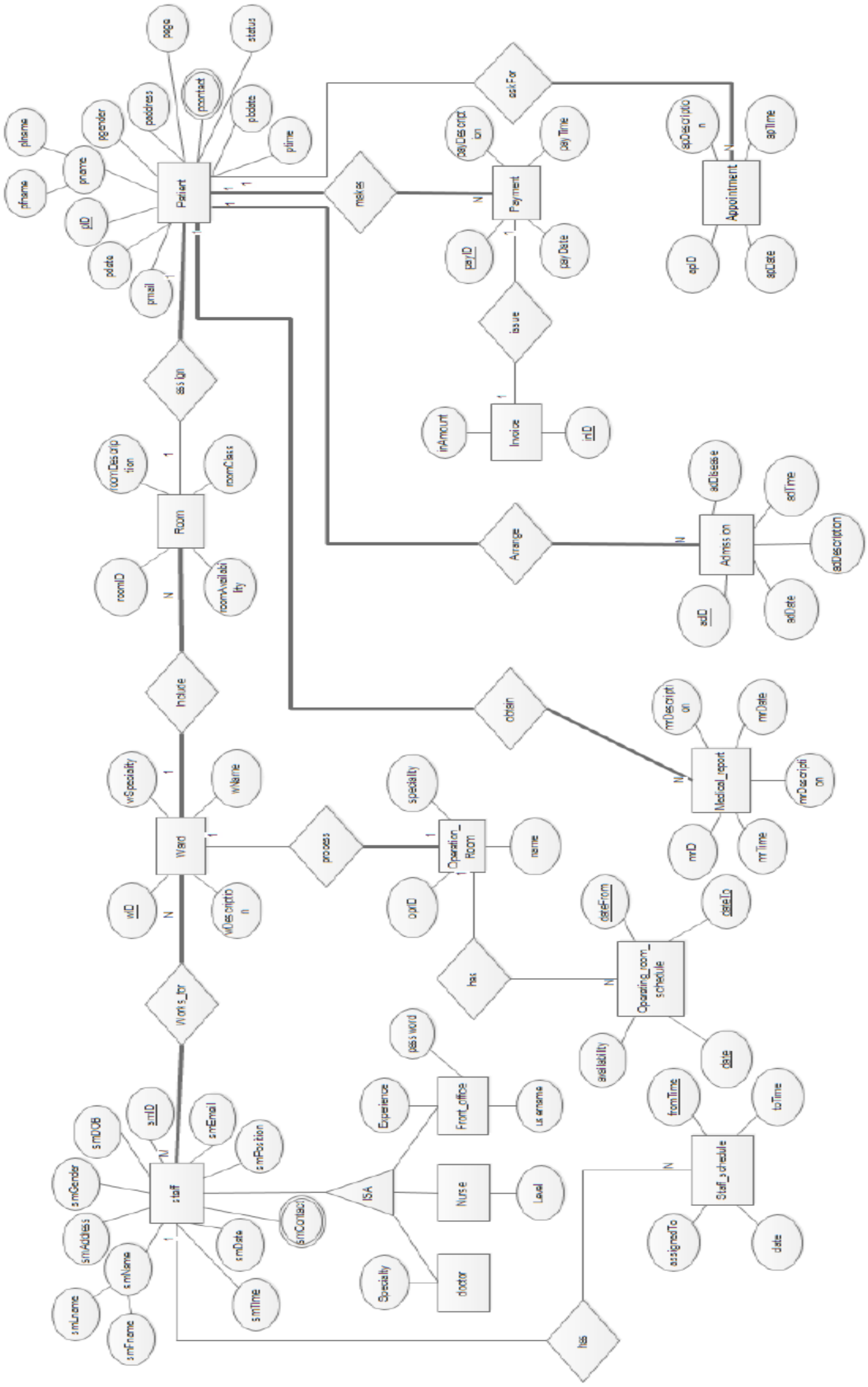
Title	Make the payment
Actor	Patient
Normal Flow	1. Log in to the system(patient) 2. Go to the payment due 3. Mark the amount to be going to paid 4. Select the card/visa 5. Make the payment
Pre-condition	When a payment is due
Post Condition	Download the receipt

Title	Search an appointment
Actor	Front Officer
Normal Flow	1. Log in to the system 2. Go to the appointment management 3. Search the appointment id
Pre-condition	Need of finding a specific appointment
Post Condition	Appointment is available / may be not

Title	Place an appointment
Actor	Patient
Normal Flow	1. Log in to the system(patient) 2. Go to appointment 3. Select the appointment type 4. Give the details need for the appointment 5. Make the appointment
Pre-condition	Need of making an appointment
Post Condition	Verification of Appointment is made

Use Case Diagram

ER Diagram


Patient
pname
pfname
plname
pID
pdate
pmail
pgender
paddress
pcontact
page
status
pbdate
ptime
makes
askFor
Payment
payDescription
payTime
payID
payDate
issue
Invoice
inAmount
inID
Appointment
apDescription
apTime
apID
apDate
assign
Room
roomDescription
roomClass
roomID
roomAvailability
Arrange
Admission
adDisease
adTime
adDescription
adID
adDate
include
obtain
Medical_report
mrDescription
mrDate
mrID
mrTime
Ward
wSpeciality
wName
wID
wDescription
process
Operation_Room
speciality
name
oprID
has
Operating_room_schedule
dateFrom
dateTo
availability
date
Works_for
staff
smID
smDOB
smEmail
smPosition
smGender
smAddress
smName
smLname
smFname
smContact
smDate
smTime
ISA
Front_office
password
Experience
username
Nurse
Level
doctor
Specialty
Staff_schedule
fromTime
toTime
assignedTo
date
has

ABC HOSPITAL MANAGEMENT
Architecture Notebook

1. Purpose

This document describes the philosophy, decisions, constraints, justifications, significant elements, and any other overarching aspects of the ABC Hospital System that shape the design and implementation.

2. Architectural goals and philosophy

The primary objectives of this computer system are to be developed and implemented with usability and availability, not just for patients, but also for physicians and nurses, which could include those who are not technologically comfortable.

In order to achieve this high degree of usability and availability, there are not only specific hardware devices to be used but also variants of the standard user interface to fulfil the device's intended purpose.
For example, the self-service kiosk station is only required to allow patient to fill details like name, age, address, birthdate etc. Therefore, a touchscreen with minimal selection options should be adopted.
however, the administrator counter system must have full access allowing for the count the details about the Staff members including the nurses, details of the wards, details of the rooms, Handling of appointments, Handling all the schedules of the operating rooms, Payment details, medical reports and lastly the system would handle all the invoices.

Adding to user interface optimization, the performance of each device often depends on its features. The online catalogue should be accessible on a website 24/7, for example, and Hospital staff should be able to access the program easily during or after working hours. This computer system also needs to concentrate on data traceability through the incorporation of audit features. It will ensure that the position of the valuable objects in the Hospital is still known, including who took part in particular transactions i.e. Assign doctor to one patient

In addition, the management of member's fines will also be traceable, which in turn will reduce the Hospital s costs and liability. To further support the system's auditing capabilities, security / user authentication must be included as a feature.

To reduce the effect on device usability, only user management should be the priority of the security features. This means that unique device functionality is made accessible only to approved users (Hospital staff).

Furthermore, as personal information of member is being collected and stored, adequate protection must be in place to secure this information. Finally, the program must be effective, with the goal of ensuring availability to all users during working hours.

This will ensure Library's enhanced performance is preserved and will impact on system accessibility and availability.

3. Assumptions and dependencies

- The system is extremely dependent on the intended hardware devices (barcode scanners, swipe card readers, etc.) and a database for data management.
- Additionally, internet access is also essential to the website's publication (online catalogue).
- The library system is assumed to have access to a database for data management criteria (patient's details, details of the wards, details of the rooms, Handling of appointments).
- It is also assumed that the council permits the publishing of a website.

4. Architecturally significant requirements

- Interfaces have to customized for the specific purpose and system must be easy to members. Self-serving kiosk station allows for creating or checking Handling of appointments, handling all the schedules of the operating rooms the system design primarily designed for schedule work with staff.
- The system must be available at the Hospital during business hours. An unscheduled downtime frequency of 2 - 3 times are year is acceptable and the system should be back up within 5 - 10 mins.
- Maintenance of 1 - 2 hours a week is acceptable, after business hours.
- An online catalogue must be available to users 24/7. In event of a system crash out of hours, it is acceptable for a "fix during working hours" response to be displayed to users.
- The system must be able to manage the data relating to count the details about the Staff members including the nurses, details of the wards, details of the rooms, Handling of appointments, Handling all the schedules of the operating rooms, Payment details, medical reports and lastly the system would handle all the invoices.
- The transactions / changes to the data relating to appointments, patients and payment must be tracked to ensure the maintain the schedule of patients is known at all times.
- Authentication of the users is required so that only authorized personnel can access restricted data and perform restricted transactions (discharge patient, take payment of outstanding fines). All staff members personnel are required to have a login and password to allow unrestricted access.

- The personnel information regarding member's must be protected as per the governing privacy policy.

- An inactive user time-out (30 secs) should be implemented to provide security to the previous user and system data.

- During data entry, it must be ensured that all the required data is entered, no duplicate data entries are made and that the format of the data is correct.

- Any electronic interface failures, or user cancellations, must be handled so that the system reverts to the previous valid state

- The system, including all staff details, member and appointments, must be able to be restored from backups. The transactional, staff members and appointments is to be backed up daily, while the system code is only required to be backed-up upon changes.

- Receipts of transactions for members must be printed, along with barcodes and stickers for patients and general paper-based reports.

5. Decisions, constraints, and justifications

- Optimize usability of the system and customized user interface for each of the intended devices.

- Using an application server independently from the rest of the applications to manage these personalized user interfaces.

- Constraint - Members data are to be obtained by using a swipe card reader, but a search can be conducted at the librarian's station in the event of missing membership card.

- Receipts are to be printed for patient transactions, Optional search at the kiosk station can be performed in case of missing barcode or member card.

- A touch screen interface is to be used for the kiosk station to increase usability

- The devices must be linked to a central server location in the hospital through local networking ports.

- Online catalogue searches and 24/7 item bookings for improved accessibility and availability shall be available on the website.

- The patient, staff member and appointments information must be handled by a relational database server as it provides perseverance, availability, integrity and

security for the system. It's to stay separate from other software.

- All transactions are to be tracked and recorded using the relational database to ensure auditability of the system.
- A Domain server shall be used to authenticate / authorize users and to perform other system functions.
- The domain server shall enforce and preserve the protection of the members 'personal information in compliance with the applicable privacy policy / legislation.
- Network server shall limit maximum network access only to hospital / council employees.

6. Architectural Mechanisms

- Relational Database Server

A relational database is expected to be used to achieve consistency and automate the management of patients, staff members and appointments. Relational databases enable structured data storage which avoids undesirable complexity and increases system usability. Furthermore, relational databases not only guarantee the validity of the stored data but also allow the data to be stored.

- Domain Server (Authentication / Authorization)

A domain server authenticates and permits computers and users to reach Logical Domain (Hospital) services. A username and password are required for all users with full system access (patients and hospital staff). It ensures that only approved individuals are able to conduct restricted tasks such as adding / removing hospital objects from the list, discharging patients.

For remote access, the same login specifications will be required. In addition, the transactions performed by each authorized user can be monitored using the relational database by logging in to the program. User authentication shall be achieved using the swipe cards.

- Back Up

The generated data and the device software have to be stored on a backup. Though the cheapest and easiest alternative is to connect to another external server to back up to a removal hard drive. In the event of a disaster (fire, flood, etc.) in the Hospital, such as the council server provides the added security of off-site backups.

7. Key abstractions

- Patient - Register patient, Update patient details, Search patient details, and Delete patient
- Room - Register room, Update room details, Search room details, and Delete room
- Ward - Register ward, Update ward details, Search ward details, and Delete ward
- Operating room - Register operating room, Update operating room details, Search

operating

- room details, and Delete operating room
- Payment – make a payment, Update payment details, Search payment details, and Delete
- payment
- Appointment - place an appointment, Update appointment details, Search appointment
- details, and Delete appointment
- Admission - Register admission, Update admission details, Search admission details, and
- Delete admission
- Medical reports - add medical report, update medical report details, Search medical report

8. Layers or architectural framework

The ABC Hosptial Management system design is to reflect that of a three-tier architecture

• presentation tier (module) - which is responsible for the displaying the various user interfaces for the self-service kiosk station, the website and the Hospital station. This tier sends the results / inputs from the user to the application tier

• application tier - That is responsible for the programme logic, and ultimately governs the functionality of the application

• data tier - That is responsible for database storage and retrieval. This data is kept independent of the application servers.

HOSPITAL MANAGEMENT
Project Plan

1 Introduction

Throughout this project plan we are following procedure to achieve successful project, for that as the first step we create the project vision. we primarily spell out the core idea and the business case justify the development effort. We establish vision, establish initial use case model complete preliminary non-functional requirement analysis and identify/document candidate architectures. As the second step we create initial requirement model which identifies the scope of our intended software and the functional and non-functional requirements. Third we going to create initial requirement model which indicate how we achieve the functional and non-functional requirements. Furthermore, we are creating master plan which indicate how we intend to achieve our aim. Risk List is important to aware and avoid the issues. Technical competency demonstrator our proposed technology technical skills to achieve our goals and finally we are talking about inception phase project status assessment.

2 Project organization

Our team discussed to what sort of project we want to do, and we decided to work on Hospitality management. We are going to create online system for hospitality basically covering the functionality of the hospital.
Record of all the doctors, record of the patient and records of the nurses included in this system with Nurse registry patient registry, doctor registry. This system can be used by hospitals to hire doctors/nurses, to look at past medical history of patients. This system can be used by general people to find suitable doctors to channel accordingly. This project has the potential to be a revolution to the health and medical industry.

System project team members are

- H.K. Theekshana Ravinath
- Manusha Anjaana Liyanage
- Prabashi Mithma Gunawardana
- Kushal Regmi

In this project we all are collaborate equally to achieve this project goal successfully.

Task done by Theekshana

- A Risk List
- A Master Test Plan

Manusha’s assign tasks are

- A Project Vision
- An Initial Requirement Model

In this resource allocation project tasks done by Prabashi are

- An Initial Requirement Model
- An Initial Project Plan

Task done by Kushal

- A Technical Competency Demonstrator
- An Inception Phase Project Status Assessment

According to the guidance of the lecturer, we have decided to use “Asana “, in case of doing all the communication activities via the team members. Most of the documents have been uploaded to “Asana “, which makes every team member allow and access to the documents and updatable details.

Link to access: https://app.asana.com/0/1166585221404488/list

3 Project practices and measurements

There are some technical practices used in the project. Such as Scrum, Lean (LN), Crystal, DSDM, Adaptive software development and Agile unified process. That process is the main agile technical practice we used throughout this project. Agile unified process is an iterative and incremental process consisting of four subprocesses or workflows.

The components have been modified number of times to create number of variations. The unified process contains the rational unified process (RUP) and open unified process (Open UP). In our project Unified process is the main technical practices which we used. Technical practices such as Iterative development is a way of breaking down large project into smaller parts and complete it. By Iterative development software will be quicker and early during the software life cycle. Also, it’s more flexible.

Continuous Integration is a development practices and it requires developers to integrate code into shared repository several times. This method verified each method by automated build. And it allows team to detect problems early. Independent testing is an inferential statistical test that determines whether there is a statistically significant difference between the means in two unrelated groups. How we Track the process of the project are

First, we create Deadlines for each task so that we can track the progress of each and every task. In our project there are only two members. So, in our meeting we create project outline for track the project progress. Checked regularly: we checked the project progress regularly, our communication mechanism slacked helped us in this process to track the progress. Established goals and milestones Setting up tailored goals and milestones with each member of the team also goes a long way toward team satisfaction. It’s important to stress each team member’s role and how it will contribute to the success of the team. Keeping the big picture in mind is always important, even while implementing smaller goals and points
of progress.

4 Deployment

Software deployment brings many key advantages to enterprises. Tasks like installing, uninstalling and updating software applications on each computer are time consuming.

Software deployment services reduce the time and make the process error free. The software can be easily controlled and managed through deployment. You can also monitor software information and the actions of users.

Create a checklist / pipeline of things to do before and after delivery to ensure data protection. The process of continuous integration should be implemented to ensure that any change is checked for implementation before it is submitted and there are no other errors along the way. Similarly, adopt Continuous Delivery (CD).

Invest in standard operating environments (SOEs) that help ensure the consistency in the environment
Automate the build with tools that can simplify the process of tearing down an entire infrastructure stack and rebuild it from scratch.

Have a systematic process for creating alerts that can warn teams about the changes or notify about the issues in real-time.

5 Project milestones and objectives

Subject	Phase	Iteration	Dates	**Primary objectives** (risks and use case scenarios)
ITC303 – Software Development Project 1	Inception Phase	I-1	13/03 – 26/03	Establish Vision Establish Initial Use Case Model Complete Preliminary Non-functional Requirement Analysis Identify/Document Candidate Architectures Establish Version Control
		I-2	27/03 – 9/04	Establish Risk List Complete Full Description for Critical Core Risky Difficult (CCRD)Use Case Implement Technical Competency Demonstrator Create Test Plan Establish Initial Project Plan Deliver Life Cycle Objectives Milestone (LCOM) Complete Inception Phase Project Assessment
	Elaboration Phase	E-1	10/04 – 23/04 (Session Break)	Mitigate Highest Priority Risk(s) Implement Highest Priority Architectural Element(s) to Support CCRD Use Case Complete Development Testing for Highest Priority Architectural Element(s)
		E-2	24/4 – 7/05	Mitigate 2nd Highest Priority Risk(s) Implement 2nd Highest Priority Architectural Element(s) to Support CCRD Use Case Complete Development and Integration Testing for 2nd Highest Priority Architectural Element(s)
		E-3	8/05 – 21/05	Mitigate 3rd Highest Priority Risk(s) Implement 3rd Highest Priority Architectural Element(s) to Support CCRD Use Case Complete Development and Integration Testing for 3rd Highest Priority Architectural Element(s) Deploy Executable Architecture in Trial Environment Complete Internal User Acceptance Testing for CCRD Use Case in Trial Environment
		E-4	22/05 – 2/06	Contingency Deliver Life Cycle Architecture Milestone (LCAM) Complete Elaboration Phase Project Assessment
Mid-year Semester Break				

HOSPITAL MANAGEMENT SYSTEM

MASTER TEST PLAN

Mid-year Semester Break				
ITC309 – Software Development Project 2	Construction Phase	C-1	10/07 – 23/07	Implement 2nd Highest Priority Use Case(s) Complete Development and Integration Testing for 2nd Highest Priority Use Case(s) Complete Internal User Acceptance Testing for 2nd Highest Priority Use Case(s)
		C-2	24/07 – 6/08	Implement 3rd Highest Priority Use Case(s) Complete Development and Integration Testing for 3rd Highest Priority Use Case(s) Complete Internal User Acceptance Testing for 3rd Highest Priority Use Case(s)
		C-3	7/0 – 20/08	Implement 4th Highest Priority Use Case(s) Complete Development and Integration Testing for 4th Highest Priority Use Case(s) Complete Internal User Acceptance Testing for 4th Highest Priority Use Case(s)
		C-4	21/08 – 3/09 (Session Break)	Contingency Deliver Initial Operation Capability Milestone (IOCM) Complete Construction Phase Project Assessment
	Transition Phase	T-1	4/09 – 17/09	Deploy Application in Trial Environment Complete 1st Round External User Acceptance Testing Resolve Any Identified Issues
		T-2	18/09 – 1/10	Complete 2nd Round External User Acceptance Testing Resolve Any Identified Issues
		T-3	2/10 – 13/10	Contingency Deliver Product Release Milestone (PRM) Complete Final Project Assessment

VERSION INFORMATION

Version	Date	Remarks	Author
0.0.1	10.04.2020	None	Theekshana

DISTRIBUTION LIST

Name	Company/Function

APPROVAL CLIENT

Client:	Crest care hospital	Signature
Name	John martin	
Division	IT support	
Department	IT department	
Function	Approval of final design	
Location	482 High St Rd, Mount Waverley VIC 3149	
Telephone	(03) 9887 8239	
E-Mail address	Crestcare@cch.com.au	Date: 10.04.2020

MANAGEMENT SUMMARY

Project objective
Main objective of the project is to design and develop a management system for Crest care hospital in order to manage all the essential activities switching the current manual data handling process into a web based application to increase the accuracy, efficiency, and the security of data.

Test objective and assignment
To develop and deliver fully functional error free final software solution for the customer to meet their requirement

Short description of the test approach
Frequently meetings and times limits are being conducted in test approach

---

Results to be realized

Result	*Document*	*Delivery date* 9-30-2020
• Successfully build and executed test	• ST Test report	
• Successfully executed and completed UA test	• UAT Test report	09-30-2020
• Complete all areas of the test	• End report Testing	09-30-2020

Qualitative objectives
At the end all the test levels need to be successfully completed within the time and all system objects need to be clear meeting the acceptance criteria

Estimate

Test process risks and measures

Test process risks	*Measures to be taken*
• management of time	• allocate reasonable time
• Error free solution	• Each object must go through the double check

Go/no-go decisions

< Example: After each test level the test manager makes sure that a test report is drawn up. This report will, after review with the project manager, be presented to the key stakeholders, who then decide if it is possible to go to the next test level.
At the end of the test project a test end report will be drawn up, containing a risk based assessment of the test object. Based on this end report the key stakeholders make the final decision to go to production or not. >

TABLE OF CONTENTS

1 Introduction

1.1 Project and project objective

This master test plan fits to the project plan of Crest care hospital management system. The objective of the project is to design and develop a well structures management system for Crest care hospital to convert all their manual activities into computerized.

1.2 Objective of the master test plan

The objective of the Master Test Plan (MTP) is to inform all who are involved in the test process about the approach, the activities, including the mutual relations and dependencies, and the (end) products to be delivered for the test project <project name>.
The master test plan describes this approach, the activities and (end) products that need further elaboration in the other system test plans. These system test plans need to be abstracted from this master test plan.

1.3 Involved in creating the master test plan

Name	Function	Responsibility
THEEKSHANA	Design MTP	<Write MTP>
Manusha	Review and feedback	<Review MTP>
Prabhashi	Approve and feedback	<Approve MTP>

2 Assignment formulation

2.1 Client

Crest care hospital

2.2 Supplier

H.K. Theekshana Ravinath

2.3 Assignment

Fully functional error free final software solution satisfying all the areas of requirement

2.4 Scope

2.4.1 Within scope

According to the project scope, Crest care hospital management system will be designed to satisfy all the essential requirement of the client from patient registration until make invoices. To develop the system must have to consider about the feasibility of the project and the budgets estimated. As minimum needs to be covered in the testing part are listed below.

- Hospital management system
- 0.0.1 version of the software
- All essential functionalities
- UI functionalities and database functionalities
- User friendliness of user interfaces

2.4.2 Out of scope

The following areas will not be covered in the testing process as they are out of the scope

- Test activities which are executed by others
- Upgrading of hardware requirement to fit the system
- Future upgradation of the project

2.5 Preconditions and assumptions

Preconditions concern conditions that third parties like the client, the project or the users, impose to the test process and within which the test process must operate (definition TMap® Next). The following demands are enforced:

- Test of the project must be done before 30/10/2020
- Master test plan need to be obtained along with the project initiation

Assumptions are external circumstances or events that must occur to ensure the test process' success, but that cannot be controlled by the test process. In other words, these are the requirements of the test process vis-à-vis others (definition TMap® Next).

2.6 Acceptant and acceptance criteria

2.6.1 Acceptant

The table below states the acceptant of <system>:

Name	Function	Department

2.6.2 Acceptation criteria

The table below states which acceptance criteria there are for <system> and to which standard they should apply:

Description	Standard

3 DocumentatiON

This chapter describes the documentation used in relation with the master test plan. The described documentation concerns a first inventory and will be elaborated, actualized and detailed at a later stage, during the separate test levels.

3.1 Basis for the master test plan

The following documents are used as basis for this master test plan.

Document name	Version	Date	Author
Test_case.docx	0.0.1	10.04.2020	theekshana
Test_script.docx	0.0.1	10.04.2020	theekshana
Test_steps.docx	0.0.1	10.04.2020	theekshana

3.2 Standards

The following conventions and standards are applied for this test plan.

Document name	Version	Date	Author
TMap® Next for result driven testing	1e edition	2006	T. Koomen, L. van der Aalst, B. Broekman en M. Vroon

3.3 Test basis

The test basis contains the documentation that serves as basis for the tests that have to be executed. The overview below describes the documentation that is the starting point for testing.

Document name	Version	Date	Author

4 Test strategy

The time available for testing is limited; not everything can be tested with equal thoroughness. This means that choices have to be made regarding the depth of testing. Also it is strived to divide test capacity as effective and efficient as possible over the total test project. This principle is the basis of the test strategy.

The test strategy is based on risks: a system has to function in practice to an extent that no unacceptable risks for the organization arise from it. If the delivery of a system brings along many risks, thorough testing needs to be put in place; the opposite of the spectrum is also true: 'no risk, no test'.

The first step in determining the test strategy is the execution of a *product risk analyses*. This is elaborated in §4.1.

The test strategy is subsequently based on the results of the risk analyses. The test strategy lays down *what, how* and *when* (in which test level) is being tested and is focused in finding the most important defects as early as possible for the lowest costs. This can be summarized as testing with an optimal use of the available capacity and time. The test strategy is described in §4.2.

4.1 Product risk analyses

The product risks are determined in cooperation with the client and the other parties involved. This product risk analyses (PRA) is comprised of two steps:

- Make an inventory of the risks that are of interest
- Classify the risks.

The complete product risk analysis is mentioned in appendix <appendix number>.

During the risk assessment the test goals were also formulated. These can be found together with the corresponding characteristics in table below.

Test goal	Description	Characteristic
Flexibility	Flexibility of different resolution sizes	Website can be fitted with different aspect of screen sizes
Compatibility	Support for different platforms	Support web browser and mobile devices

The acceptants <optional: and other parties involved with the project> have determined the product risks. The extent of the risk (the risk class) is dependent on the chance of failure (how big the chance is that it goes wrong?) and it depends on the damage for the organization if it actually occurs.

The risk class (RC) determines the thoroughness of the test. Risk class A is the highest risk class and C is the lowest. The test strategy is subsequently focused on covering the risks with the highest risk class as early as possible in the test project.

First the chance of failure and damage are determined for each risk. The risk class has been taken directly from this.

8.1.1.1 Risk table

Characteristic	Part	RC	Argumentation
Functionality	1	C	
User-friendliness	2	B	
Performance	1	B	

Security	2	A	
Suitability	2	C	
Etc.			

4.2 Test strategy

For each risk from the product risk analysis the risk class is qualifying the thoroughness of the test. Risk class A is the highest risk class and C the lowest. The test strategy is subsequently focused on covering the risks with the highest risk class as early as possible in the test project.

Characteristic /object part	PRA-RK	Evaluation	Development test	ST	FAT	UAT	Impl
Functionality	C						
- part 1	C						
- part 2	C						
- total	C						
User-friendliness	B						
Performance	B						
- online	B						
- batch	A						
Security	A						
Suitability	C						

<Explanation for the table above:

PRA-RC	Risk class (from product risk analysis, where A=high risk, B=average risk, C=low risk)
Evaluation	Evaluation/review of the various intermediary products (requirements, functional design, technical design)
Development test	Unit test and Unit integration test
ST	System test
FAT	Functional acceptance test
UAT	User acceptance test
Impl	Implementation
□	Limited thoroughness of the dynamic test
□□	Medium thoroughness of the dynamic test
□□□	High thoroughness of the dynamic test
S	Static testing (checking and examining the products without executing the software
I	Implicit testing (including in another test type without creating specifically designed test cases
<blank>	If a cell is blank, it means that the relevant test or evaluation level does not have to be concerned with the characteristic

>

5 Approach

In this chapter each test level in the test strategy (the *what*) will be translated to a concrete test approach (the *how*).
<< Make sure that the Test levels
For this MTP the following test levels are acknowledged:

Test level	Goal
system test	End result as expected requirement
Functional acceptance test	Expected functions performs properly
Production acceptance test	User friendliness of interfaces

5.1 Evaluation

5.2 The <name test level>

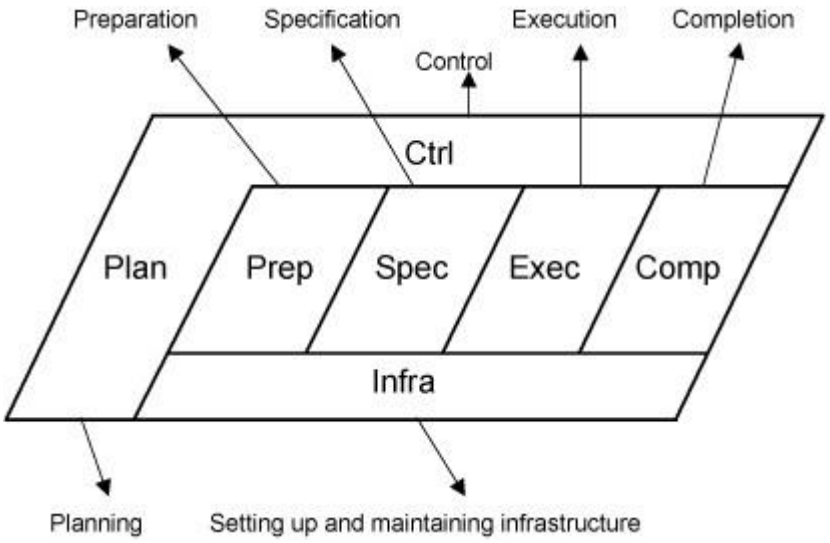
5.2.1 Goal

All the expected functionalities should be working properly as per client's requirement

5.2.2 Short description

The test plan is in the progress of acceptance from all the stakeholders of the project

5.3 Phasing per test level



In the **Planning** phase, the test manager formulates a coherent approach that is supported by the client to adequately execute the test assignment. This is laid down in the test plan. In the **Control** phase the activities in the test plan are executed, monitored, and adjusted if necessary. The **Setting up and maintaining infrastructure** phase aims to provide the required test infrastructure that is used in the various TMap phases and activities. The **Preparation** phase aims to have access to a test basis, agreed with the client of the test, of adequate quality to design the test cases. The tests are specified in the Specification phase and executed in the **Execution** phase. This provides insight

into the quality of the test object. The test assignment is concluded in the **Completion** phase. This phase offers the opportunity to learn lessons from experiences gained in the project. Furthermore activities are executed to guarantee reuse of products.

5.4 Test products

The deliverables are:

Phase	Product	Comment	Delivery Date
<Planning>	<Master test plan>	Planned	30.09.2020
	<Test plan for each test level>	Need to be executed	30.09.2020
<Management>	<Risk report>	Designed	10.08.2020
<Setting up and maintenance infrastructure>	<Detail specification test environment>	Yet to be planned	10.08.2020
<Preparation>	<Report detail intake for each test level>	Yet to be planned	17.08.2020
<Specification>	<Test script pretest>	Test_script.docx Test_steps.docx Test_case.docx	05.08.2020
	<Test script for each test level>		
	<Test script for each test level>		
<Execution>	<Defect log>	Yet to be planned	17.08.2020
	<Status report>		
<Completion>	<End report>	Finalized	18.08.2020
	<Release advice (for each test level)>		

5.5 Review plan

List the deliverables that have to be reviewed by the stakeholders.

- Master test plan
- Test plan for each test level
- End report
- Defect log

Deliverable	Authors	Type review	Reviewers
master test plan	Theekshana		
Test plan for each level	Theekshana		
End report	Theekshana		

5.6 Entrance and exit criteria for each test level

For the phase Specification and Execution the following entrance criteria are defined:

Entrance criteria for Specification phase:

Entrance criteria for Execution phase:

5.6.1 << Optional: User Acceptance Test >>

For the phase Specification and Execution the following entrance criteria are defined:

Entrance criteria for Specification phase:

Entrance criteria for Execution phase:

The following exit criteria are defined for the UAT:

5.7 Go/No go

6 Organization

Organization<< See TMap® Next 5.2.8 and 8.6.5 >>

6.1 Organization structure

6.2 Roles, tasks and responsibilities

Describe for each role the tasks and the responsibilities.

Role	Department / Name employee(s)	# hours per week	Period	Description of tasks and responsibilities
<Test manager>	Theekshana	5	2	<-Write MTP -Coordinate overall test process>
<Test coordinator>	Manusha	5	2	<-Write test plan -Coordinate test>
<Tester>	Kushal	5	2	<-Make test specifications -Execute (re)tests>
<Optional: Functional administrators>	Prabhashi	5	2	<Support testing>

6.3 Structure of meetings

Mention all types of meetings within the test project, the objective of the meeting, the frequency and who needs to be present.

Type	Goal	Frequency	Who
Project meeting	Discuss overall project progress	<Weekly>	Project manager Test manager
Progress meeting for each test level	Discuss progress for each test level	<Weekly>	Test manager Testers
defect triage	Discuss and prioritize defects found during test	<Weekly>	Test manager – owns Technical lead Project Manager Business lead

6.4 Structure of reporting

Mention all types of written communication.

Type	Goal	Frequency	Who
Risk report	Gives insight in the recognized risks of the tests	Ad-hoc	Test team
Release advice	Gives advice about quality/risks of the implementation of the test object	Once-only	Project manager
End report	Gives insight in the evaluation of the test process and test object	Once-only	Project manager
Progress report	Gives insight in the progress of these tests and quality/risks of the test object	Weekly	Test manager to key stakeholders
Defect reports	Gives insight to defects and their status'.	Weekly	Test manager to key stakeholders

6.5 Completion

This describes the procedures for the completion process at the end of the project.

7 Infrastructure

Refer for a further elaboration to the detail test plans and for the infrastructure planning to chapter 10. See for checklists http://eng.tmap.net/Home/TMap/Downloads/index.jsp.

7.1 Test environments

Test level	Environment	Requirements	From	To
<ST>	Windows 7 or above	Core i5 processor, 4GB ram, 2GB VGA	05.07.2020	05.08.2020
<FAT>	MySQL server	Core i5 processor, 4GB ram, 2GB VGA	05.07.2020	05.08.2020
<UAT>				

7.2 Test tools

Test level	Test tool	Comment
ST	• Laptop or PC • Web browser • Asana • NetBeans • Project plan	Referred to project plan
FAT	Core i5 processor, 4GB ram, 2GB VGA	Referred to project plan

7.3 Office setup

Test level	Components	Comment
<ST>		
<…>		

8 Management

8.1 Test process management

The management of the test process can be divided into three parts:

- Progress and expenditure of budget and time: the management of the planning and guarding of the progress in terms of time, resources and means. This has been arranged as followed: < short description >;
- Quality indicators: the aim of testing is to provide information and advice on the risks and quality of the object to be tested. To be able to provide this information, quality indicators are registered. This has been arranged as followed: < short description >.
- Test statistics: the test manager builds statistics based on the above information. Statistics can supply insight into the progress of the test process and quality of the test object, including any trends. This has been arranged as followed: < short description >.

8.2 Test infrastructure management

Test infrastructure is yet to be managed by the project team

8.3 Test product management

yet to be decided by the organization

8.4 Defects procedure

The defects management has been arranged in conformity with the defect procedure that is described in TMap® Next 12.4., or in conformity with defect procedure as it is used within the organization. For the registration and maintenance of defects the following tool is being used: < tool >.
The responsibility for the observance of this defects procedure lies with the <defect administrator>.

9 Test process risks and countermeasures

This chapter makes an inventory of the most important potential project risks for the testing of <Name project>. By anticipating what possibly might occur, it's possible to mitigate the risk by taking the appropriate countermeasures. The risks apply directly to the test process, or apply to risks that can be of direct consequence for the test project. Registration and monitoring of these risks continues after the MTP has been written, it is a continuous process.

The following risks have been recognized for the test process. See also <name risk log>.

Nr	Event	Consequence	Impact	Chance	Score	Countermeasures	Owner
1							

The test manager is aware of these points and monitors the countermeasures.

10 Global Estimation & Planning

10.1 Estimation

The estimation is as follows:

Test level	Who	P	C	I	P	S	E	C	Totals
Overall	Test manager								
ST	Test coordinator								
	Test specialists								
FAT	Test coordinator								
	End users								
	Test specialists								
UAT	Test coordinator								
	End users								
	Test specialists								
	Totals:								

This estimation will be divided in sub activities in the detail test plans for each test level.

10.2 Planning

Phasing and activities	Week									
	10	11	12	13	14	15	16	17	18	19
Planning										
Management										
Master test plan										
Infrastructure										
System test										
System test plan										
Specification										
Execution										
Conclusion										
Users Acceptance Test										
UAT test plan										
Specification										
Execution										
Conclusion										
Production Acceptance Test										
PAT test plan										
Specification										
Execution										
Conclusion										

The activities to be executed are in the table below.

Activity	Name	Start Date	End Date	Duration	Relations

10.3 Milestones

The milestones of the test process of <system> are detailed in the table below.

Mile stone description	Date

11 Glossary

PRA	Product risk analysis; analyzing the product under test with the goal that the test manager and the other stakeholders achieve a joint view of what the more and less risky parts and characteristics of the system are. This with the purpose to relate the thoroughness of testing to it.
ST	System test, by the vendor of the solution in a (good controllable) laboratory environment executed test, which has to demonstrate that the developed system or parts of it comply with the functional and non functional specifications and the technical design.
UT	Unit test, by the developer in the development environment executed test, which has to demonstrate that a unit complies with the technical specifications.
DTAP	Development, Test, Acceptance and Production environment in a so called following, logical 'street'.

ID	Current Status	Risk Impact	Probability of Occurrence	Risk Description	Project Impact	Risk Area	Symptom	Triggers	Risk Response Strategy	Response Strategy	Contingency Plan
1	Open	High	Medium	Requirement of the project is not well defined	Overall project can be fail due to unclear requirement	Product quality	Requirement get changed	Not well defined business case	Mitigate	Complete a business case and define the needs clearly	Do an assessment to escalate the project board
2	Open	High	High	Lack of communication	Missing important point from discussions may lead to misunderstand the project goal	Project plan	Expected changes or feedback are not being provided	Members are not active on team communication	Mitigate	Create detailed communication plan demonstrating the goal, audience, purpose and stakeholders and the value of share sensible information	Correct misunderstanding information and motivate member to be connected with the project
3	Open	High	Low	Stakehold	Latency	Project	Delay to	Project	Transfer	Inform to	Do

				ers responses have latency	will be negatively impact on project schedule	schedule	obtain approval and feedbacks	stakeholders are not being participate with the project		the responsible authorities about the situation	stakeholder analysis
4	Open	High	Low	Latency of legal actions	Project initiation will be delayed	Overall project	delay the project progress	Agreements are not being signed by all stakeholders	Mitigate	Escalate the project to legal department to get legal instruction and rules	Issue detailed contracts and agreements
5	Open	High	Low	Global pandemic situation	Impact on all the project portfolio and the company	Overall project	Project activities cannot be performed	An unexpected situation	Accept	Discuss with the client companies about the situation and comes to a mutual agreement	Change the project plan and switching to work from home method

Technical Competency Demonstrator

1.Source Code

```
<div
class="login-
wrap">
                    <div class="login-html">
                        <input id="tab-1" type="radio" name="tab" class="sign-in" checked><label for="tab-1"
class="tab">Sign In Crest Care Hospital</label>
                        <input id="tab-2" type="radio" name="tab" class="sign-up"><label for="tab-2"
class="tab">Sign Up Crest Care Hospital</label>
                        <div class="login-form">
                            <div class="sign-in-htm">
                                <div class="group">
                                    <label for="user" class="label">Username</label>
                                    <input id="user" type="text" class="input">
                                </div>
                                <div class="group">
                                    <label for="pass" class="label">Password</label>
                                    <input id="pass" type="password" class="input" data-
type="password">
                                </div>
                                <div class="group">
                                    <input id="check" type="checkbox" class="check"
checked>
                                    <label for="check"><span class="icon"></span> Keep
me Signed in</label>
                                </div>
                                <div class="group">
                                    <input type="submit" class="button" value="Sign In">
                                </div>
                                <div class="hr"></div>
                                <div class="foot-lnk">
                                    <a href="#forgot">Forgot Password?</a>
                                </div>
                            </div>
                            <div class="sign-up-htm">
                                <div class="group">
                                    <label for="user" class="label">Username</label>
                                    <input id="user" type="text" class="input">
                                </div>
```

```
                                        <div class="group">
                                                <label for="pass" class="label">Password</label>
                                                <input id="pass" type="password" class="input" data-
type="password">
                                        </div>
                                        <div class="group">
                                                <label for="pass" class="label">Repeat Password</label>
                                                <input id="pass" type="password" class="input" data-
type="password">
                                        </div>
                                        <div class="group">
                                                <label for="pass" class="label">Email Address</label>
                                                <input id="pass" type="text" class="input">
                                        </div>
                                        <div class="group">
                                                <input type="submit" class="button" value="Sign Up">
                                        </div>
                                        <div class="hr"></div>
                                        <div class="foot-lnk">
                                                <label for="tab-1">Already Member?</a>
                                        </div>
                                </div>
                        </div>
                </div>
        </div>
```

2. Video

The link to the video walkthrough is below:

https://youtu.be/S4mOSYbbwB8

Inception Phase Status Assessment

1. Assessment against Objectives of the Inception Phase

1.1 Do we know what we are trying to achieve?

The aim of the project is to create a fully functioning online Hospital Management System to replace the old traditional System. This is embodied in the completed Vision Document.

We understand the main functional requirements of the project which are:

- Hospital Rules
- Administrative Functions
- Authentication
- Authorization
- External Interface
- Database Management System
- Patient Medical History
- Stakeholder Data and Information

This is shown in the completed Functional Requirement model

We understand the main Non-Functional requirements of the project which are:

- Usability
- Security
- Performance
- Reliability
- Data Integrity
- Availability
- Recovery

This is shown in the completed Non-Functional Requirement model

8.1.2 *1.2 Do we know how we are going to achieve it?*

We have a good idea of how we are going to achieve our aims. We are going to use a self-service kiosk station in the hospitals, the website consisting of the medical history and communication mechanisms and the Hospital station for staff members and doctors to access. This is shown in the completed architecture.

We have a good understanding of the project specific risks facing our project and how we are going to deal with them. The risks are:

- Requirement of project no defined
- Lack of communication
- Latency in Stakeholder Response
- Latency of legal Action
- Potential Global Pandemic

Our evolving understanding of risks is shown in the ongoing risk list and discussed further below in Section 4.

We have a good understanding of how we are going to check that our application delivers the intended functionality and system properties. Our key areas of concern and the test strategies we will use to address these concerns are as follows:

- Vision Doument
- Iteration Plan Execution
- Communication
- Member' health

This is shown in the completed Master Test Plan

We have a good understanding of the dependencies and likely completion times for different parts of the project. Target completion dates for key aspects of the project are as follows:

- 13/04 - Deliver Life Cycle Objective Milestones (LCOM)
- 02/06 - Deliver Life Cycle Architecture Milestone (LCAM)
- 03/09 - Deliver Initial Operation Capability Milestone (IOCM)
- 13/10 - Deliver Product Release Milestone (PRM)

This is shown in the Initial Project Plan.

8.1.3 1.3 Skills required

Our project requires skills using the following key tools and technologies:

- Familiar with push communication mechanism (ASANA)
- Using version control properly (Github)
- Experience in php(JavaScript)
- Instant communication mechanism (Email & WhatsApp)

We have demonstrated that we have the skills to use these technologies through the implementation of a technology competency demonstrator.

8.2 2. Deliverables

Iteration Plan 2

- Plan for the second part of the inception phase
- No issues

Architecture

- Describes how we are going to achieve what we want to do.
- No issues

8.3 3. Risks

Lack of communication

- Missing important point from discussions may lead to misunderstand the project goal

Latency of legal Action

- Project initiation will be delayed

Potential Global Pandemic

8.4 Impact on all the project portfolio and the company

8.5 Summary – Overall Project Progress

The inception phase of the project went very well. We had chance to know all the team members and their strength and weaknesses. Through many ideas, we decided to choose Hospital Management System. We thought that this project could be actually useful in the world right now. We decided to use Asana as our push communication mechanism while using Github for version control. We made a Vision Document establishing all the goals for this project. Vision Document shows the core idea and the business case justifying the development effort. Intital Requirement Model that illustrates the Functional and Non-Functional Requirements. An architecture was established that planned how we were going to achieve of result. A Risk List makes us aware where our project can go wrong. Master Test Plan verifies how our project meets its aims. An initial project plan gives idea on how we are going to achieve the goal of the project. The technical Competency Demonstrator shows that we have the technical skills to achieve our aims.