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ONLINE MEDICAL COUNSELING

A WEBSITE FOR HEALTH SERVICES

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It has been a great opportunity to gain lots of experience in real time projects, followed by the knowledge of how to actually design and analyze real projects. For that we want to thank all the people who made it possible for students like us.

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ABSTRACT

Electronic communication with patients is a developing phenomenon in general practice in the world. International experience with e-counseling is also growing. It is time to take a closer look at this to assess what needs to change to promote it.

In Gaza, there was a growing internet access in about 40% of the general population. By 2016 Pressures on the health care system will made access to care difficult in some places specially hospitals services.

Besides, developments in communication and therapeutic skills in general practice are being translated to the electronic forum and doctors have discovered their power in caring for their patients.

Luckily, we are developing a website," OMC" to be helpful for people who find it difficult to leave home because of agoraphobia or social anxiety or disabilities.

this e- services program come to solve some of these problems especially improving the accessibility to health care and increase the cognitive and level of patient's knowledge.

We have used the PHP, CSS, and HTML Programming Languages to develop this software.

Designing this website began with examining the functional and non-functional requirements of the system by different brainstorming sessions, interviews with experts and e-survey. The functional and non-functional requirements are formed and analyzed using different UML techniques such as use-case diagrams, sequence diagrams. The design of the system is then presented and analyzed using class diagram, After the design, the implementation of the design is discussed.

Finally, the system was tested to discuss whether the proposed system met its objective.

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LIST OF ABBREVIATION

Abbreviation	Meaning
OMC	Online Medical Counseling
XML	Extensible Markup Language
HTML	Hypertext Markup Language
API	Application Programming Interface
UX	User Experience
UML	Unified Modeling Language
OS	Operating System
CSS	Cascading Style Sheets
IDE	Integrated Development Environment
B2C	Business To Consumer
POC	Proof Of Concept
B2E	Business To Employee
IOS	IPhone Operating System
FR	Functional Requirements
NFR	NonFunctional Requirements
ASP	Active Server Page
PHP	Hypertext Preprocessor
GIF	Graphics Interchange Format
HTTPS	Hyper-Text Transfer Protocol Secure
FGD	Focus Group Discussion
KII	Key Informant Interview

CHAPTER 1

INTRODUCTION

Chapter 1: Introduction

1.1 Background

Online therapy is growing rapidly. The Internet is not just for chatting with friends and relatives anymore. Although the Internet has made communication easier with e-mails, chat rooms, and instant messaging services, many people have also found the World Wide Web to be helpful in obtaining information about mental health, including specifics on disorders, medication, and treatment. It was only a matter of time before the availability of easy communication and mental health resources merged together to form what is now known as online counseling.

Online counseling clearly does pose some unique problems and also some unique possibilities for both the clients and the therapists. As such, both mental health practitioners and individuals who wish to engage in such services must be informed of both the benefits and limitations of this style of therapeutic approach. [1]

Youth, Women and aged people and those with chronic illness often desire more detailed information about their health status and treatment options and also to be more actively involved in the treatment process. They often consult with other resources beyond their healthcare providers to seek additional information or opinions to confirm the prognosis as well as to feel reassured about their conditions.

Patients from low Socioeconomic situation and remote areas often experience greater difficulties in accessing adequate information and decision support from healthcare providers due to limited income or lower education levels, leading to risks for lower knowledge levels, fewer opportunities to participate in care and less interaction with physician

A complementary form of support for chronic disease or sensitive illness patients is a type of Internet-based communication service called "Online Health Consultation," which serves as an alternative source of medical

information for patients to cope with their illness beyond that provided by their clinicians. This interactive service allows patients to ask questions related to their health care and receive tailored answers based on personal health characteristics and conditions from health Information Specialists trained to give individualized information and support Through obtaining information from online resources, patients can compensate for their perceptions about the inadequacy of information or validate what they are provided by their health care providers and bring supplemental information to their doctors to facilitate more effective sharing of concepts, terminology, and treatment options, feel more involved in making their health decisions, and possibly enhance the existing relationships with their doctors .[2]

1.2 Motivation of the project

The use of online medical counseling and health services is low in Gaza, so this web site is expected to be helpful for people who find it difficult to leave home because of agoraphobia or social anxiety or disabilities.

1.3 Problem statement

Because of difficult accessibility of many of the ill people to the health care services, and due to the difficult socioeconomic status and high poverty in Gaza. [3]

1.4 Project Objectives

The main objectives of our website are:

- To develop a web site for online counseling services.
- To Improve the access of health services of the highly vulnerable, remote and sensitive people.
- To help eliminate the social shame associated with the ordinary therapy.

1.5 Project Scope and limitations

Although there is a lot of websites that similar to ours, other websites limited their services to certain places.so we made this service to benefit the people in Gaza and Palestine.

- The web site is considered as a technological service specifically for people in Palestine.
- To help understand the common health issues that are located in Gaza and Palestine.
- Some features will be free and other maybe paid.
- The website supports Arabic and English languages.

1.6 Significance of the Research

Other websites were suffering from a lack of the provided services or the quality of these services. So, we have combined these services in one integrated software. Beside the existing services in other websites have become in our software but with better quality and more efficiently.

CHAPTER 2

LITERATURE REVIEW

Chapter 2: Literature Review

2.1 Introduction

In this chapter, we will present the main concept definition of online services, online health services.

2.2 Definitions and concepts

2.2.1 Online Services

An online service refers to any information and services provided over the Internet. These services not only allow subscribers to communicate with each other, but they also provide unlimited access to information. Online services can range from simple to complex. A basic online service may help subscribers gain needed data through a search engine, while a complex one might be an online mortgage application from a bank. Online services may be free or paid. [3]

2.2.1 Online health services

online health services are an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies. In a broader sense, the term characterizes not only a technical development, but also a state-of-mind, a way of thinking, an attitude, and a commitment for networked, global thinking, to improve health care locally, regionally, and worldwide by using information and communication technology. [4]

2.2.2 PHP

PHP (Hypertext Preprocessor) is an alternative to Microsoft's Active Server Page (ASP) technology. As with ASP, the PHP script is embedded within a Web page along with its HTML. Before the page is sent to a user that has requested it, the Web server calls PHP to interpret and perform the operations called for in the PHP script. [5]

2.2.3 HTML

HyperText Markup Language (HTML) is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS), and JavaScript, it forms a triad of cornerstone technologies for the World Wide Web. Web browsers receive HTML documents from a webserver or from local storage and render them into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document. [6]

2.2.4 CSS

CSS stands for Cascading Style Sheets, CSS describes how HTML elements are to be displayed on screen, paper, or in other media. saves a lot of work. It can control the layout of multiple web pages all at once. [7]

CSS gives more control over the appearance of a Web page to the page creator than to the browser designer or the viewer. [8]

2.3 Related work

2.3.1 Introduction

There are several similar websites and some of them uses some similar components to our project. Table, compares the similar projects showing the advantages and disadvantages of each of them and summarize the main features in the table. These are some of the projects:

2.3.2 Medical News Today



Figure 2.1: MNT

Medical News Today is a web-based outlet for medical news, targeted to both physicians and the general public. The site was launched in 2003.

Content is targeted to an educated audience of both healthcare professionals and patients alike. The editorial team provides news from evidence-based, peer-reviewed studies, along with accurate, unbiased and informative content from governmental organizations, medical societies, royal colleges, professional associations, patients' groups, pharmaceutical and biotech companies, among others. [9]

2.3.3 MedicineNet



Figure 2.2: MedicineNet

MedicineNet is an online, healthcare media publishing company. We provide easy-to-read, in-depth, authoritative medical information for consumers via its robust, user-friendly, interactive website.

MedicineNet is an owned and operated site in the WebMD Consumer Network and was acquired by WebMD in December 2004. as part of the WebMD Consumer Network, adheres to the same privacy policy as WebMD.com and is certified by the TRUSTe online privacy certification program. [10]

2.3.4 WebMD



Figure 2.3 : WebMD

WebMD is an American corporation known primarily as an online publisher of news and information pertaining to human health and well-being. It was founded in 1996 by James H. Clark and Pavan Nigam as Health scape, later Healtheon, and then it acquired WebMD in 1999 to form Healtheon/WebMD. The name was later shortened to WebMD.it publishes content regarding health and health care topics, including a symptom checklist, pharmacy information, drugs information, blogs of physicians with specific topics, and providing a place to store personal medical information. [11]

2.3.5 Mayo Clinic



Figure 2.4 : Mayo Clinic

Mayo Clinic is a nonprofit organization committed to clinical practice, education and research, providing expert, whole-person care to everyone who needs healing. Mayo Clinic Mission is to inspire hope and contribute to health and well-being by providing the best care to every patient through integrated clinical practice, education and research. [12]

2.3.6 OMC vs Other websites

Table 2.1 below shows a comparison between our website and other websites. And it proves that our website provides a lot of benefits people look for.

Features	Medical News Today	Medicine Net	WebMD	Mayo Clinic	OMC
Arabic language					✓
Gaza regional coverage					✓
Quality and accuracy	✓			✓	✓
Accessibility		✓	✓	✓	✓
Locating doctors in Gaza					✓
Ease of use	✓		✓	✓	✓
Easy to research	✓	✓	✓		✓

Table 2.1: Online Medical Counseling Vs Other Websites

Medical News Today main content areas include:

- News content produced and curated daily by our in-house editorial team.
- Reference material covering the issues that are important.
- Features and in-depth investigative reporting on health and lifestyle.
- Opinions forums - allowing you to connect with other users.
- Easy to research.

And the website limitations were:

- Shortage in locating doctors in Gaza.
- Shortage in Gaza regional coverage.
- No Arabic language.
- Low accessibility.

Medicine Net main services were:

- Providing detailed information about diseases, conditions, medications and general health.
- High accessibility.
- Easy to research.

And its limitations were:

- Shortage in locating doctors in Gaza.
- Shortage in Gaza regional coverage.
- No Arabic language.
- Not easy to use.

WebMD main features includes:

- Accessibility.
- Easy to research.
- Quality and accuracy.
- Ease of use.

And the disadvantages were:

- Shortage in locating doctors in Gaza.

- Shortage in Gaza regional coverage.
- No Arabic language.

Mayo Clinic features include:

- Accessibility.
- Quality and accuracy.
- Ease of use.
- is a not-for-profit organization.

And the disadvantages were:

- Shortage in locating doctors in Gaza.
- Shortage in Gaza regional coverage.
- No Arabic language.
- Not easy to research.

2.4 Summary

So, to sum up, this chapter talks about definitions and concepts and programming languages used in this project. and compared between OMC and other websites to show you that no website help the people in need like our website.

CHAPTER 3:

METHODOLOGY

Chapter 3: Project Methodology

3.1 introduction

This chapter describes the adopted methodology throughout the project the chapter will describe the methodology phases that we will use to accomplish the project and the phases that this methodology consist, then the reasons of choosing spiral methodology will be listed, after that, each phase of spiral methodology will be described. Finally, it represents the requirement engineering methodology followed in the project.

3.2 Adopted Methodology

The adopted methodology during the development of this project is spiral model. Figure 3.1 shows the phases used to accomplish and conduct this project. [13]

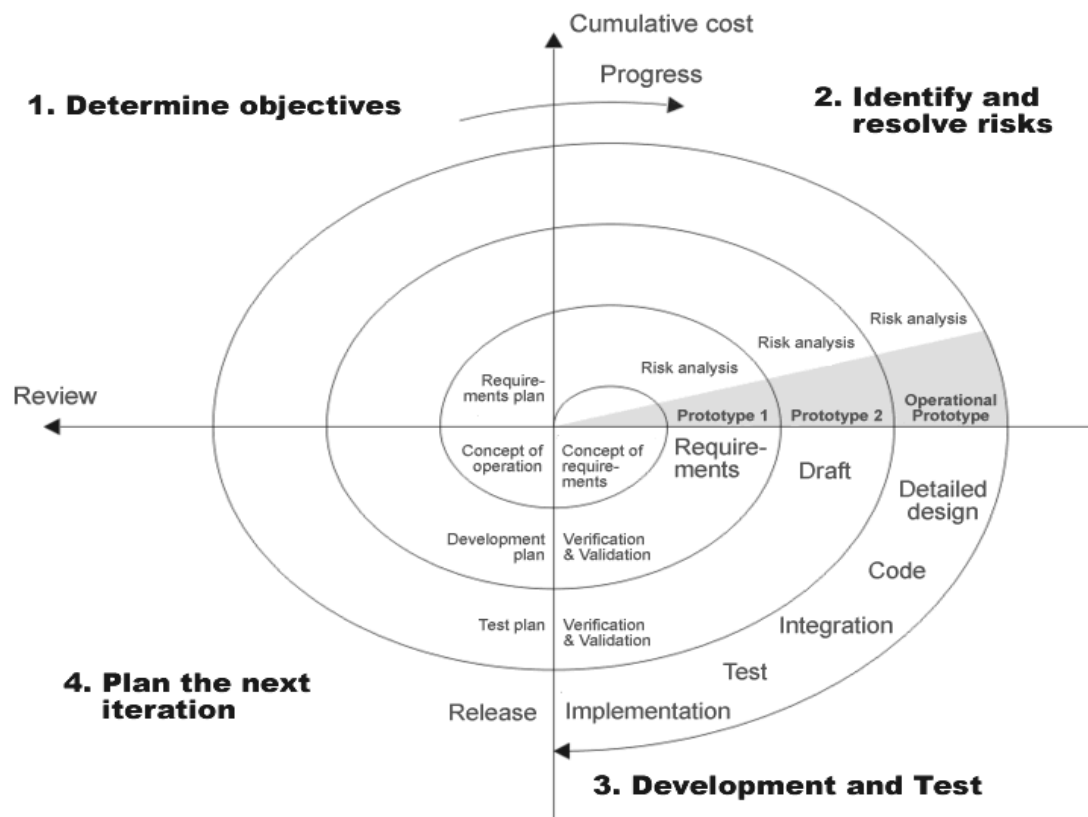


Figure 3.1: Spiral Methodology

3.3 Spiral methodology

Spiral development is a family of software development processes characterized by repeatedly iterating a set of elemental development processes and managing risk so it is actively being reduced. [14]

3.3.1 Advantages of Spiral Model

- Additional functionality or changes can be done at a later stage.
- Cost estimation becomes easy as the prototype building is done in small fragments.
- Continuous or repeated development helps in risk management.
- Development is fast and features are added in a systematic way.
- There is always a space for customer feedback. [15]

3.4 Why adopting Spiral in online counseling and health services?

This methodology of spiral has been chosen and adopted in this kind of study because:

1. Risk and costs evaluation is important.
2. Creation of a prototype is applicable.
3. The nature of the requirements will not change very much during development or evolution.
4. The requirements are compatible with all the key system stakeholders' expectations.
5. There is enough calendar time to proceed sequentially. [16]

3.5 Phases of Spiral

The sequential phases in spiral model are:

3.5.1 Identification

The implementation process starts with the Identification phase. The activities performed in this phase are studying and determining and understanding the system requirements by continuous communication between the customer and the system analyst.

The deliverables of this phase were requirement understanding document and finalized list of requirements.

3.5.2 Risk Analysis

This phase includes identifying, estimating, and monitoring technical feasibility and management risks, Once the risks are identified, risk mitigation strategy is planned and finalized. The deliverable of this phase was a document which highlights all the risks and its mitigation plans.

3.5.3 Design

This phase contains the production of the actual software. In this phase software is developed, along with testing at the end of the phase. Hence in this phase the development and testing is done. The deliverables of this phase were: The Code, Test cases, and test results Test summary report.

3.5.4 Evaluation

At this phase, Customers evaluate the software and provide their feedback and approval. Also, includes identifying and monitoring risks such as schedule slippage and cost overrun. The output of this phase was Features implemented document.

3.6 Summary

This chapter talks about the methodology used in our project which is the spiral methodology, and why we adopted this methodology. we also talked about the main phases used in the spiral approach.

CHAPTER 4

REQUIREMENT & ANALYSIS

4.1 Introduction

In this Section, the functional and non-functional requirements are introduced using the Unified Modelling Language (UML) which is an open method used to specify, Visualize, construct and document the artefacts of an object-oriented software-intensive system under development.

4.2 Software Requirements Specification

A focused and detailed requirements analysis is the process of discovering, analyzing, defining, and documenting the requirements that are related to our specific objective. We started the requirement specification by:

- **Identifying Key Stakeholders.** Which means Identifying the key people who will be affected by the project. Start by clarifying exactly who the project's sponsor is.
- **Determining Stakeholder Requirements.** Ask each of these key stakeholders, or groups of stakeholders, for their requirements from the new product or service.
- **Categorize Requirements.**
- **Interpret and Record Requirements.** determine which requirements are achievable, and how the system or product can deliver them.

Finally, as a result of this analysis we found out these requirements:

4.2.1 Functional requirements:

Functional requirement defines a function of a software system or its component. A function is described as a set of inputs, the behavior, and outputs. Functional requirements may be calculations, technical details, data manipulation and processing and other specific functionality that defines what a system is supposed to accomplish. [17]

4.2.1.1 User functional requirements:

- 1- The user should Login as a new user.
- 2- The user should communicate with doctors.
- 3- The user should Search the website.
- 4- The user should browse the news.
- 5- The user should give a feedback.

4.2.1.2 Administrator functional requirements:

- 1- The admin should maintain security.
- 2- The admin should communicate with doctors.
- 3- The admin should post updates.
- 4- The admin should choose doctors.
- 5- The admin should modify pages.
- 6- The admin should new doctors.

4.2.1.3 Doctor functional requirements:

- 1- The doctor should communicate with patients.
- 2- The doctor should browse the website.
- 3- The doctor should give a feedback.

4.2.2 Non-functional requirements:

Non-functional requirement is a requirement that specifies criteria that can be used to judge the operation of a system, rather than specific behaviors. This should be contrasted with functional requirements that define specific behavior or functions. [18]

4.2.2.1 Performance Requirements:

For the best performance of the software user must follow the sequence of the activities to achieve the required results. Like system response time (which also relates to usability), recovery time, and start-up time.

4.2.2.2 Usability Requirements: is a quality attribute that assesses how easy user interface is to use. Usability based on learnability, efficiency, memorability, errors and satisfaction, usability requirements may include:

- **Attractiveness:** Our system shall be designed so that it attracts the user.
- **Simplicity:** Our system shall be very simple to users with simple interfaces and clear options.
 - ✓ Our system shall be easy to learn and easy to use.
 - ✓ The users shall be able to complete main tasks quickly.

4.2.2.3 Security Requirements: security requirements are included in our system to ensure unauthorized access to the system and its data is not allowed and to ensure the integrity of the system from accidental or malicious damage. It may include specific elements such as confidentiality, integrity, authentication, authorization.

4.2.2.4 Availability Requirements

The system and should be available at all times”24/7“meaning that the user can access to the website at any time.

4.2.3 System Requirement

This part contains the analysis of the functional and non-functional requirements using use-case diagrams, class diagram, and sequence diagrams.

4.2.3.1 Software Requirements

Software requirements which were used: Operating system: any computer OS,PHP,HTML,CSS.

4.2.3.2 Hardware Requirements

Hardware requirements which were used:

- ✓ Computers or any device connecting to internet.
- ✓ Mobiles or any device supporting Any operating system.

4.3 System Analysis:

4.3.1 Use Case Diagram:

A use case is a methodology used in system analysis to identify, clarify, and organize system requirements. In this context, the term "system" refers to something being developed or operated, such as a service Web site. [19]

Following Figures demonstrate the use-case diagrams of the system.

4.3.1.1 The User:

The figure 4.1 demonstrates the functions that the users can do. The user's functions are: The user should Login as a new user, communicate with doctors, Search the website, browse the news, and the user should give a feedback.

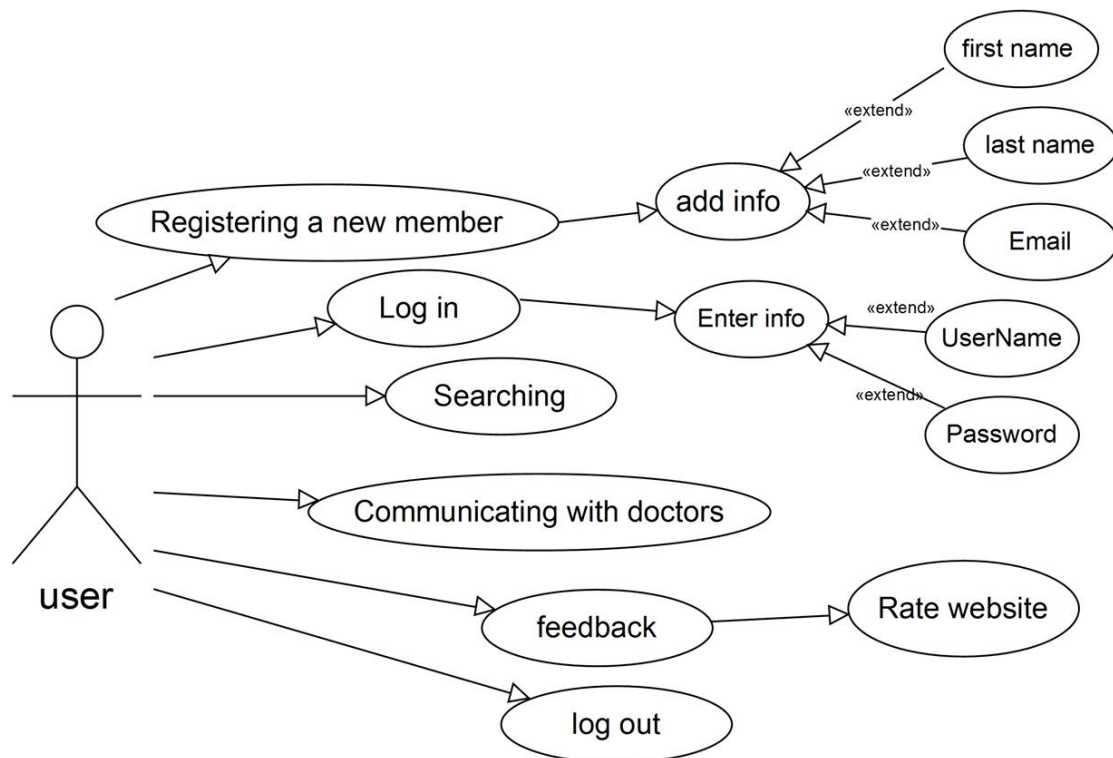


Figure 4.1: User Use case

• Use Case Descriptions

Login	
Pre-Conditions	Open the web site
Post-Conditions	Enter your name and password
Normal Path	View web site
Abnormal Path	Invalid username and password try again.

Table 4.1: logging scenarios

Search	
Pre-Conditions	Logging into the website
Post-Conditions	Enter your search subject
Normal Path	Results found
Abnormal Path	Results not found

Table 4.2: searching scenarios

Communicating with doctors	
Pre-Conditions	Logging into website
Post-Conditions	Finding doctors
Normal Path	Communicating successfully
Abnormal Path	Doctor not available

Table 4.3: communicating scenarios

4.3.1.2 The Doctor:

The figure 4.2 demonstrates what are the doctor's functions. And there are as follows: The doctor can communicate with patients, browse the website, and should give a feedback.

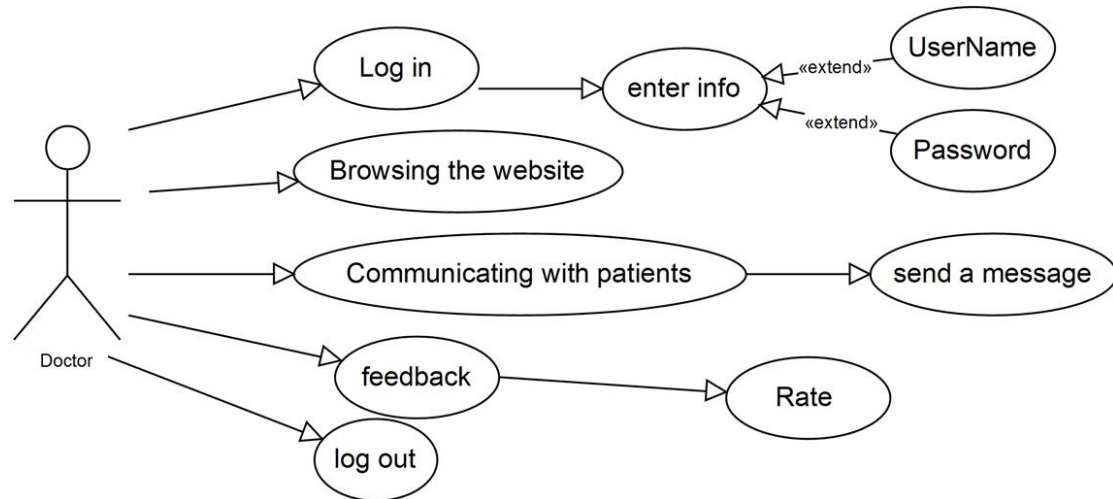


Figure 4.2: Doctor use case

• Use Case Descriptions

Login	
Pre-Conditions	Open the web site
Post-Conditions	Enter your name and password
Normal Path	View web site
Abnormal Path	Invalid username and password try again.

Table 4.4: logging scenarios

Communicating with patients	
Pre-Conditions	Logging into website
Post-Conditions	Viewing requests
Normal Path	Communicating successfully
Abnormal Path	Requests not available

Table 4.5: communicating Scenarios

4.3.1.3 The Administrator:

Figure 4.3 demonstrates the admin's functions, which are: The admin must maintain security, communicate with doctors, post updates, choose doctors, modify pages, and register new doctors.

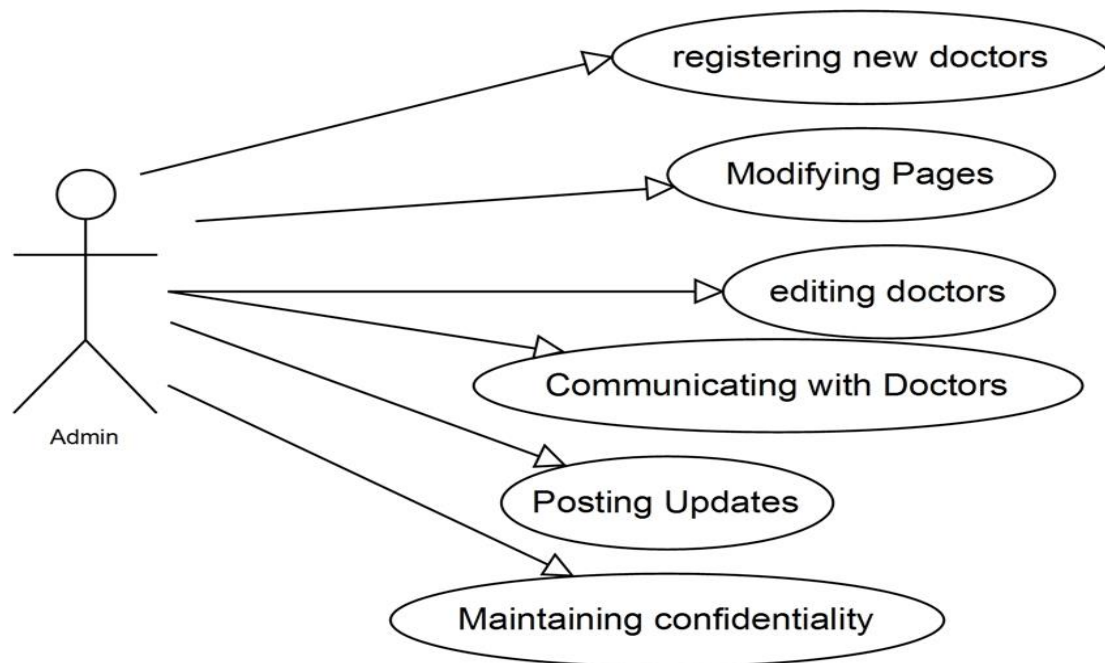


Figure 4.3: Admin use case

• **Use Case Descriptions**

Register new doctor	
Pre-Conditions	Logging into website
Post-Conditions	Inserting details
Normal Path	Operation successful
Abnormal Path	Database error

Table 4.6: registering doctors scenarios

Communicating with doctors	
Pre-Conditions	Logging into website
Post-Conditions	Finding doctors
Normal Path	Communicating successfully
Abnormal Path	Doctor not available

Table 4.7: communicating scenarios

Modifying pages	
Pre-Conditions	Logging as admin
Post-Conditions	Making updates
Normal Path	Operation successful
Abnormal Path	Technical error

Table 4.8: modifying pages scenarios

4.3.2 Sequence diagram:

A sequence diagrams models the flow of logic within a system in a visual manner, enabling to document and validate logic, and are commonly used for both analysis and design purposes. Sequence diagrams are the most popular UML artifact for dynamic modeling, which focuses on identifying the behavior within your system. the next figures show the steps of how the user logs in and requests to chat with a doctor.

4.3.2.1 login

Figure 4.4 shows the sequence diagram about log in function.

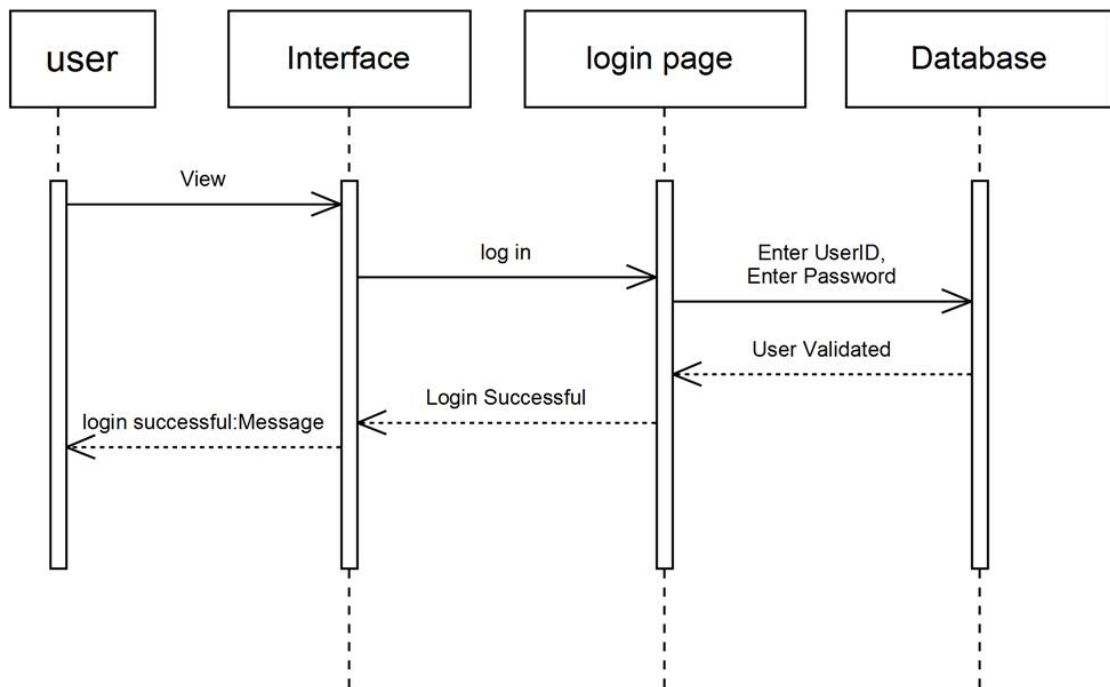


Figure 4.4: Login Sequence

4.3.2.2 Search

Figure 4.5 shows the sequence diagram about the search function.

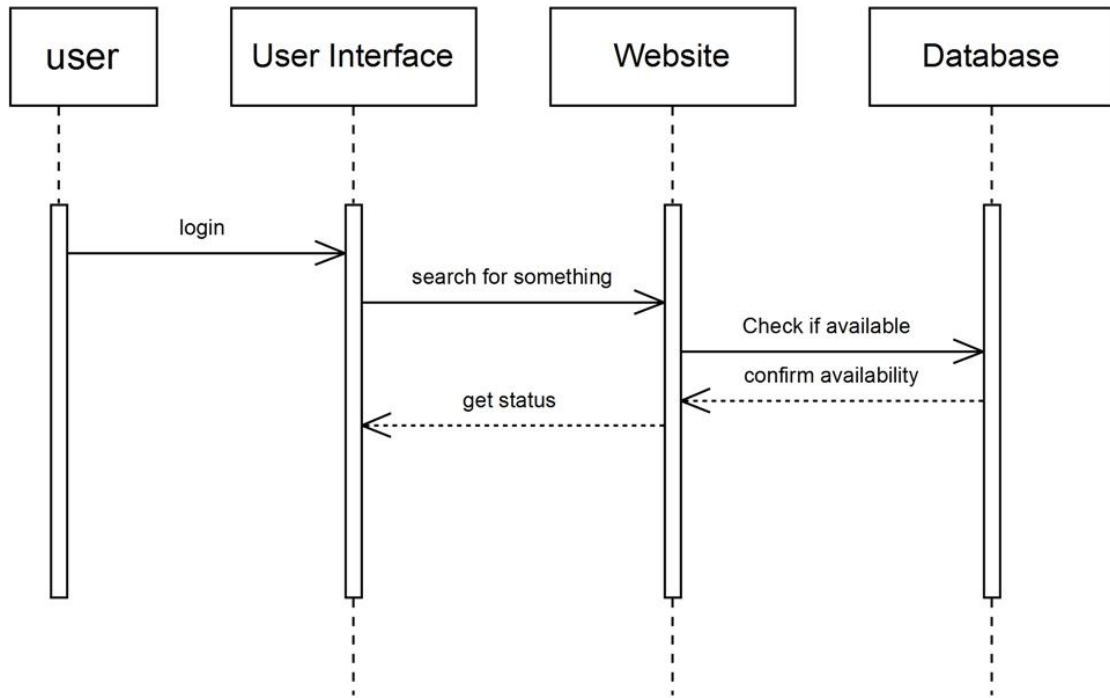


Figure 4.5 : Search Sequence

CHAPTER 5

DESIGN AND IMPLEMENTATION

5.1 Introduction

This chapter concern with design stage activities like: implementation phases of the system, Technology Choices, system architecture, user interface sketches.

5.2 Design

System design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. After specifying all requirements extreme design relies on test driven development. After well understood of requirements OMC design starting from explain main classes and their responsibilities and collaborators, after that system architecture designed for all components.

5.2.1 System architecture

A system architecture is the conceptual model that defines the structure, behavior, and more views of a system. [20].

A system architecture can comprise system components, it can provide a plan from which products can be procured, and systems developed, that will work together to implement the overall system. Figure 5.1 illustrates OMC System Architecture which consist of user connect to application which use all functions.

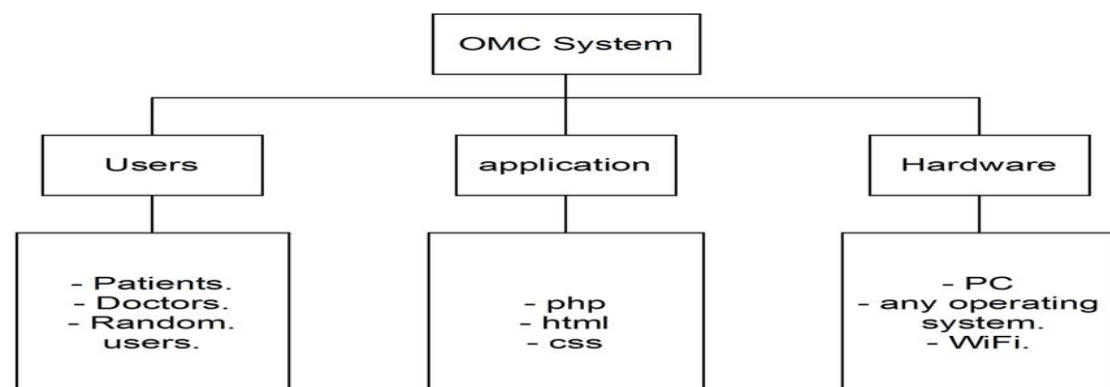


Figure 5.1: System Architecture

5.2.2 Class diagram

a class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects.

The class diagram is the main building block of object-oriented modelling. It is used both for general conceptual modelling of the systematics of the application, and for detailed modelling translating models into programming code. The classes in a class diagram represent both the main elements, interactions in the application, and the classes to be programmed. [21]

Figure 5.2 shows the class diagram.

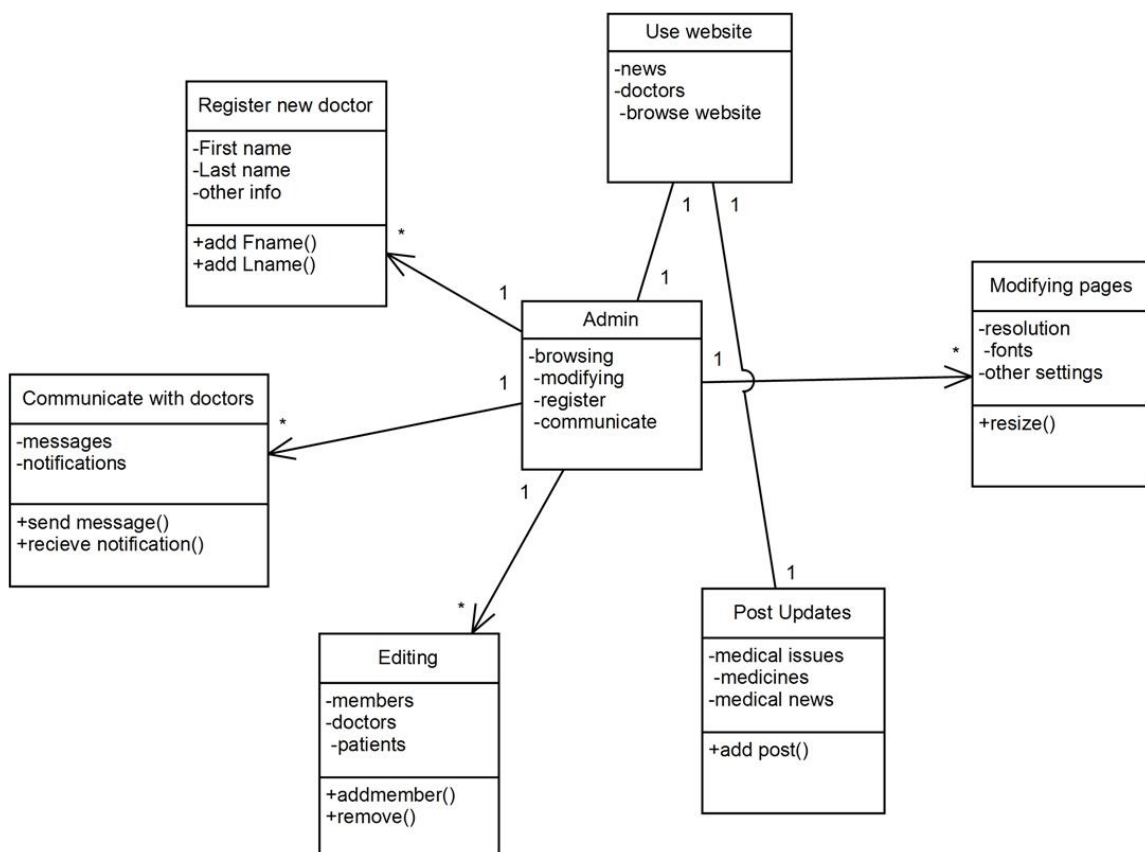


Figure 5.2: Class Diagram

5.3 Graphical User interface (GUI)

This part shows graphical interfaces of our website which includes register screen, our services, messages and about us page.

5.3.1 The register screen

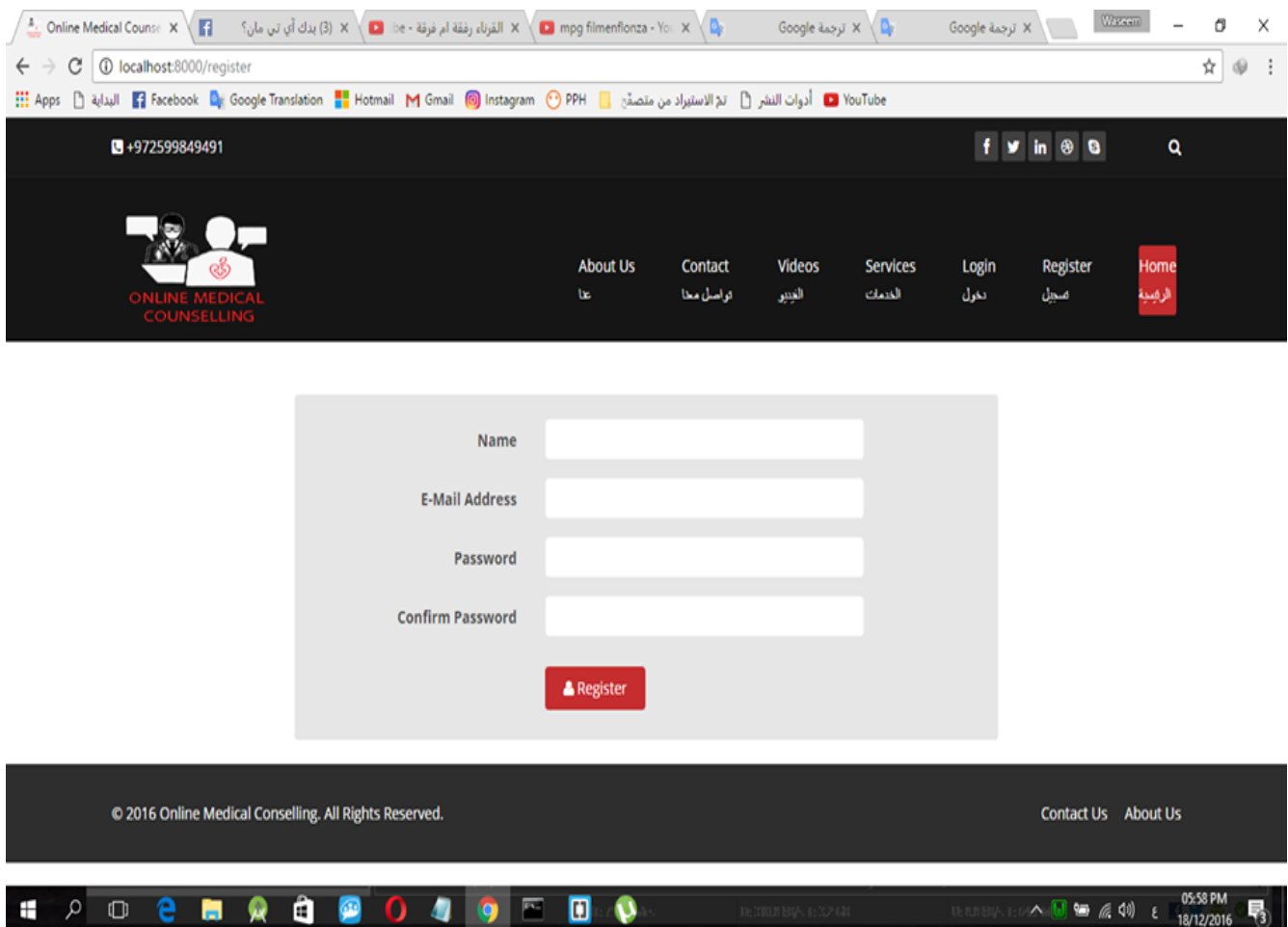


Figure 5.3: Register Screen

5.3.2 The website services

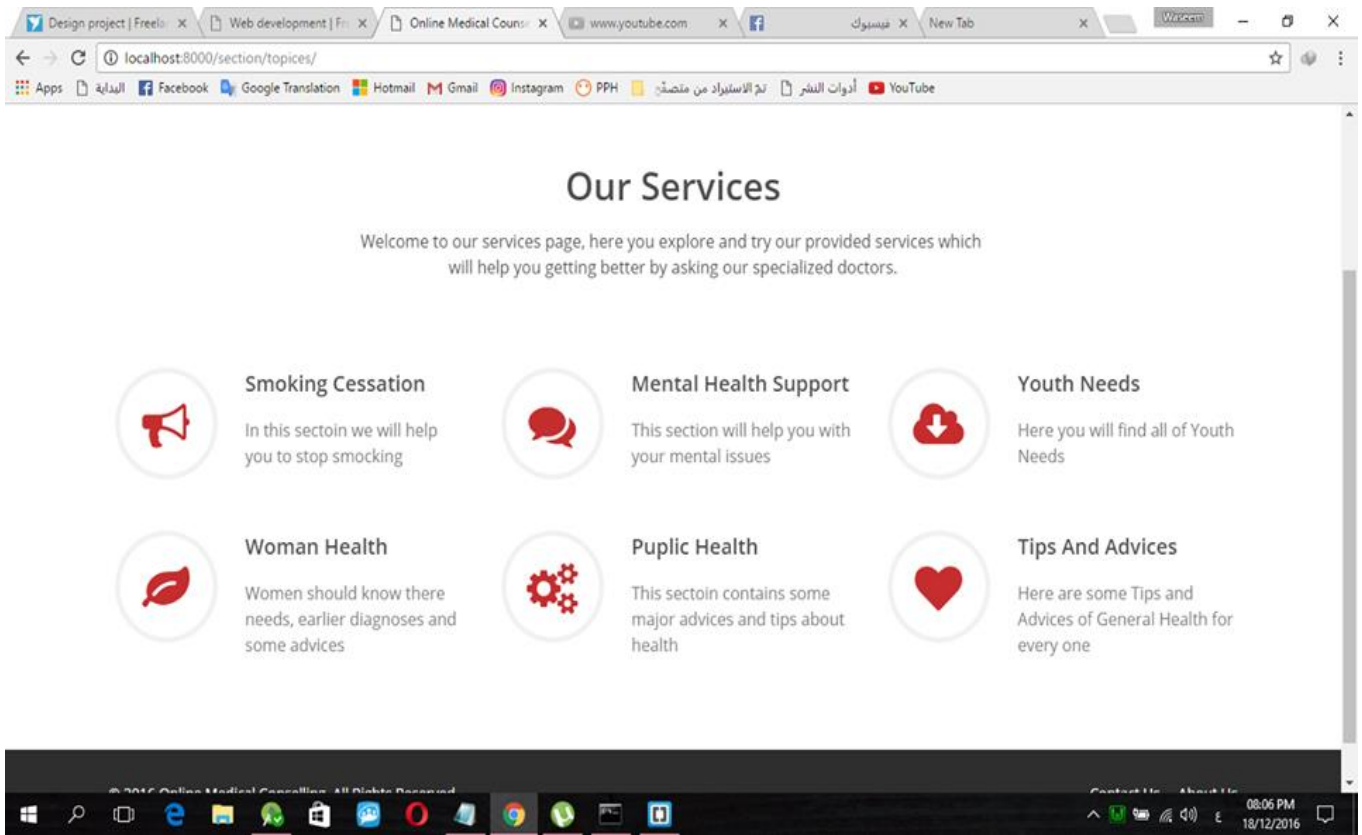


Figure 5.4: Services

5.3.3 Messages screen

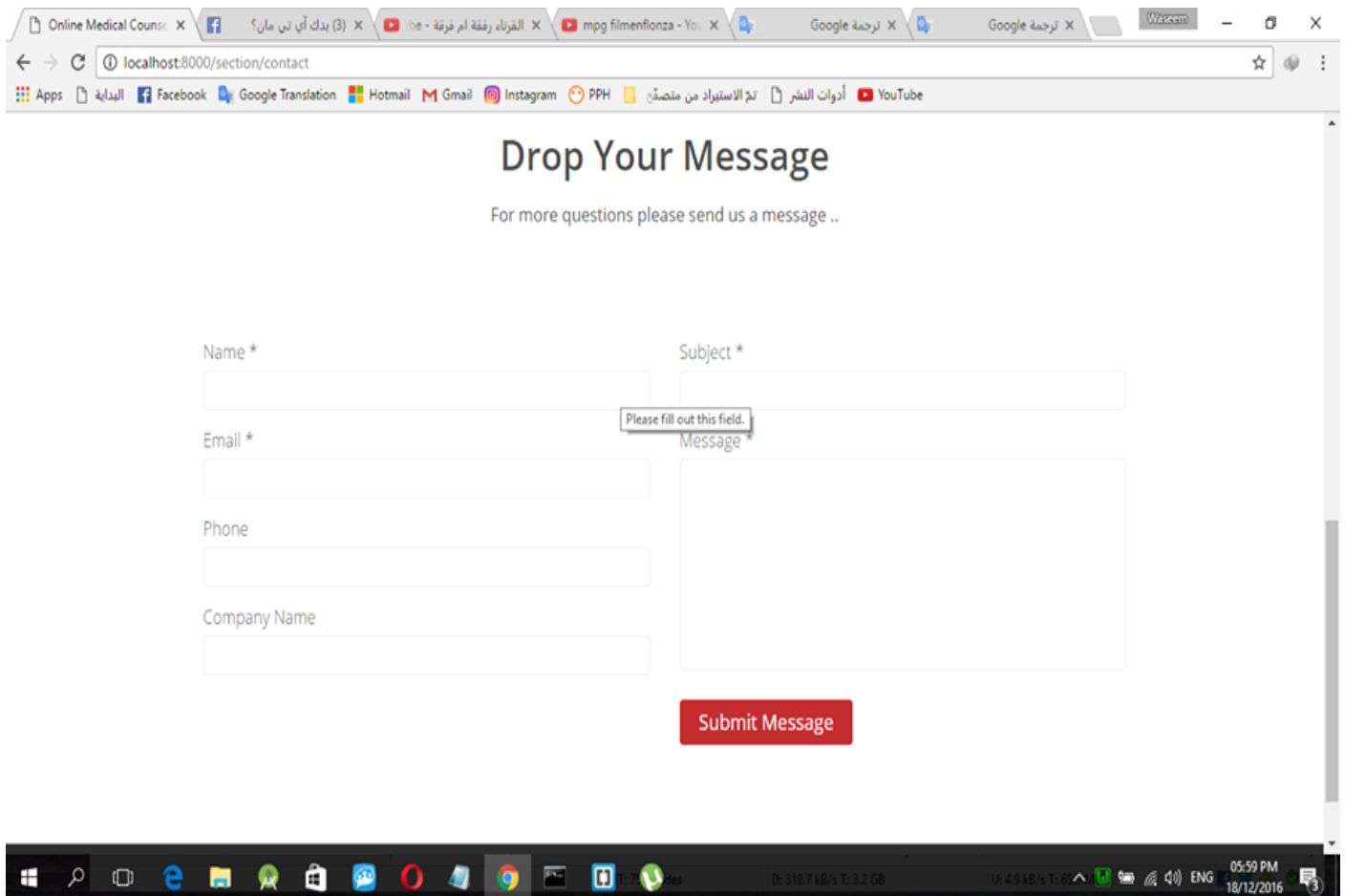


Figure 5.5 Messages Screen

5.3.4 About us page

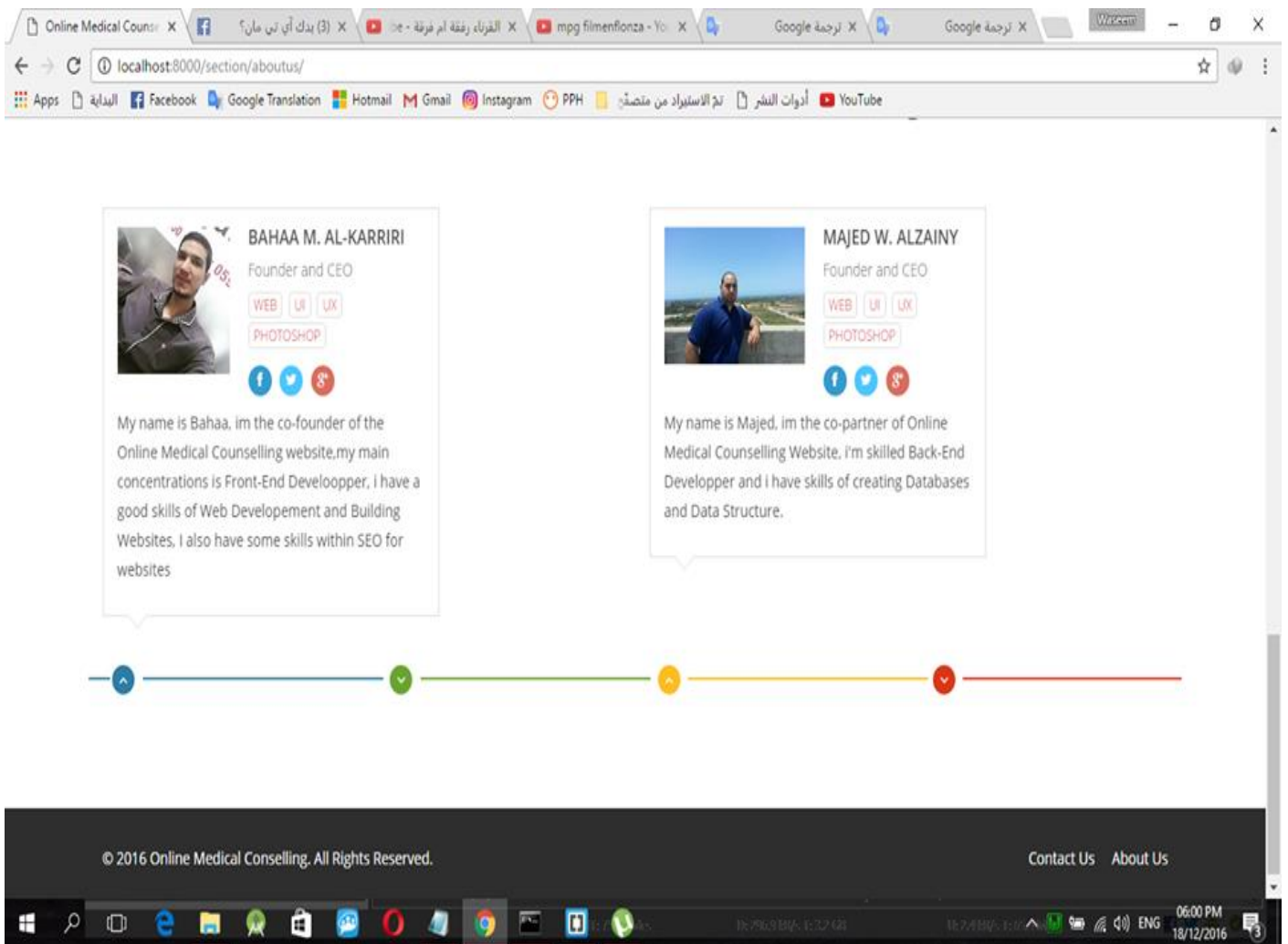


Figure 5.6: About Us Screen

5.4 Implementation

The implementation phase takes the requirements, designs phase product, and implements them using appropriate technologies. In the case of validation testing, it is during this phase that test cases are completed and automated in preparation for maintenance. Typically, extensive testing on the early system versions is also performed during this phase, not only to validate the system, but to validate that there are no problems with the test cases themselves.

The phases must match between the requirements and the output of the application to determine the verification for it.

Implementing our project contained gathering all the contents necessary to populate the pages of the site, and entering them into the pages.

Then transferring the pages to a server, and testing them (Technical Aspects).

After that launching the site by informing the public about its existence.

5.4.1 Development tools

5.4.1.1 PHP

PHP (Hypertext Preprocessor) is an alternative to Microsoft's Active Server Page (ASP) technology. As with ASP, the PHP script is embedded within a Web page along with its HTML. Before the page is sent to a user that has requested it, the Web server calls PHP to interpret and perform the operations called for in the PHP script.

5.4.1.2 HTML

HyperText Markup Language (HTML) is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS), and JavaScript, it forms a triad of cornerstone technologies for the World Wide Web. Web browsers receive HTML documents from a webserver or from local storage and render them into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

5.4.1.3 CSS

CSS stands for Cascading Style Sheets, CSS describes how HTML elements are to be displayed on screen, paper, or in other media. saves a lot of work. It can control the layout of multiple web pages all at once.

CSS gives more control over the appearance of a Web page to the page creator than to the browser designer or the viewer.

5.4.1.4 Photoshop CS6

An image editing software developed and manufactured by Adobe Systems Inc. Photoshop is considered one of the leaders in photo editing software. The software allows users to manipulate, crop, resize, and correct color on digital photos. [21]

CHAPTER 6

TESTING & EVALUATION

6.1 Testing

Software testing is more than just error detection; testing software is operation of the software under controlled conditions, to verify that it behaves as specified; to detect errors, and to validate that what has been specified is what the user actually wanted. [22]

1. Verification is the checking or testing of items, including software, for conformance and consistency by evaluating the results against pre-specified requirements.
2. Error Detection: Testing should intentionally attempt to make things go wrong to determine if things happen when they should not or things do not happen when they should.
3. Validation looks at the system correctness, i.e., the process of checking that has been specified is what the user actually wanted.

In other words, validation checks to see if we are building what the user wants/needs, and verification checks to see if we are building that system correctly. Both verification and validation are necessary, but are different components of any testing activity. [23]

6.1.1 Purpose of Testing

There are two fundamental purposes of testing: verifying procurement specifications and managing risk. First, testing is about verifying that what is specified is what is delivered; it verifies that the product (system) meets the functional, performance, design, and implementation requirements identified in the procurement specifications. Second, testing is about managing risk for both the acquiring agency and the system's vendor/developer/integrator. The testing program is used to identify when the work has been completed, so the contract is closed, the vendor is paid, and the system is shifted by the agency into the warranty and maintenance phase of the project. [24]

Things tested before making our Site Goes Live:

6.1.2 Usability Testing

A Usability test establishes the ease of use and effectiveness of a product using a standard Usability test practices.so, Basically, system navigation is checked in Usability testing.

Usability Test Scenarios:

- Web page content should be correct without any spelling or grammatical errors
- All fonts should be same as per the requirements.
- All the text should be properly aligned.
- Scroll bar should appear only if required.
- All the error messages should be correct without any spelling or grammatical errors and the error message should match with the field label.
- Etc.

Testing results

#	Test case	Expected result	Results, Pass/Fail
1	<ul style="list-style-type: none">• Web page content should be correct without any spelling or grammatical errors	No spelling or grammatical errors.	Pass
2	<ul style="list-style-type: none">• Scroll bar should appear only if required.	Scroll bar should appear.	Pass
3	<ul style="list-style-type: none">• All the text should be properly aligned.	All texts are properly aligned.	Pass
4	<ul style="list-style-type: none">• All the error messages should be correct without any spelling or grammatical errors.	All error messages are correct.	Pass

Table 6.1: testing results

6.1.3 Functional Testing

Functional Testing that ignores the internal mechanism of a system or component and focuses solely on the outputs generated in response to selected inputs and execution conditions

Functional Test Scenarios:

- Test that a confirmation message should display for update and delete operations.
- Test the functionality of the buttons available
- Test all input fields for special characters.
- Test the timeout functionality.
- Test the Sorting functionality.
- Etc.

Testing results

#	Test case	Expected result	Results, Pass/Fail
1	<ul style="list-style-type: none">• Test that a confirmation message should display for update and delete operations.	All confirmation messages display.	Pass
2	<ul style="list-style-type: none">• Test the functionality of the buttons available	All buttons are functioning well.	Pass
3	<ul style="list-style-type: none">• Test all input fields for special characters.	All input fields are okay.	Pass
4	<ul style="list-style-type: none">• Test the Sorting functionality.	Sorting is ok.	Pass

Table 6.2: testing results

6.1.4 Compatibility Testing

The purpose of Compatibility testing is to evaluate how well software performs in a particular browser, Operating Systems, hardware or software.

Compatibility Test Scenarios:

- Test the website in different browsers (IE, Firefox, Chrome, Safari and Opera) and ensure the website is displaying properly.
- Test the HTML version being used is compatible with appropriate browser versions.
- Test the images display correctly in different browsers.
- Test the fonts are usable in different browsers.
- Test the Animated GIF's across different browsers.
- Etc.

Testing results

#	Test case	Expected result	Results, Pass/Fail
1	<ul style="list-style-type: none">• Test the website in different browsers (IE, Firefox, Chrome, Safari and Opera) and ensure the website is displaying properly.	The website should function in different browsers.	Pass
2	<ul style="list-style-type: none">• Test the images display correctly in different browsers.	All images display correctly.	Pass
3	<ul style="list-style-type: none">• Test the fonts are usable in different browsers.	All fonts are usable.	Pass
4	<ul style="list-style-type: none">• Test the Animated GIF's across different browsers.	Animated GIFs work well.	Pass

Table 6.3: testing results

6.1.5 Security Testing

Security Testing involves the test to identify any flaws and gaps from a security point of view.

Test Scenarios for Security Testing:

- Verify the important information like password, credit card numbers etc should display in encrypted format.
- Verify password rules are implemented on all authentication pages like Registration, forgot password, change password.
- Verify the error messages should not display any important information.
- Verify the “View Source code” option is disabled and should not be visible to the user.

Testing results

#	Test case	Expected result	Results, Pass/Fail
1	<ul style="list-style-type: none">• Verify the important information should display in encrypted format.	All-important info display in encrypted format.	Pass
2	<ul style="list-style-type: none">• Verify password rules are implemented on all authentication pages.	The authentication is correct.	Pass
3	<ul style="list-style-type: none">• Verify the “View Source code” option is disabled and should not be visible to the user.	View ‘Source code’ is disabled.	Pass
4	<ul style="list-style-type: none">• Verify the error messages should not display any important information.	Error Messages doesn’t display Important info.	Pass

Table 6.4: results

6.1.6 Performance testing

- Performed to verify the server response time and throughput under various load conditions.
- **Load testing** - It is the simplest form of testing conducted to understand the behavior of the system under a specific load. Load testing will result in measuring important business critical transactions and load on the database, application server, etc. are also monitored.
- **Stress testing** - It is performed to find the upper limit capacity of the system and also to determine how the system performs if the current load goes well above the expected maximum.
- **Soak testing** - Soak Testing also known as endurance testing, is performed to determine the system parameters under continuous expected load. During soak tests the parameters such as memory utilization is monitored to detect memory leaks or other performance issues. The main aim is to discover the system's performance under sustained use.
- **Spike testing** - Spike testing is performed by increasing the number of users suddenly by a very large amount and measuring the performance of the system. The main aim is to determine whether the system will be able to sustain the work load.

6.2 Evaluation

Application maintenance is done to this system for the purpose of improving performance or adapting the system to a new environment and the programmatically implemented software module is tested for the correct output. Bugs, errors are removed at this phase. In the process of testing, a series of tests and test cases are performed to check the module for bugs, fault and other errors.

Erroneous codes are written and tested again until desired output is achieved. System can be maintained when needed or required such: When a new functionality is added, when a reality the software models change and software must be updated to run on improved hardware or with improved software. [25]

6.2.1 Evaluation Purpose

The major objective of the evaluation is to assess the progress of the project and the designed web application validity. The program evaluation aims at researching the following key areas:

- Relevance of the strategic lines and this application relate to the priorities for local communities and how they satisfy the objectives of application.
- Effectiveness of the web site application in terms of progress made toward the stated objectives.
- Efficiency of the this services in terms of overall progress toward achieving anticipated outputs and outcomes.
- Effectiveness of the program in ensuring gender equitable of web seeking users and management practices.
- Identifying strengths and areas of improvements in program management processes at all levels: from the program working group.
- Providing practical recommendations based on the findings of the evaluations.

6.2.2 Evaluation Criteria and specifications:

The program evaluation will be analyzed on the basis of five key criteria (relevance, effectiveness, efficiency, coverage and sustainability)

6.2.2.1 Relevance/Appropriateness:

The criterion of relevance will be used to assess whether the project fulfils an important function from a development perspective ("priority"), and whether the project and its related application design was fundamentally suited to achieving the goals associated with the program. How appropriate and effective was the methodology of identification of the needs, to what degree did the interventions address the health and users' needs.

This means that an assessment is made of whether the program appropriately addressed an important development goal.

6.2.2.2 Effectiveness and impact:

The criterion of effectiveness will be used to assess whether a development program achieved its goals and what factors inhibit or accelerate the meeting of these objectives and results. In order to allow a meaningful comparison of the targeted and actual outcomes, the program's goals should be expressed in the form of quantifiable levels of production or supply. Any unintended positive or negative effects, the Do No Harm principle and safe program approach observed will also be included in the evaluation. More questions will be answered especially the activities carried out in terms of its approaches adopted and the timeliness of the interventions, how can gender mainstreaming be improved, and what are the mechanism of accountability to the beneficiaries.

6.2.2.3 Efficiency:

The evaluation will be carried out on two different levels. On the one hand, an assessment is made of whether the effort required to provide goods or services was appropriate ("efficiency of production"). However, even more important is what we call "allocation efficiency" – achieving an adequate ratio between the funds used and the effects achieved. This involves looking into what other methods were available that could have achieved similar results.

6.2.2.4 Coverage

- Has the application used and other partners prioritized and targeted geographical areas based on health need? What were the main constraints in terms of prioritization and targeting? How these difficulties were overcome?
- Has the application reached the most vulnerable women, men, boys and girls in areas on all sides of the Gaza?
- How appropriate and relevant were the eligibility criteria for beneficiary selection (e.g. of capacity building activities) and how consistently have they been applied? What were the main constraints in terms of prioritization and targeting of beneficiaries?

6.2.2.5 Sustainability:

Our aim is to achieve not only short-term improvements but also sustainable results. For this reason, we investigate whether any improvements are likely to endure. We consider the criterion of sustainability to have been met if the project-executing ministry (Ministry of health-Health Education Department) or target group is in a position to successfully continue.

6.2.3 Evaluation Methodology

Key Informant Interview (KII)—Experts, IT technical staff from the MOH, and key staff involved in the program implementation participated in the interviews, aided by a checklist to facilitate discussion (it will be reviewed with the MOH). The form used in KII will asked participants to evaluate certain parameters of the program.

Focus Group Discussion (FGD): FGDs will be arranged with leaders and members of the targeted areas youth and women as a program beneficiaries. Men and women met separately in two meetings in each of the districts visited. A checklist will be used to guide discussion

Online Questionnaire – Surveys will be conducted in 250-350of the web users using a questionnaire prepared for this purpose so as to get more quantitative data from the users selected. Samples will be drawn from the program beneficiaries to fairly evaluate program interventions.

6.2.4 End-user evaluation

After distribution of OMC Questioner to difference institutions students, academic, researcher gradulators, we pleaser extent of approval and encouraging for this application. Figure 6.1 shows questioner results of questioned institutions which explain numbers of user choices of questioner options, Figure 6.2 shows how extent of acceptance of OMC.

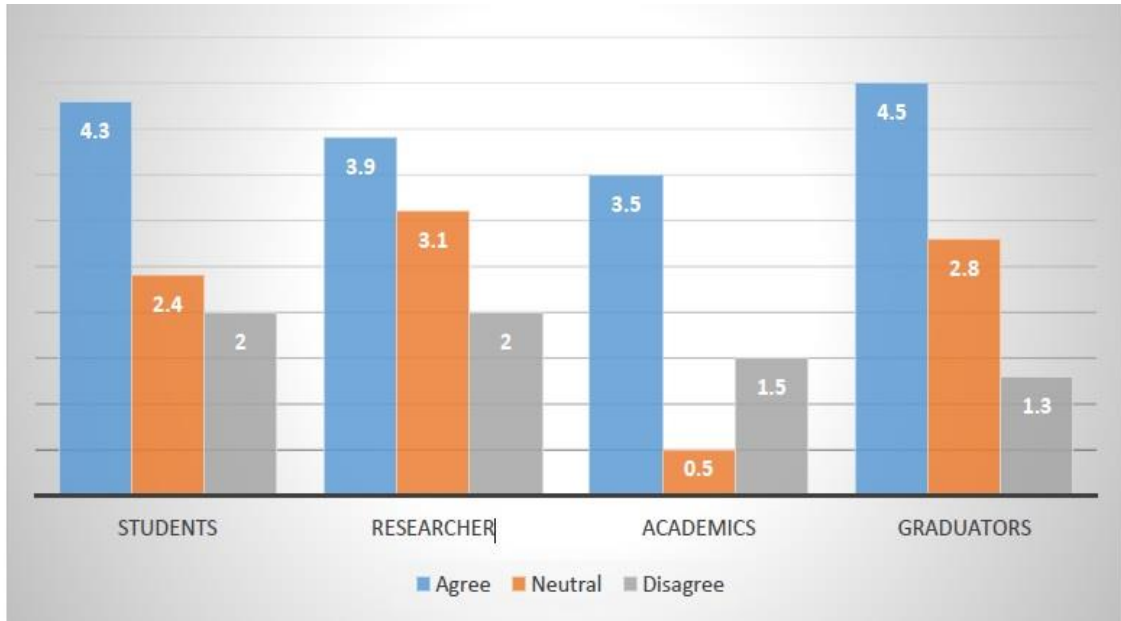


Figure 6.1: OMC Evaluation

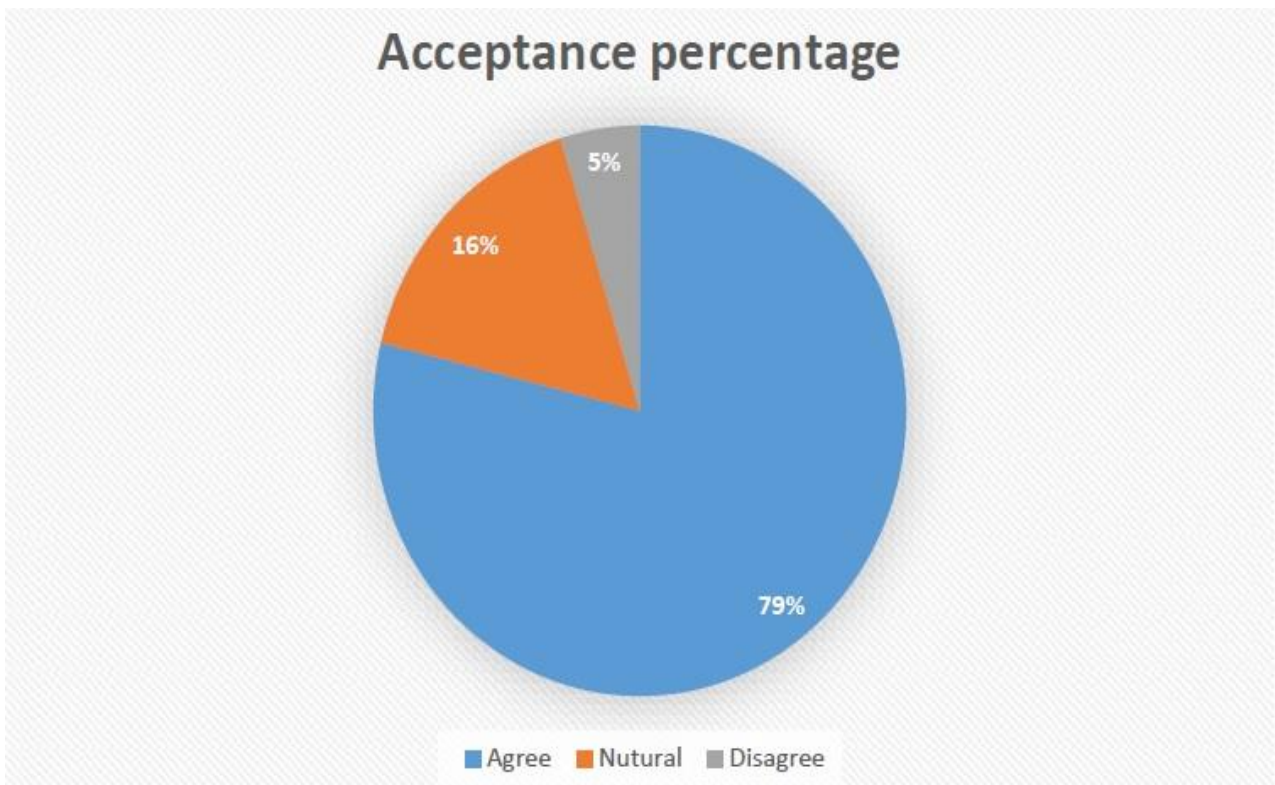


Figure 6.2: OMC acceptance percentage

CHAPTER 7

CONCLUSION & FUTURE WORK

7.1 Introduction

This chapter summarizes the discussion about the project and shows the future work. At the end, it gives a conclusion for the project with Results has been reached and provides some important recommendations for the system developer in the future. The new system has been deployed with so much care that it is develop with the minimum number of errors and at the same time efficient and less time consuming.

7.2 Conclusion

In conclusion, we believe we will fulfill the promise of health information on the Internet. We provide credible information, supportive communities, and in-depth reference material about health subjects that matter to you. We are committed to improving our site. We will continue to publish even more content, communities, and services to help make your life better, to help you find your way when faced with healthcare decisions, and to help you feel better about your health and that of your family.

7.3 Future Works

- It will be recommended to develop an application that will work under all platforms such as android, windows phone and IOS to reach all people.
- Support more languages.
- make our website reached globally.

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Appendices:

استبانة تقييم لموقع online medical counseling

عزيزي الطالب/ عزيزي الموظف

السلام عليكم ورحمة الله وبركاته

تهدف هذه الاستبانة الى معرفة وجهة نظرك وانطباعك عن استخدام موقع **online medical counseling** وهو موقع يهدف الى تسهيل الوصول وامكانية استشارة الاطباء في اي امور تخص الحالة الصحية لاي شخص .

نرجو منكم التفضل بالإجابة عن اسئلة الاستبانة التالية، علما ان اجاباتكم ستستخدم لغرض البحث العلمي فقط وستكون مساهمتكم في محل الاحترام والتقدير.

وتفضلوا بقبول فائق التقدير والاحترام

الطلاب:

ماجد وليد الزيني

بهاء معين الكريري

كلية تكنولوجيا المعلومات

جامعة فلسطين

مدينة الزهراء

تنقسم هذه الاستبانة الى قسمين:

القسم الاول يهتم بمعلومات خاصة بك:

1- ماهي وظيفتك الحالية: _____

2- الجنس ذكر انثى.

3- سنوات الخبرة في استخدام الانترنت:

لا يوجد اقل من 5 سنوات 5-9 سنوات 10 سنوات

القسم الثاني من الأسئلة

القسم الثاني حول استخدام الموقع:

بعد قراءتك للخيارات ضع دائرة حول الخيار الموافق لرأيك:

ما مدى رضاك في تصميم وشكل الموقع:

راض بشدة

راض

محايد

غير راض

غير راض اطلاقا

كيف تقيم سهولة استخدام الموقع:

سهل بشدة

سهل

محايد

صعب

صعب جدا

هل واجهتك مشاكل تقنية عند استخدامك للموقع:

○ نعم

○ لا

الخدمة التي يقدمها الموقع كافية:

○ نعم

○ لا

يعمل الموقع بالشكل الذي تريده:

○ نعم

○ لا

الموقع يحتاج لتسهيل خدماته:

○ نعم

○ لا

اوصي باستخدام الموقع:

○ نعم

○ لا

يرجي ذكر مقترحات او مشاكل تقنية واجهتك خلال تجربتك :

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