

Chapter 3

Requirement Analysis

REQUIREMENT ANALYSIS

3.1 Purpose

This document gives an overview of health data, information and knowledge governance needs and associated generic principles so that information systems are able to automate such data collections from point-of-care operational systems. This is where health information managers and health managers need to resolve the many challenges associated with eHealth implementations where data are assets, efficient information flow is essential, the ability to acquire new knowledge desirable, and where the use of data and information needs to be viewed from a governance perspective to ensure reliable and quality information is obtained to enhance decision-making.

3.2 System Requirements

❖ Hardware Requirements for Website

▪ On Developer Side:

Processor : Dual core or above.

RAM : 4GB.

Hard disk : 40GB or above.

Monitor : 15'' LCD or CRT Monitor or above.

Keyboard : Standard windows keyboard

▪ On Client Side

Device : Computers having a browser and valid Internet connection.

❖ Software Requirements for Website

Server Space

XAMPP/WAMPP/LAMP

Notepad++/Adobe Dreamweaver

❖ Hardware Requirements for Android App

▪ On Developer Side:

Processor : Dual core or above.

RAM : 2GB.

Hard disk : 40GB or above.

Monitor : 15’’ LCD or CRT Monitor or above.

Keyboard : Standard windows keyboard

▪ On Client Side

Device : Smartphone(android version 4.3 and above) having an Application and valid Internet connection.

❖ Software Requirements for Android Application

Eclipse

Server Space

Notepad++/Adobe Dreamweaver

3.3 Security Requirements

The Heal Helping Hand website needs to establish a secure and safe environment for patrons, doctors and hospitals to log into. The reports are to be kept confidential and the graphs showing sensitive user information needs to be handled carefully too.

At HHH, we know security and privacy are important. We have taken steps to make sure that the personal or confidential information shared with HHH remains safe.

User ID and Password - HHH requires the use of a unique User ID and Password as a security measure to help protect your confidential information. This allows HHH to verify who you are (authentication), and permits you access to only your account information (authorization). Through the use of security used, your password is never transmitted in the clear over the Internet. When you have finished using HHH, it is good practice to log off, especially when using public computers.

3.4 User Privacy Policy

Once you've become a registered HHH member, we use your personal information to deliver products and services that you enroll in and to process transactions you request on our web site. These email messages may contain web beacons to count and measure effectiveness so we know how to serve you better. We do not collect Personally Identifiable Information through web beacons or cookies. You may decline to receive email offers from HHH at any time.

We do not share your email address or any Personally Identifiable Information we have about you with other companies for them to market their products or services to you. HHH does not rent, lease, sell or otherwise disclose your Personally Identifiable Information to third parties without your opt-in consent, choice, and proper notice.

3.5 System Features

- a. Business Process Innovation
- b. Quality
- c. Customer experience like never before
- d. Precise Data
- e. Up-to-date Test List
- f. Large network of vendors indexed
- g. True facts furnished
- h. Dedicated WordPress blog with daily health tips and articles on wellness
- i. Friendly Hand towards Autistic children.

3.6 Other Requirements

While HHH takes measures to protect the information you have provided, it is impossible to protect the users' computer or its connection to the Internet. Network data security should be a high priority when considering a network setup due to the growing threat of hackers trying to infect as many computers possible. From a security standpoint, two main components that can provide security are firewalls and routers. Firewalls come in two varieties: hardware and software. Firewalls can prevent malicious attacks and reduce the risk of identity theft. While no network is ever 100% immune to attack, having a reliable network security system in place will greatly reduce the risk of a security breach that can compromise your system.



Figure 3.1: The HHH Healing Procedure

3.7 Application Analysis

3.7.1 Introduction

Sharing information about health gives a clearer picture of health and sickness across entire populations, and this knowledge can help prevent the spread of disease and improve the health of individuals. Smarter ways of gathering, analyzing and using health information lead to better decisions and better spending, and make it easier to track and confront threats to world health. Informed decisions are better decisions.

Application study is the first phase for the development of software when the preliminary investigation is made. The importance of application study phase is the establishment of the requirements for our system to acquire, developed and installed. The important outcome of the preliminary investigation is made in the study phase. Application study is one of the important steps included in the application development life cycle. Application study involves studying the ways by which we can concrete the one of the applications of Heal Helping Hand. Ex : The uploading of test results and graphs on comparison.

The life cycle of application includes the following steps:

1. Reorganizations of need or Preliminary study/survey
2. Feasibility study
3. Analysis
4. Design
5. Development and testing
6. Implementation
7. Post implementation and Maintenance

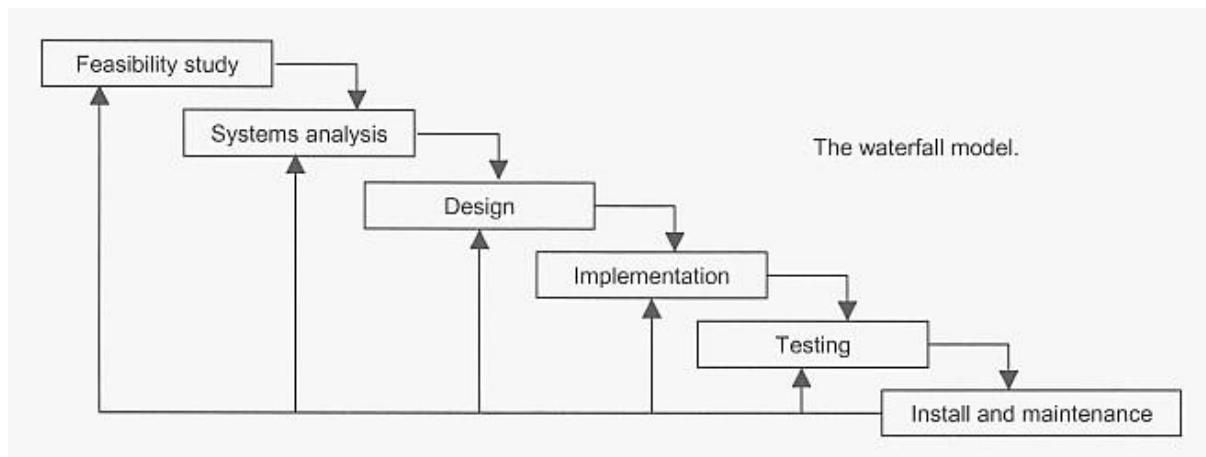


Figure 3.2 : Waterfall Model of Software Development

Recognition of needs and preliminary investigation is the first system activity done by us. After that we find out which subject requires which section. We identify different functions and information's are collected. It is also essential that the analyst familiarize himself with the objectives, activities and functions of organizations in which the system is to be implemented. Feasibility study often presupposes when the feasibility document is being prepared the analyst is in a position to evaluate solutions; second most studies tend to overlook the confusion inherent in system development. The three key considerations are involved in feasibility analysis are: Economic feasibility, Technical feasibility, Behavioural feasibility

A globally-accepted standard in HHH is a foundation for a strong health care system. Intelligently designed systems, targeting the needs and resources of individuals, provide access to the wealth of information collected locally and globally.

Although, the medical advice varies from patient to patient, and diagnosing a condition is very highly specific to each individual, we promise to offer a treasure of information that can

help our users reach a fair conclusion and decide the subsequent action on their own. We enable our users to be calm, and rational even in health crisis situations because each ailment has a solution and science and we at HHH are here to lend a helping hand with your healing.

3.7.2 Economic Feasibility

HHH website is the brainchild of four engineering students who are looking for ways to make healthcare cheap and very easily available. Economically, the site development has been a budgeted expense for gathering data, devices and resources from a lot of different diagnostic centres. The cost of visiting some of our network centres, the video tours and conversing with doctors to get them onboard will be covered by the traffic that the site gets when people are looking for test specific, area specific and speciality-based search results.

The free plan offers all features to every patron of ours and offers free graphs, charts, health tips, daily blog of wellness and lifestyle. The patients can chat with the doctors online, using the inbuilt chat feature. The consultation fees charged by some doctors providing full consultation are to be paid online itself.

Advertisements have not been introduced yet. But as the site grows and if the server host is optimised enough to bring traffic our way, we could earn from the Heal Helping Hand site.

3.7.3 Technical Feasibility

Technically, the site combines various features and platforms. The main site built using PHP, an android app for hospital login, a MySQL database, another Android app for the doctor login and a host of security protocols. Another Android Application has been launched for Autistic children.

The authentications are a very advanced feature and something that makes our site very unique and safe. The QR Code for doctor, OTP for Patients, Speech Recognition For Hospital, Super-Admin authentication using Secure USB. Each module has its own personal authentication. So that no specific user can infringe upon the rights and permissions of another panel user.

3.7.4 Behavioural Feasibility

People are inherently resistant to change, and computers have been known to facilitate change. An estimate should be made of how strong a reaction the user staff is likely to have toward the development of a computerized system. It is common knowledge that computer installations have something to do with turnover, transfers, retraining, and changes in employee job status. Therefore, it is understandable that the introduction of a candidate system requires special effort to educate, sell, and train the staff on new ways of conducting business.

The HHH site has been designed keeping in mind each kind of user- the young, the old, the experienced and the amateurs. The site navigation is simple. Buttons and options are simple and straightforward. No complex site map to confuse our patrons. Prices, details, videos everything at the click of a button.

Dynamic graphs are made special for each user according to what he's viewing.

3.7.5 Introductory Investigation

When the HHH idea was conceived, it was observed that no such site existed that could fulfil the purpose of health care vendors and their complete detailed information. Even individual vendor sites had half information or none at all. The numbers did not work, and the site was never updated. In an emergency situation, the patient could call and call but would be unable to contact them if the numbers were found wrong. In our case, we constantly recheck and update our database to provide real information. Outdated info and data were deleted and updated. No proper android application is found in order to help autistic to frame sentences and learn the basic cultural words existing around them.

The freedom to make educated choices by obtaining full information from our site will enable the young and the old to better handle their health. HHH is dedicated to those who seek answers for their health questions. HHH is dedicated to making health care information available to those all over the world.

3.7.6 Proposed System.

In the ever shrinking world of Information Technology, our project is only a humble joint venture to satisfy a small part of the HHH. The system is highly flexible and can be modified to use. We have tried to make the system user friendly. Security is one main consideration in the project. The system is protected from any unauthorized access. We hope the entire objection to the system is rectified and the users will accept the system. There is no claim of this product being perfect, or anything near that. This is only a humble attempt made under trying circumstances. This system has been designed in an attractive manner. So that, even a user with minimum knowledge can operate the system easily.

The software is developed with scalability in mind. Additional modules can easily add when necessary. The software is developed with the modular approach. All modules in this system have been tested separately and put together to form the main system. Finally the system is tested with the real data and everything worked successfully. Thus the system has fulfilled all the objectives.

HHH innovates to simplify the laboratory diagnosis process at every step: From the design of our test menu, to our logistical network and customer service and finally to our reports, HHH innovates to provide a unique and efficient set of laboratory tests and panels in order to drive immediate clinical decisions.

The Internet has provided great opportunities for disseminating both accurate and inaccurate health information. Therefore, the quality of information is considered as a widespread concern affecting the human life. Despite the increasingly substantial growth in the number of users, health websites and the proportion of internet-using patients, little is known about the quality of such medical and health websites.

Although, the medical advice varies from patient to patient, and diagnosing a condition is very highly specific to each individual, we promise to offer a treasure of information that can help our users reach a fair conclusion and decide the subsequent action on their own. We enable our users to be calm, and rational even in health crisis situations because each ailment has a solution and science and we at HHH are here to lend a helping hand with your healing.

3.8 Platform Used

The website is created using PHP, a web based scripting language, and MySQL as the database software. PHP is a server-side scripting language designed for web development. PHP originally stood for Personal Home Page, it now stands for *PHP*: Hypertext Pre-processor. PHP code is usually processed by a PHP interpreter, which is usually implemented as a web server's native module or a Common Gateway Interface(CGI) executable.

The android application is built using XML and Java. XML stands for Xtensible Markup Language. It works giving GUI by XML and supporting functionalities in java.

3.9 Functional Overview

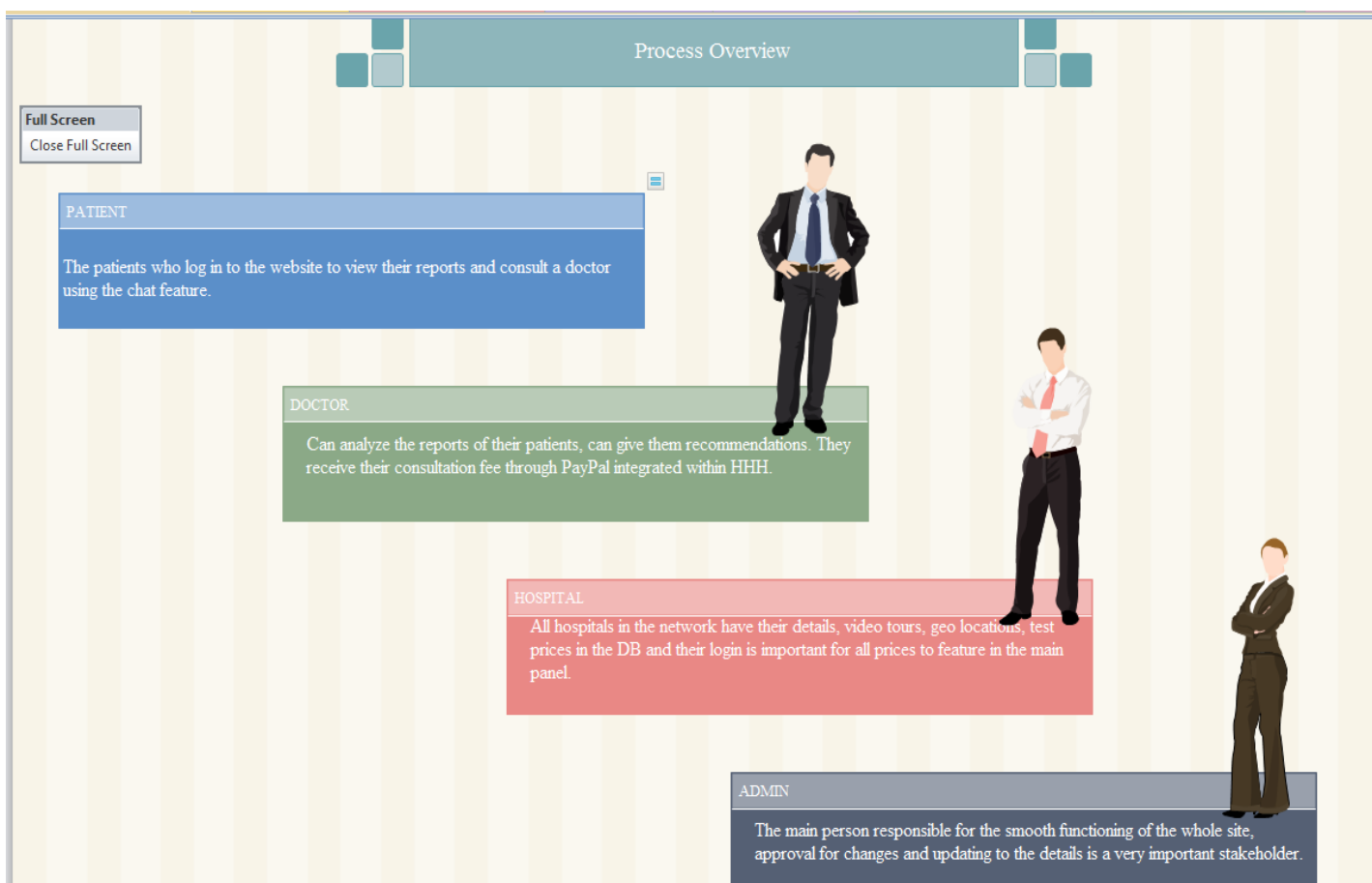


Figure 3.3: Process Overview of HHH (Responsibilities & Tasks)

3.10 Software Quality Attributes

The Quality of the System is maintained in such a way so that it can be very user friendly to all the users. The software quality attributes are assumed as under:

- 1.Accurate and hence reliable.
- 2.Secured.
- 3.Fast speed.
- 4.Compatibility.

3.11 Non-Functional Requirements

3.11.1 Performance Requirements

Some performance requirements are listed as under:

- 1.The database shall be able to accommodate a minimum of 10,000 records.
- 2.The software shall support use of multiple users at a time.
- 3.There are no other specific performance requirements that will affect development.



Figure 3.4: Growing Consumer Confidence Observed

3.11.2 Safety Requirements

Due to the variety of health related websites, possibility of disseminating information by unspecialized persons and lack of a simple instrument for precise assessment and quality control of health websites, the quality of information is considered as a widespread concern affecting the human life. This concern is prompted by incomplete, inaccurate, misleading, out of date and biased information on health websites that have adverse impacts on patients and health care specialists and cause their failure in proper use of internet resources.

The database may get crashed at any certain time due to virus or operating system failure. Therefore, it is required to take the database backup.

In addition, health websites can also cause other problems such as dishonest advertising of unhealthy and dangerous products, jeopardizing healthcare provision, inappropriate use of users' personal data and false online consultation.

Encryption has been achieved in all transactions. Specially for the admin access requiring the USB drive, a 512 bit encryption is now used.

Needless to say, the system is highly safe, all client documents and reports are secure and in vault-like safety.

3.11.3 Security Requirements

Some of the factors that are identified to protect the software from accidental or malicious access, use, modification, destruction, or disclosure are described below. Keep specific log or history data sets.

1. Assign certain functions to different modules
2. Restrict communications between some areas of the program
3. Check data integrity for critical variables
4. Incorporates encryption techniques in the user/license authentication process.
5. Communication needs to be restricted when the application is validating the user or license. (i.e. using https).