MEDICAL EXPERT SYSTEM ON GYNECOLOGY

by

KOLAWOLE, Tope Matthew

PGD/MCS/2007/1227

Submitted to Department of Mathematics/Computer Science

Federal University of Technology

Minna

In partial fulfillment of requirements leading to the award of

Postgraduate Diploma (PGD) in Computer Science

Federal University of Technology, Minna

July, 2010

DECLARATION

I, Kolawole, Tope Matthew; do hereby declare that this project work titled "Medical Expert System on Gynecology" was carried out by me under the supervision of Mr. Gbolahan Bolarin, of the department of Mathematics and Computer Science, Federal University of Technology, Minna, Nigeria.

_____ _____

KOLAWOLE, TOPE .M. **DATE**

CERTIFICATION

This is to certify that this project work titled "Medical Expert System on Gynecology" by KOLAWOLE, Temitope Matthew with matriculation number: PGD/MCS/2007/1227 was carried out in the Department of Mathematics and Computer Science, Federal University of Technology, Minna, Nigeria.

_____ _____

Mr. Gbolahan Bolarin Date

(Supervisor)

_____ _____

Prof. N.I. Akinwande Date

(Head of Department)

_____ _____

External Examiner Date

DEDICATION

This project work is dedicated to the Glory of God and my family.

ACKNOWLEDGEMENT

This project work like most research works is the brain child of the researcher, but the process of accomplishing it involves the contributions of many hands and minds. Of course many books and journals have been written on the subject matter. I therefore want to thank the Almighty God, the giver of life for divine protection, having to travel most of the weekends to attend classes.

My special thanks go to Mr. Gbolahan Bolarin my project Supervisor, for his understanding, dedication, patience and resourcefulness before and during my project work.

My sincere appreciation also goes to my Head of Department; Prof. N.I Akinwande, my able Professor, Prof. K.R. Adeboye, my PGD Coordinator; Mallam A. Ndanusa, Mallam A. Busari, Mallam M.A. Shafi'I, Mr. Gbolahan for their encouragement and technical inputs and all other academic and non-academic staff for the contributions towards achieving this feat.

I want to acknowledge the contributions of my course mates, particularly; Mr. Aiyejagbara Raphael, Mr. Ibrahim Ahmed, Mr. Olusegun Bodunde, Mr. Adeleke Blessing, Mr. Musa Umar, Mr. Zacchaeus Funso Adeyemi, Andemun Joel, Are Moshood and Muyiwa Ademola among others.

I am grateful to my wife for her unwavering support and my children for their patience and understanding.

TABLE OF CONTENT

CHAPTER THREE: SYSTEM ANALYSIS AND DESIGN

CHAPTER FOUR: SYSTEM IMPLEMENTATION

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

ABSTRACT

Medical diagnosis is the determination of the nature of disease prevalent in a patient. This entails taking the patients biometrics, health history, physical examination, laboratory and radiological examinations. Gynecology is that of branch of medicine that study the human anatomy as it relates to women reproductive organs. Areas of concentration for gynecologists include disorders of the uterus, or womb, the organ where an unborn fetus develops; ovaries, the organs that produce ova or eggs, which are the female sex cells; fallopian tubes, the channels connecting the uterus and the ovaries; cervix, the organ that connects the vagina, the canal between the cervix and vulva, or external organs; and breasts. The medical expert system is designed to create e-data bank for analysis and diagnosis of this branch of medicine for a first-stop medical point for patients, where information can be obtained first hand before a gynecologist is seen for proper medication.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Medical diagnosis has remained an essential medical practice as it upholds the core competence of the medical profession in general. Medical Diagnosis is described as the determination of the nature of a disease. Modern diagnosis combines the taking of the patient's health history, a physical examination, and laboratory and radiological examinations. Additionally, the introduction of medical expert system into medical diagnosis will empowered medical practitioners with state-of-the-art diagnosis tools to help serve patients better in health care delivery.

This system utilizes knowledge and analytical rules defined by experts in the fields. The introduction and applications of expert system will go a long way in providing solutions to complex problems in the absence of professionals in the field.

It is also important to note that, one area which has not been given adequate attention and involvement in the sphere of expert's system technology application in medicine is Gynecology, which entails the study of women's diseases, with special emphasis on the female reproductive organs. Areas of special concentration for gynecologists include disorders of the uterus, or womb, the organ where an unborn fetus develops; ovaries, the organs that produce ova, or

eggs, which are the female sex cells; fallopian tubes, the channels connecting the uterus and ovaries; cervix, the organ that connects the vagina and uterus; vagina, the canal between the cervix and vulva, or external female organs; and breasts.

Without a doubt, this branch of medicine remains complicated and diseases that are common in this branch requires professional and delicate attention to manage. However, this research design and analysis project is aimed at designing a medical expert system for the human anatomy on gynecology, which will provide professionals, patients and medical students with a detail and computerized system for easy explorations of the branch and also diagnosis and treatment of various diseases that are peculiar to the field.

1.2 Statement of the Problem

Medical diagnosis and care as it concerns the female reproductive system (Gynecology) is becoming more and more complicated as a result of upsurge in diseases and infirmities which requires detailed study. Within the confine of limitation, this research will address the following:

1. Assist doctors in the diagnosis and medication of gynecology related diseases
2. Avail doctors and patients with adequate information about the human anatomy relating to women reproductive organs.
3. Populate the list of medical expert system dedicated to human anatomy for gynecological issues.

4. Reduce the time it takes to get an expert (gynecologist) appointment for basic gynecological issues that could be resolved with detailed information proximity.

1.3 Objective of the Study

The key objective of this research work is to design a medical expert system on human anatomy for Gynecology, which will provide an easy and effective way of treating reproductive related diseases. To also:-

1. Review and analyze various gynecological issues.
2. Gather relevant gynecological materials both text based and graphics.
3. Determine the software requirements that will be best fit the design and implementation of the proposed medical diagnosis expert system on human anatomy for gynecology.
4. Review basic and advanced object oriented programming concepts that will enhance the design and development of the proposed system.
5. Design, code test and implement the computer based medical expert system for gynecology.
6. Prepare detail operational manual and implementation documentation.

1.4 Significance of the Study

The proposed research will help to:

1. Provide patients and doctors alike with relevant information that will enable them prevent gynecological related diseases.
2. Manage the health of a woman more productively by understanding her system intimately.
3. Serve as a guide to personal health management for women; providing relevant information and answers to common female reproductive issues.
4. Save patients (women) the cost for attending training and teaching sessions that deals with female reproductive related issues.
5. Demonstrate the use of object oriented programming techniques in the design and implementation of expert systems for basic medical diagnosis purpose.

1.5 Scope of the Study

The scope of the study is to review, design and implement a medical diagnosis expert system on human anatomy for gynecology, which will provide expert advice and consults to women on major reproductive issues that are peculiar to the female anatomy such as the Breast, Pelvic, Uterus, ovaries, fallopian tubes etc. The research will provide valuable information on this organs and how they can be taken care of to prevent diseases and other related illness.

1.6 Limitation of the Study

In view of the dynamic importance of the research work, the proposed system will not replace the place a gynecologist; however, the system will only help patients understand their reproductive system more effectively.

1.7 Research Hypothesis

Research hypothesis are the theories that requires detailed methodical investigations in order to accepted as true or rejected as false. In this research, two hypotheses will be scientifically investigated.

Hypothesis One

H_o: Reproductive oriented diseases are becoming more and more predominant with women due to poor awareness and management of their reproductive system.

H_1: Reproductive oriented diseases are not predominant with women due to poor awareness and management of their reproductive system.

Hypothesis Two

H_o: The proposed system will enable women prevent and manage effectively their reproductive health issues.

H_1: The proposed system will not enable women prevent and manage effective their reproductive health issues.

1.8 Definition of Terms

1. **Anatomy**: the branch of science that studies the physical structure of animals, plants, and other organisms.
2. **Database**: An organized collection of data on computer. A systematically arranged collection of computer data, structured so that it can be automatically retrieved or manipulated.
3. **Diagnosis**: the identifying of an illness or disorder in a patient through physical examination, medical tests, or other procedures.
4. **Estrogen**: any of a group of female sex hormones that stimulate the appearance of secondary female sex characteristics in girls at puberty. Estrogens control growth of the lining of the uterus during the first part of the menstrual cycle, cause changes in the breast during pregnancy, and regulate various metabolic processes.
5. **Expert System**: A type of computer application program that makes decisions or solves problems in a particular field, such as finance or medicine, by using knowledge and analytical rules defined by experts in the field.
6. **Fertilization**: The process in which gametes—a male's sperm and a female's egg or ovum—fuse together, producing a single cell that develops into an adult organism. Fertilization occurs in both plants and animals that reproduce sexually—that is, when a male and a female are needed to produce an offspring.
7. **Fibroid Tumor**: benign (noncancerous) growth that develops in the wall of the uterus. It may give no trouble or it may grow to be very large, causing pain

and excessively heavy menstrual periods. Treatment is by surgical removal of the fibroid itself (myomectomy) or of the uterus (hysterectomy).

8. **Gynecology**: the branch of medicine that deals with women's health, especially with the health of women's reproductive organs

9. **Gynecologist**: Gynecologists are physicians who have completed advanced training in female reproductive disorders, typically a four-year program that encompasses the field of obstetrics (the medical specialty concerned with pregnancy and childbirth) as well as gynecology.

10. **Infertility:** The inability to conceive or carry a child to term.

11. **Information**: An organized computer data. The meaningful material derived from computer data by organizing it and interpreting it in a specific way.

12. **Technology**: the Application of tools and methods. Also described as the study, development, and application of devices, machines, and techniques for manufacturing and productive processes.

13. **Menopause**: Menopause, permanent ending of menstruation in women. Menopause marks the end of a woman's natural ability to bear children. Menopause is usually preceded by 10 to 15 years during which the ovaries gradually stop producing eggs and sex hormones, a period called the climacteric.

14. **Menstruation**: Menstruation, periodic vaginal discharge in humans and other mammals, consisting of blood and cells shed from the endometrium, or lining of the uterus. Menstruation accompanies a woman's childbearing years, usually beginning between the ages of 10 and 16, at puberty, and most often

ceasing between the ages of 45 and 50, at menopause. Menstruation is part of the process that prepares a woman for pregnancy.

15. **Obstetrics**: branch of medicine that specializes in caring for women during pregnancy, labor, and immediately following childbirth. The term derives from the Latin *obstare,* meaning to stand by, or *opstare,* meaning to render aid, and *obstetrix,* meaning the woman who stands by. Until the early 18th century, childbirth assistants were usually *midwives,* women who provide care to other women during pregnancy and childbirth.

16. **Osteoporosis**, bone condition characterized by a decrease in density, resulting in bones that are more porous and more easily fractured than normal bones. Fractures of the wrist, spine, and hip are most common; however, all bones can be affected. Osteoporosis primarily affects women, who account for nearly 80 percent of all cases.

17. **Uterus**: Uterus or Womb, flattened, pear-shaped, hollow organ in the pelvis of the human female and most other mammals. In pregnancy, it is the organ that holds the unborn developing child

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Medical expert system has become an essential computer technology that has found its application in most areas of human activity as it seeks to replace the human experts in major jobs specifications. However, in an attempt to design a Medical Expert System on Human Anatomy for Gynecology, this chapter entails a review of Gynecology as a Branch of medicine and also basic and fundamental technologies relevant to the system under study.

2.2 An Overview of Gynecology

Linda (2007) defined Gynecology as the study of women's diseases, with special emphasis on the female reproductive organs. Areas of special concentration for gynecologists include disorders of the uterus, or womb, the organ where an unborn fetus develops; ovaries, the organs that produce ova, or eggs, which are the female sex cells; fallopian tubes, the channels connecting the uterus and ovaries; cervix, the organ that connects the vagina and uterus; vagina, the canal between the cervix and vulva, or external female organs; and breasts. For a more detailed discussion of the female reproductive organs, see Reproductive System or Human Sexuality.

Furthermore ***Linda (2007)*** described Gynecologists are physicians who have completed advanced training in female reproductive disorders, typically a four-year program that encompasses the field of obstetrics (the medical specialty

concerned with pregnancy and childbirth) as well as gynecology. Gynecologists perform routine checkups that include such tests as Pap smears and breast exams to help detect disorders of the female reproductive system. They perform a variety of surgical procedures on the female reproductive system. In addition, gynecologists often serve as the primary care physician for many of their patients. If they are licensed in obstetrics, they may also deliver babies.

Linda (2007) stated that the gynecological exam is designed as a preventive measure to screen for cervical cancer and, as well as to detect abnormalities such as cysts in the ovaries. The exam also ensures that a woman who is sexually active uses appropriate contraception (birth control) if she does not wish to become pregnant, or it permits her to discuss family planning and fertility (*see* Infertility) issues if she does want to have a child. The gynecologist also provides measures to prevent transmission or contraction of sexually transmitted infections.

A typical gynecological exam begins with a medical history; an interview conducted by the gynecologist or another health care professional to learn the patient's medical background. The patient then undergoes routine exams, which include checking her weight and blood pressure as well as taking a urine sample to check for bladder infections, kidney disease, and pregnancy, if the patient is of childbearing age. The doctor then performs an external exam that usually includes a breast exam and may include general assessment of the heart, lungs, thyroid gland, and any other areas that the woman's medical history

indicated may need special attention. Following the external exam, the doctor performs a Pap smear, removing cell samples from the cervix and vaginal secretions. These specimens are sent to a laboratory to be studied under a microscope for signs of unusual growth that may be an indication of cancer. In addition to the Pap smear, the doctor *palpates* the uterus and ovaries by putting two fingers in the vagina or one finger in the vagina and one in the rectum and then placing the other hand on the patient's lower abdomen and pressing the uterus and ovaries between two hands. This hands-on exam enables the physician to feel abnormal changes in the size or position of these organs. Such changes may indicate a problem.

If a woman is planning a pregnancy or is at risk for one, the doctor may recommend testing for immunity to such infections as German measles, which can result in birth defects if contracted during pregnancy. If the patient's family history includes hereditary disorders, such as Tay-Sachs disease (a brain disorder), the physician might also suggest screening for inherited diseases.

Often the doctor will have an assistant in the room during the exam. In part, the assistant helps with supplies needed for the exam; but in large measure the assistant's presence protects the patient, the doctor, and the clinic from any question of impropriety during the exam. Some states have laws requiring that a chaperone be present during pelvic exams. Any woman who feels uncomfortable

with the exam or the setting should request that a chaperone, friend, or family member be present.

Many gynecologists recommend that a woman begin having regular gynecological exams by her mid- to late-teens, preferably before she becomes sexually active. In addition, a girl should be examined at the time of puberty (the onset of sexual maturity) if problems occur that suggest a gynecological disorder, such as failure to develop breast tissue or pubic hair by her early teens, lack of normal menstrual cycles or menstrual periods marked by heavy bleeding, severe cramping, or other pelvic pain. Women should have yearly gynecological exams after becoming sexually active.

2.3 Conditions and Diseases

Philp (2001) explained that Gynecologists commonly treat a wide variety of disorders of the female reproductive system, including cancers, noncancerous conditions such as endometriosis, and infectious diseases, including sexually transmitted infections.

2.3.1 Gynecological Cancers

According to him, Gynecologists frequently detect cancers of the breast, skin, cervix, ovaries, and uterus, either during the physical exam or from results of tests such as Pap smears and pelvic ultrasounds. Each type of cancer is then evaluated to determine if a tumor has spread to other areas or remains confined to a specific

location. Gynecologists may refer women with suspicious skin lesions or breast lumps to surgeons. Alternatively, they may perform diagnostic procedures such as biopsies (removing tissue samples to study under a microscope) and, if a problem is identified, refer to cancer specialists for follow-up treatment such as specialized cancer surgery, chemotherapy, or radiation therapy.

2.3.2 Noncancerous Conditions

Gynecologists also treat noncancerous conditions. Fibroid tumors are fibrous growths of the muscle wall of the uterus. They are common in women 30 to 40 years old. Most benign (noncancerous) fibroid tumors simply cause the uterus to feel bigger than normal during a pelvic examination. Some, however, cause discomfort by pressing on surrounding structures such as the bladder or lower back. Fibroid tumors can also cause heavy vaginal bleeding if they are located on the interior surface of the uterus.

Ovarian cysts, fluid-filled sacs in the ovary, are common in women of reproductive age. During a normal menstrual cycle, small cysts form as ovulation occurs. Occasionally these cysts enlarge and cause pain, or benign tumors form in these cysts. Ultrasound testing can determine the nature of a cyst. Simple, fluid-filled cysts do not usually require any treatment, since they will generally go away on their own. Large, painful, or persistent cysts may require surgical removal. Cysts that have solid masses usually require surgery because they pose a risk of becoming cancerous.

Endometriosis is a common disease in which tissue similar to that of the uterine lining, or endometrium, are found throughout the abdomen. Irritation and inflammation of surrounding structures can cause severe pain, usually at the time of ovulation or menstruation. Endometriosis is associated with an increased risk of infertility, sometimes due to scar tissue that can block the fallopian tubes and prevent a fertilized egg from implanting in the uterus. Treatment may consist of surgical removal of endometrial tissue or hormone therapy designed to shrink the tissue. The disease improves with menopause, when natural hormone levels fall.

2.3.3 **Infections and Sexually Transmitted Infections**

Gynecologists treat a number of common infections of the female reproductive organs. Many of these infections are sexually transmitted, and without treatment they can spread to the patient's sexual partner.

Chlamydia is the most common sexually transmitted infection, affecting between three and four million men and women in the United States annually. Caused by the bacterium *Chlamydia trachomatis,* in men chlamydia can produce a discharge from the penis, pain during urination, and swelling in the testes; in women the infection may cause a yellowish vaginal discharge or vaginal bleeding. But in most cases there are no symptoms in infected women and they may unknowingly spread the disease. The infection can be successfully treated with oral antibiotics.

Gonorrhea produces vaginal discharge, pain when urinating, vaginal bleeding, and redness and irritation of the genital area. Caused by the bacterium *Neisseria gonorrhoeae,* gonorrhea can infect the anus, the vagina, the throat, and the eye. Like chlamydia, gonorrhea can be completely cured with antibiotics, but up to 70 percent of women have no symptoms, enabling this infection to spread unchecked.

Trichomonas is caused by a parasite and commonly causes a heavy, odorous, greenish or yellowish vaginal discharge. It can be treated with oral or topical antibiotics. Treatment is usually necessary for both affected women and their sexual partners, since reinfection is common.

Vaginitis is inflammation of the vagina that usually causes itching and burning, or a heavy, odorous discharge. The most common causes of vaginitis are vaginal yeast, trichomonas, and bacterial infection. Treatment usually consists of topical creams, which are generally available without a prescription, or prescription oral medications.

Genital herpes, caused by herpesvirus, causes a painful outbreak of blisters on the external genitals or on the cervix. Most individuals with genital herpesvirus are infectious during outbreaks, but the virus can be transmitted even when no symptoms are present. Treatment with oral antiviral drugs can suppress the number of outbreaks but does not eliminate the virus. Use of condoms lessens the

rate of spread, but condoms do not offer complete protection since the blisters and areas infected with the virus may not be covered by a condom.

Genital warts are small projections of skin around the vaginal opening in women or on the penis or scrotum in men. They are caused by one of many strains of the human papilloma virus (HPV) and are highly infectious. Many individuals exposed to the genital wart virus will not develop visible warts but will simply carry the virus in their skin cells. Viral genetic material actually incorporates itself into the skin and can remain there for years. Some women develop generalized irritation and burning of the vaginal skin from viral changes that do not create visible warts. The viral genetic material of certain strains of HPV is strongly associated with cervical and vaginal cancers, so women who have been identified as carrying the HPV virus are considered at high risk for cervical cancer.

Hepatitis B can also be acquired sexually. It is caused by a virus that can cause liver damage. There are 140,000 to 320,000 new cases of hepatitis B annually in the United States. Approximately 6 to 10 percent of people infected will become chronic carriers of the disease, presenting an enormous public health hazard as hepatitis B is highly contagious. There is no specific treatment. Public health officials hope to cut the incidence of hepatitis B through widescale vaccination of newborns, adolescents, and health care workers.

Syphilis is a bacterial disease that is usually acquired sexually. Syphilis begins with a large, ulcerated sore, called a chancre. If not treated at that stage, syphilis

can eventually infect many tissues in the body, including the brain. It can be identified by a combination of physical exam, laboratory evaluation of drainage from the chancre, and blood testing. It is treated with antibiotics.

2.4 Expert System Overview

2.4.1 Expert System Definition

According to ***Morris (2006)*** an expert system is a computer program that represents and reasons with knowledge of some specialist subject with a view to solving problems or giving advice. Possess knowledge, Specific domain, Solving problem or giving advice.

2.4.2 Basic Expert System Concepts

Knowledge base, Inference engine, Facts, Expertise, Problem domain, Knowledge domain of the expert, Expert System components, User interface, Explanation facility- explains reasoning of the system to a user, Knowledge Base – production memory (rules), Working memory- global database of facts, Inference engine, Agenda- prioritized list of rules satisfied by facts, Knowledge acquisition facility,

2.4.3 Advantages of Expert systems

James (2003) described some advantages of expert systems as Increased availability, Reduced cost, Reduced danger, Permanence, Multiple expertise, Increased reliability, Explanation, ast response; steady, unemotional complete response at all times; Intelligent tutor, Intelligent database

2.4.4 Expert System Tasks

The interpretation of data, Diagnosis of malfunctions, Structural analysis of complex objects, Configuration of complex objects, Planning sequences of actions.

2.4.5 Expert Systems Domains

According to **Encarta (2007)** some expert's system domains are Medical and health applications, Agricultural, Livestock, and food issues and needs, Energy Options, Natural Resource Exploitation, and Space Technology

2.4.6 Expert System Characteristics

Furthermore Encarta (2007) describes some characteristics of expert system as the ability to simulate human reasoning about a problem domain, Performs reasoning over representations of human knowledge, Solves problems by heuristic or approximate methods.

2.4.7 How Expert System differ from other Artificial Intelligence

According to **Morris,** expert system differs from other artificial intelligence by their

- Subject matter of realistic complexity that normally requires a considerable amount of human expertise.
- High performance in terms of speed and reliability is needed.

- Must be capable of explaining and justifying solutions or recommendations.

2.4.8 Review of Artificial Intelligence

AI is the part of computer science concerned with designing intelligent computer systems, that is, systems that exhibit the characteristics we associate with intelligence in human behavior - understanding language, learning, reasoning, solving problems, and so on.

AI is about the emulation of human behavior: the discovery of techniques that will allow us to program machines so that they simulate or extend our mental capabilities.

2.5 Software Development Project Review

Jack (2002) describes expert systems as fundamentally computer based programs that represents and reasons with knowledge of some specialist subject with a view to solving problems or giving advice.

The main objective of this research work is to design a medical diagnosis expert system on human anatomy for gynecology, which will help women and doctors manage gynecological related issues productively. Accordingly, this section reviews the computer technology dimension of this research work in an attempt to provide an expert based solutions to managing gynecological issues in women.

Doggett (1986) describes software as the Instructions that humans write to tell the computer how to do jobs and perform certain operations. He explained that the computer needs the hardware and software in order to work properly. It needs software to tell it what to do and hardware to actually carry out the work.

According to **Doggett**, software is an additional name for Computer programs. Programs are actual instructions that the user gives the computer. People who write these instructions are called programmers. A program might tell the computer how to calculate an employee's paycheck or locate a book in the school library; thus, they are important links between the computer and the users.

Encarta (2006) describes Software evolving from numerous versions or translations, as errors are corrected, the operation of the software system is enhanced, and changing requirements are encountered and dealt with. This work is often referred to as "software maintenance". Each new version is created through a software development process.

Characteristically software development is divided into four main phases:

- Requirements analysis and specification, which establishes what the software product is to achieve;
- Design, which determines how the software product will meet its requirements;

- Implementation, which creates the software product as designed (this combines the development of new components with the reuse or modification of existing ones); and
- Testing, which ensures that the software product operates as required. Intermediate products, such as requirements specifications and software designs, are also reviewed thoroughly as a basis for moving from one development phase to another.

The design and implementation of the proposed Medical Expert System on Human Anatomy for Gynecology will be designed in a controlled software development nature and phase sequence.

2.6 **Object Oriented Programming Concept**

Object Oriented Programming (OOP) is described as a system of programming that permits an abstract, modular typing hierarchy, and features polymorphism, inheritance, and encapsulation. Three basic features of Object Oriented Programming: -

Polymorphism: An object-oriented programming term that is used to refer to the ability to have methods with the same name, but different content, for related classes.

The procedure to use is determined at run time by the class of the object. For example, related objects might both have Draw methods. A procedure, passed such an object as a parameter, can call the Draw method without needing to know what type of object the parameter is.

Inheritance: An object-oriented programming term used to refer to the ability of a subclass to take on the characteristics of the class it's based on. If the characteristics of the parent class change, the subclass on which it is based inherits those characteristics. For example, if you add a new property, IsBold, to an editing control, any subclasses based on your control will also have an IsBold property.

Encapsulation: An object-oriented programming term for the ability to contain and hide information about an object, such as internal data structures and code. Encapsulation isolates the internal complexity of an object's operation from the rest of the application. For example, when you set the Caption property on a command button, you don't need to know how the string is stored.

2.7 An Overview of the Software Development Tool Used

Microsoft Visual Basic version 6.0 was the software development platform tool used for the design, coding and the Medical Expert System on Human Anatomy for Gynecology. The programming tools was selected and deployed because of its dynamic user interface capabilities and enhanced window based platform. This is a window-based object oriented programming language that enables the design of window based on graphical applications.

It is known as the greatest incarnation of the old BASIC language, which provides programmers with a complete Windows application development system in one package. Visual Basic (VB) enables developers write, edit, and test Windows applications. In addition, VB includes tools you can use to write and compile help files, ActiveX controls, and even Internet application.

Visual Basics Editions

1. The Standard Edition,
2. The Professional Edition, and
3. The Enterprise Edition.

In most programming task most programmers only needs the Standard or Professional Edition. The Enterprise Edition is aimed at developers who write network-intensive client/server applications. The Enterprise Edition is enhanced

to aid such programmers who work within the special client/server environments. As a result of the dynamic combination of visual basic editions, the professional and enterprise were used consecutively for the development of the Medical Expert System on Human Anatomy for Gynecology.

CHAPTER THREE

METHODOLOGY

3.1 Research Design

This chapter discusses the methods and measures involved in data collection. Also the chapter enumerated different terms of research like research design, area of study, population of study, sample of the study, methods of data collection and the statistical analysis of data.

In this research, the type of research used is the survey research method in which a group of people is studied by collecting and analyzing data from only a few people considered to be representative of the entire group.

3.2 Area of Study

The area of study in which this research was conducted is NNPC Medical Centre, Maitama Abuja

3.3 Population of Study

The population of study consists of Doctors and Patients of the hospital. The distribution is shown below: -

Doctors	=	5
Nurses	=	35
TOTAL	**=**	**40**

3.4 The Sampling Technique

In this sampling technique, each one element of the population has equal and independent possibility of being included in the sample. Let's say we have a population size of 500 elements, the probability of drawing each element is 1/500.

The samples resulting from the application of this procedure are said to be unbiased and are therefore representative of the population.

3.5 Sample of the Study

The distribution for the sample of the study is shown below: -

Table 3.1

QUESTIONNAIRE ADMINISTERED	QUESTIONNAIRE RECEIVED
40	40

3.6 Methods for Data Collection

The collection of appropriate data in any research activity involves deliberate and planned efforts. The methods, techniques or instruments used in executing this crucial exercise of data collection are detailed below: -

a. Questionnaire

Questionnaire is a survey document containing series of question with spaces provided for possible responses in form of prose or checklist for the individual respondent to answer. It is a practicable facts gathering method or document in which a row is provided for the individual respondent to record his or her response in respect to the question indicated. The questionnaire was used to determine the current status of opinions, intentions and motives of the

respondent specifically the open-end questions used whereby the researcher asked only questions pertinent to the problem.

We have structured/fixed questions, unstructured/open-ended questions. For the purpose of the research, the structured questionnaire whereby the respondent is restricted to some responses was used. A question is asked and a number of responses options enlisted. From these, the respondents are expected to pick any one that suits his response. This method would facilitate data analysis and estimations of validity and reliability indices for the instrument. In addition, it is easier and demands less time to complete.

b. **Interview**

Interview involves obtaining information from the respondent through some verbal interaction between him and the researcher. It involves the researcher to be skilled and vast by asking questions, and those questions have to be properly framed in such a way that the interviewee can easily understand what information is being asked for. This method is implored by the researcher to obtain reliable and valid information in the form of verbal from respondents in order to confirm or reject hypothesis and to gather relevant information.

c. **Reading and Record Evaluation**

Reading is a form of secondary research technique which involves the researcher gathering information from secondary sources like newspapers, related journal, textbooks, magazines, past projects and other relevant sources.

3.7 Instruments Used for Data Analysis

The statistical tool used to draw inference on the data collected is the chi-square (χ^2) test. The chi-square test is a non-parametric inferential statistical method used in the analysis of frequencies or nominal data. As a non-parametric statistics, it takes no restrictive assumptions about the distribution of scores in questions and so it can use where the assumption of parametric statistics about the distribution are not satisfied.

The chi-square is a two-tailed test. It can only whether or not a set observed frequencies differ significantly from the corresponding set of frequencies not possibly the direction in which they differ. The general formula for the computation of the chi-square statistics is given by

$$X^2 = \frac{\sum (0 - E)^2}{E}$$

Where

O = observed frequencies, E = expected or theoretical frequency and Σ = Sum of or summation

The above formula suggests that we have to determine the expected or theoretical frequencies first. The expected (theoretical) frequencies are those frequencies which occur, the null hypothesis, while the observed frequencies correspond to the frequencies obtained by direct observation of the phenomenon under consideration. Having obtained the expected frequencies, we then calculate the square of the difference between the observed and expected frequencies. These squared differences are divided by the corresponding expected frequencies and the ratios summed up to get x^2. The calculated x^2 is then compared with the critical or table x^2. If the calculated value of the x^2 exceeds table value, then we reject the null hypothesis; we do not reject the null hypothesis. To find the critical or table value, we have to (as in the case of t-statistics) decide on an appropriate alpha level (level of significance) and obtain the associated degree of freedom. Critical values of x^2 can be obtained from the sampling distribution table of x2 for df <=30 for df >30, the formula below as an approximately normal sampling distribution is used. Since the sampling distribution is approximately normal, we now compare the value we got from this formula with the appropriate critical value of the Z- statistics. There are two types of test in which Chi-square is usually applied, they are: The goodness-of-fit test and the Test of independence. In this research work, the test of independence would be used i.e. Contingency table.

3.8 Validity of the Instrument

The instruments used to obtained the data where used under a real-time data gathering approach, which enabled the researcher to obtained valid data. Hence, the instruments are valid.

3.9 Reliability of the Instrument Used for Data Analysis

Chi-square is a reliable instrument used for the data analysis of this research work because it provides a quantitative measure of the relationship between two categorical variables such as Doctors and Patients, first, by determining what the distribution of observations (frequencies) would look like if *no* relationship existed and, second, by quantifying the extent to which the observed distribution differs from that determined in the first step.

3.10 Data Analysis and Result

This section seeks to analyze the data, which were collected during the course of data collection for this research.

Table 3.2

Views on the need to have a medical expert system on human anatomy for gynecology

RESPONSE OPTION	RESPONDENT CATEGORY		
	DOCTORS	**PATIENTS**	**TOTAL**
STRONGLY AGREE	10	19	29
AGREED	2	4	6
UNDECIDED	2	2	4
STRONGLY DISAGREE	1	0	1
DISAGREE	0	0	0
TOTAL	**15**	**25**	**40**

Chi – Square Test Application

Aim: To investigate whether Doctors and Patients opinion agrees with the need to have a medical expert system on human anatomy for gynecology. In this analysis we apply the Chi-square test of independence at the 5% level of significance.

Hypothesis

H_o: Doctors and Patients agree with the need to have a medical expert system on human anatomy for gynecology.

H_o: Doctors and Patients do not agree with the need to have a medical expert system on human anatomy for gynecology.

Level of Significance

$\propto = 0.05$

Test Statistic

$$\chi 2cal = \frac{\sum_{i=n}^{r} \sum_{j=m}^{c} (oij - eij)2}{eij}$$

Decision Criterion

Reject H_0 if χ^2_{cal} exceeds $\chi^2_{0.05,4} = 9.48773$

3.11 **Computation of Analysis**

The computations are summarized in the contingency table below:

Table 3.3

Contingency Table

Oij	Eij	(oij-eij)	(oij-eij)2	(oij-eij2/eij)
6	3.96	2.04	4.162	1.051
2	3.24	1.24	1.5376	0.475
1	1.80	0.80	0.64	0.355
2	3.96	1.96	0.842	0.970
5	3.96	1.04	0.273	0.058
2	1.80	0.20	0.04	0.022
2	1.80	0.20	0.04	0.022
1	1.76	-0.76	0.578	0.328
1	1.44	-0.44	0.194	0.134
1	0.80	0.20	0.04	0.05
1	0.88	0.12	0.014	0.016
1	0.72	0.28	0.078	0.108

0	0.42	-0.42	0.176	0.420
0	0.44	-0.44	0.193	0.44
0	0.36	-0.36	0.129	0.360
1	0.20	0.80	0.04	0.20
TOTAL				**2.209**

Decision and Interpretation

Since χ^2_{cal} =2.209 does not exceed χ^2_{tab} = 9.48773 we accept H_o.

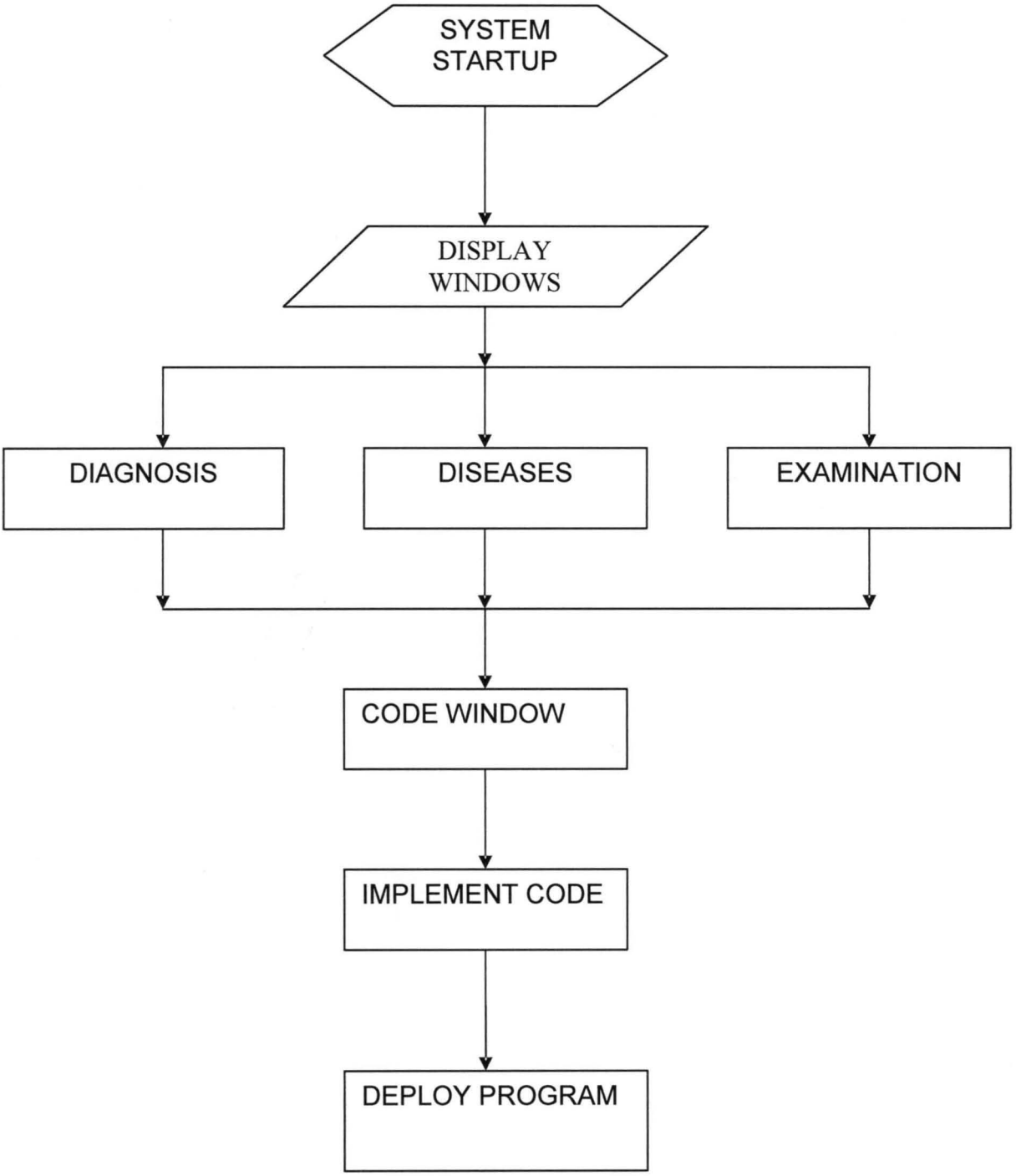
However, we conclude that Doctors and Patients agree with the need to have a medical expert system on human anatomy for gynecology.

3.12 Database Structure

Database systems form the core of all information processing system in business and other enterprise where computer applications have been embraced as an imperative tool. Consequently, the importance of having a wide-ranging database in an expert system cannot be underestimated. The reliability of an expert system is fundamentally a product of how extensive the underlying database system functions. Expert systems are designed to operate based on a vast disposition of data from which logically conclusions are derived. Given the fact that computers systems and programs cannot think, it's imperative to equipped the data end with enough information from which experts opinions can be deduced. In the course of design and development of the Expert system for Gynecology diagnosis software a database was created and deployed using Microsoft Access 2003 database management system suite, to facilitate data mining operations.

The tables embedded in the database are described below as follows:

3.16 **Data Flow Diagram**



CHAPTER FOUR

IMPLEMENTATION AND RESULTS

4.1 Introduction

This chapter deals with the core implementation and result phase of the research work. The chapter comprises of the system requirements, program display samples, source code listing et cetera.

4.2 System Implementation Requirement

The system requirements are the minimum hardware and software requirement for the development and implementation of the medical expert system on human anatomy for gynecology. The minimum hardware and software requirement are listed below: -

4.2.1 Hardware Requirement

The minimum hardware requirement for the application to be designed is: -

i. Pentium III 500MHz and above.

ii. A 15" SVGA color monitor.

iii. Hard disk with capacity of 20GB.

iv. UPS (uninterruptible power supply)

v. Power stabilizer.

vi. Input devices e.g. mouse, windows enhanced keyboard etc.

4.2.2 **Software Requirement**

The minimum software requirement is: -

i. Minimum of windows XP

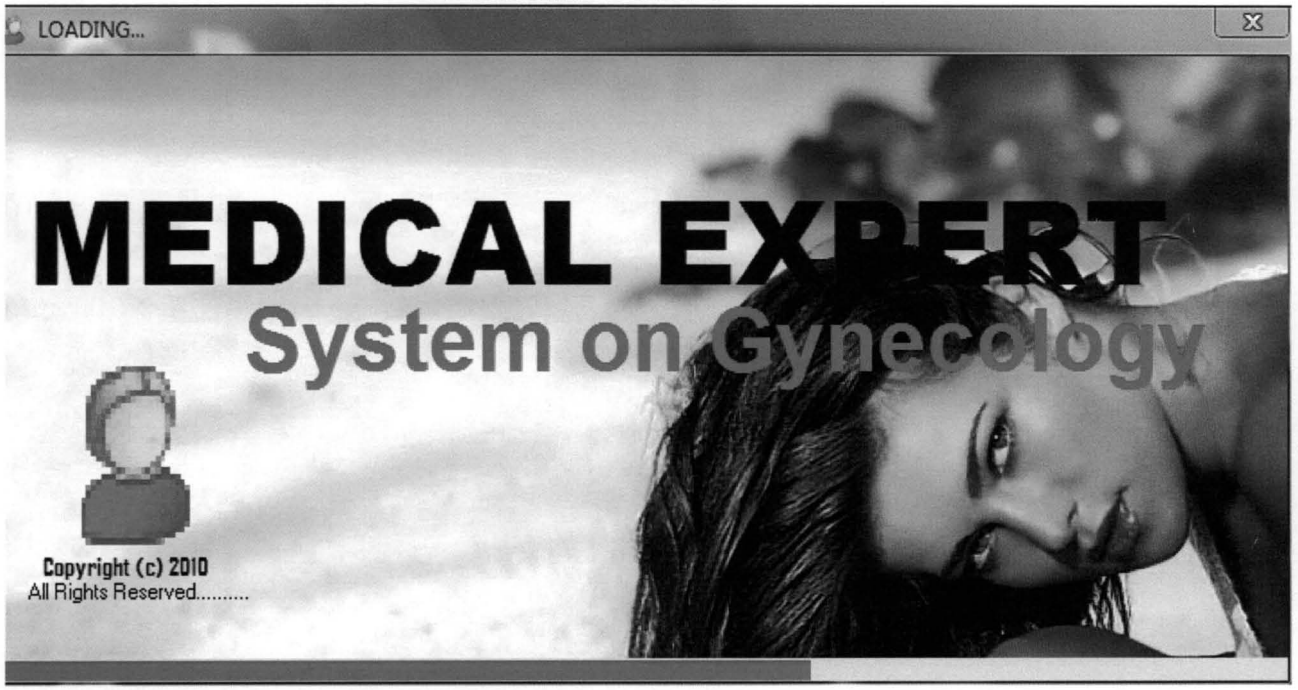
ii. Microsoft Office 2000 or higher

iii. Microsoft Visual Basic 6.0

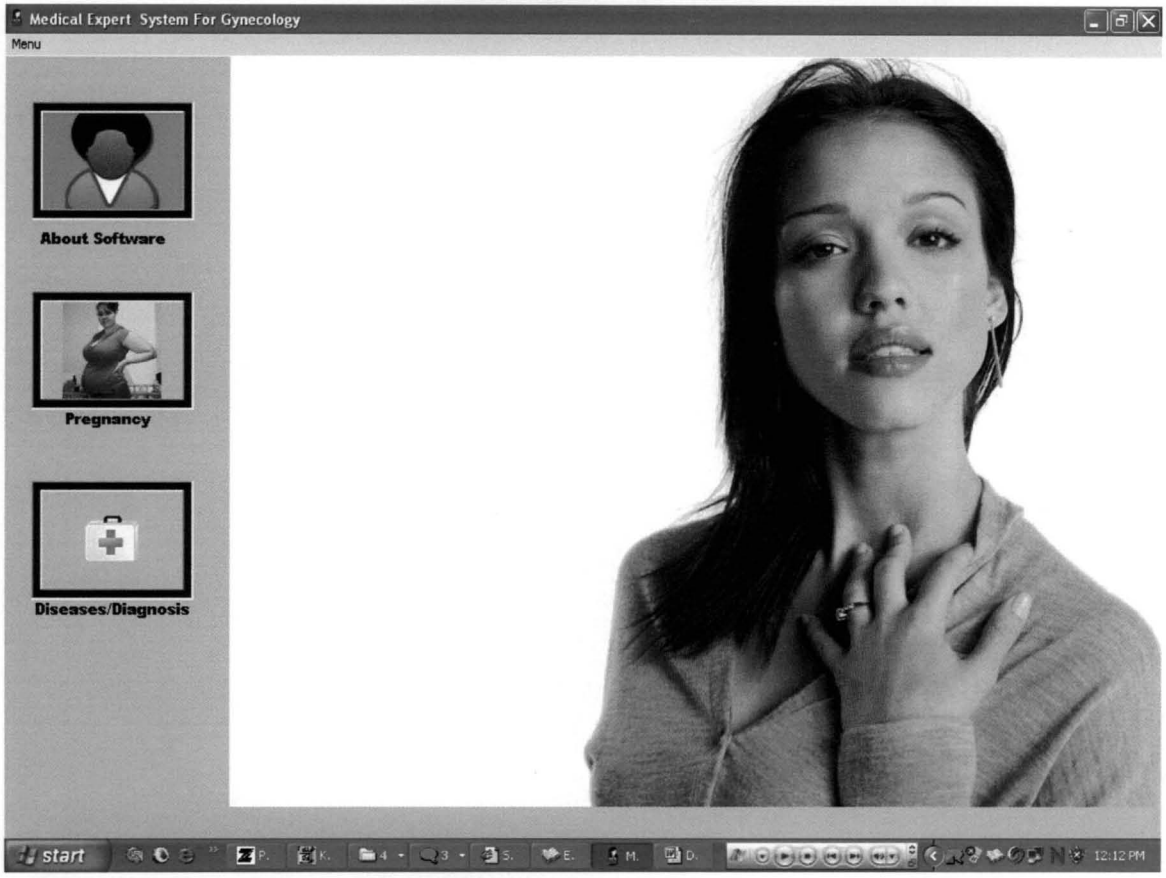
iv. Macromedia Flash MX

4.3 **Sample Output**

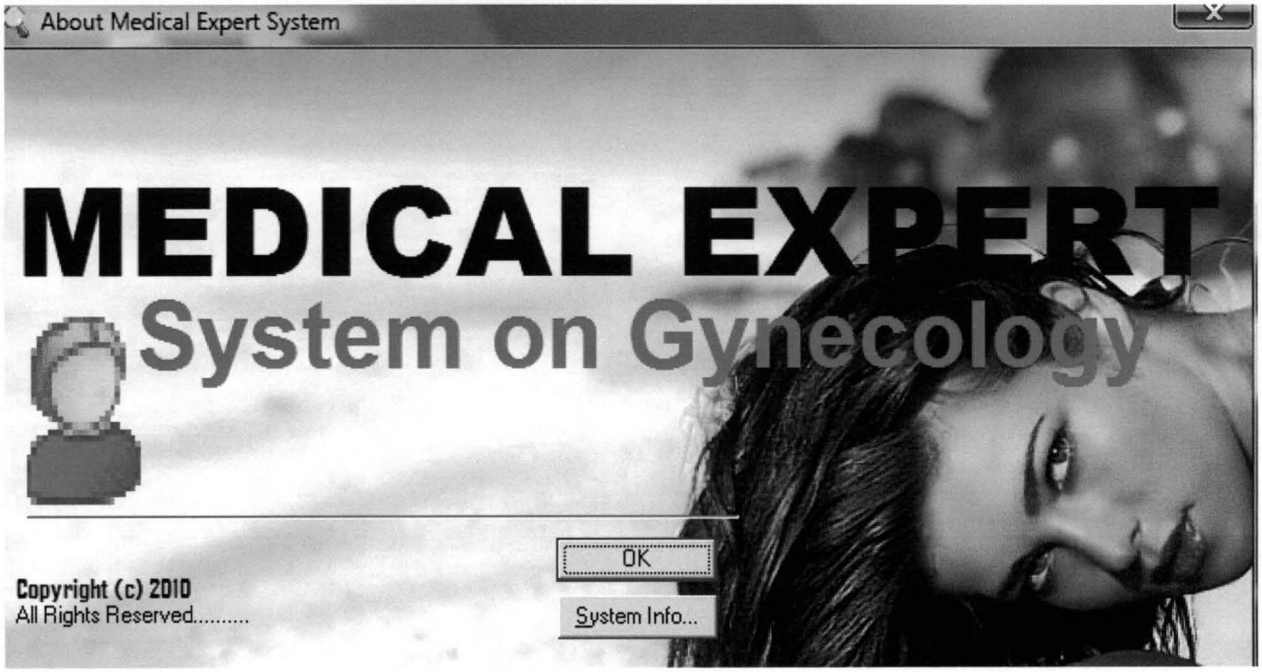
WELCOME SCREEN



PROGRAM MAIN MENU

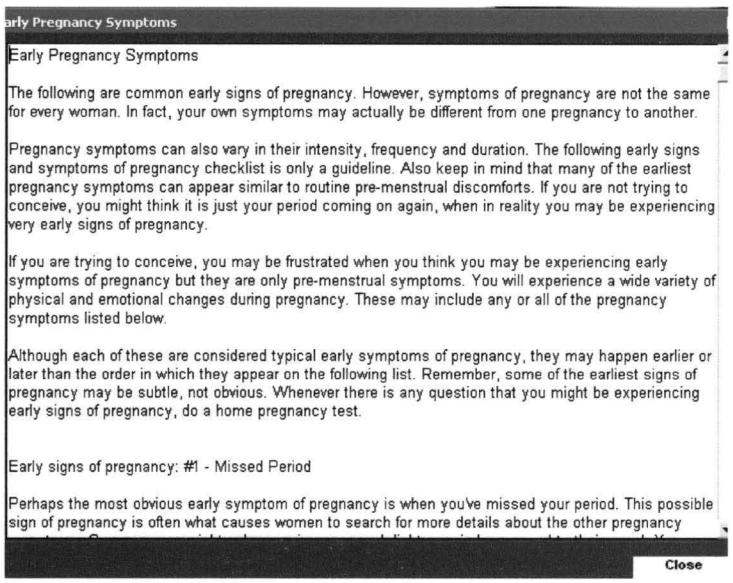


ABOUT SOFTWARE FORM

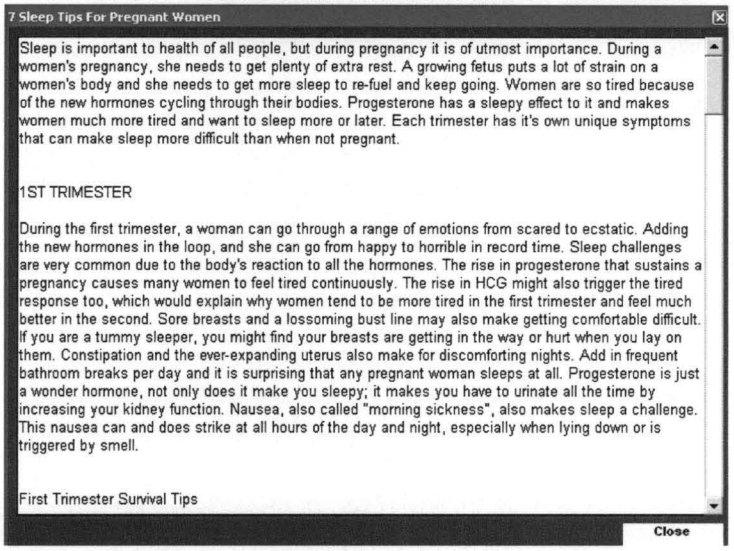


PREGNANCY INFORMATION MENU

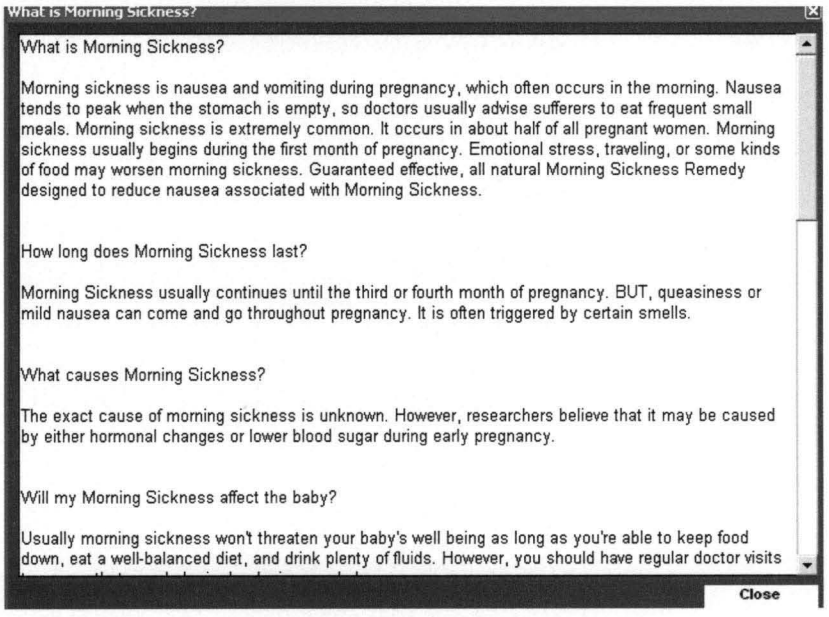
EARLY PREGNANCY SYMPTOMS



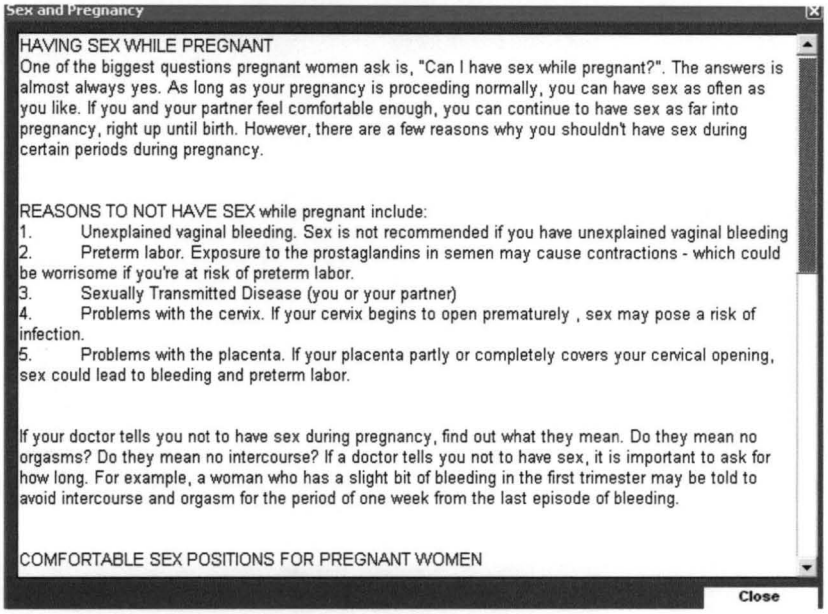
7 SLEEP TIPS FOR A PREGNANT WOMAN



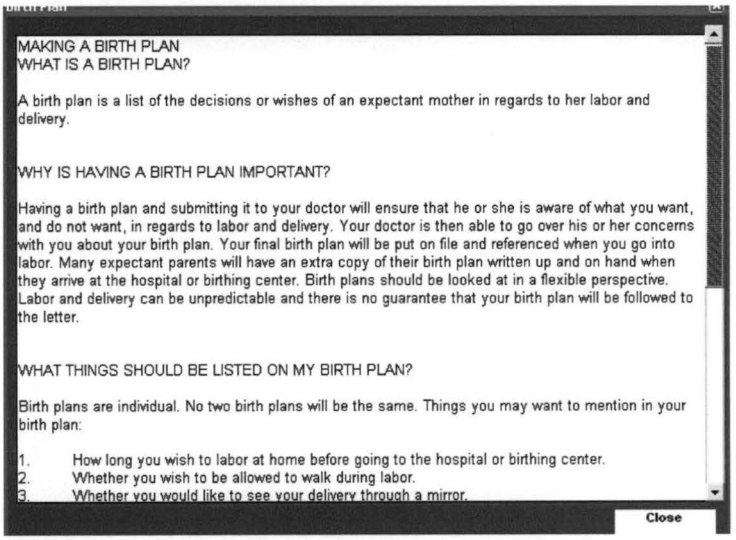
MORNING SICKNESS



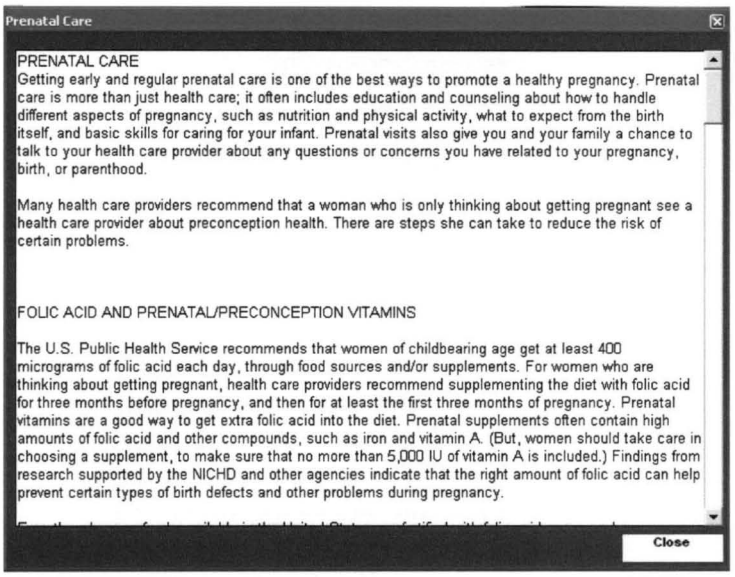
SEX AND PREGNANCY



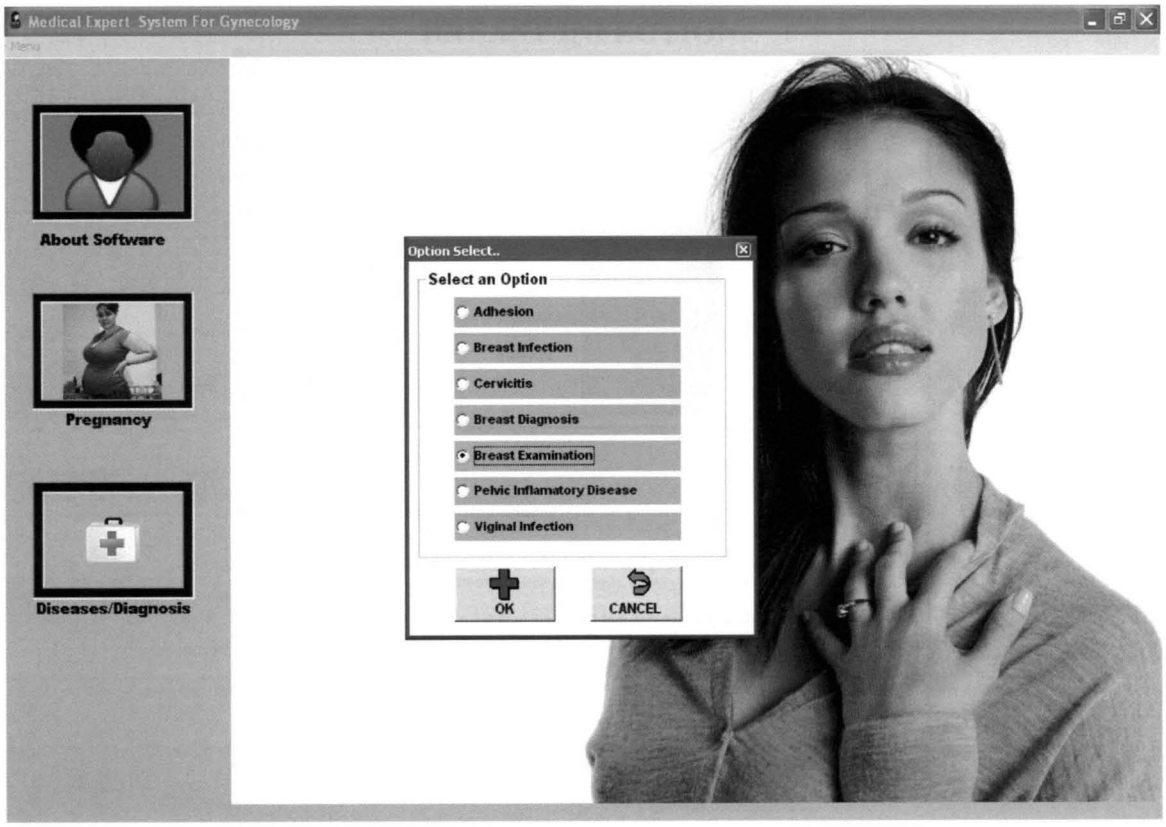
BIRTH PLAN



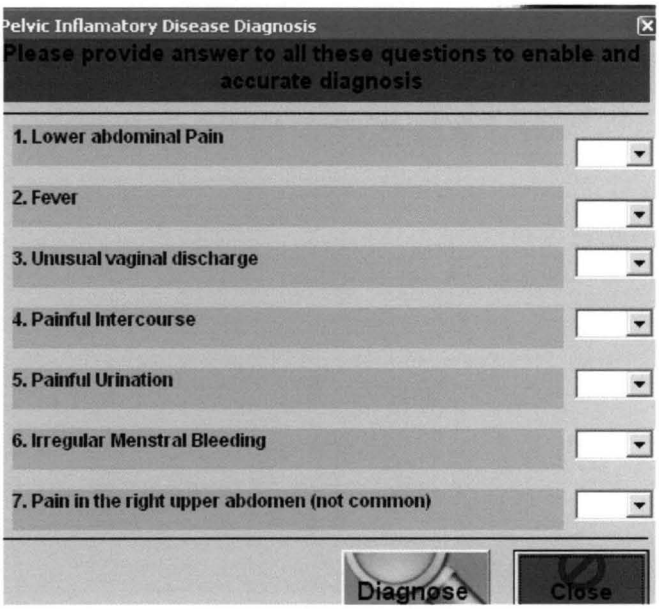
PRENATAL CARE

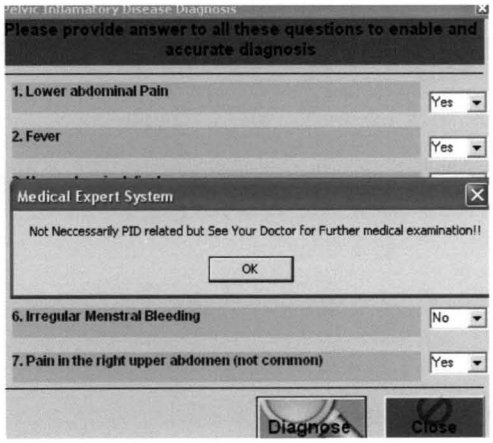


DISEASE AND DIAGNOSIS

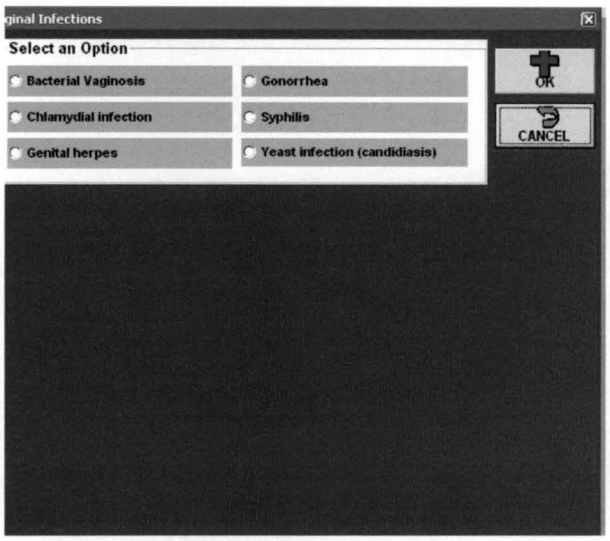


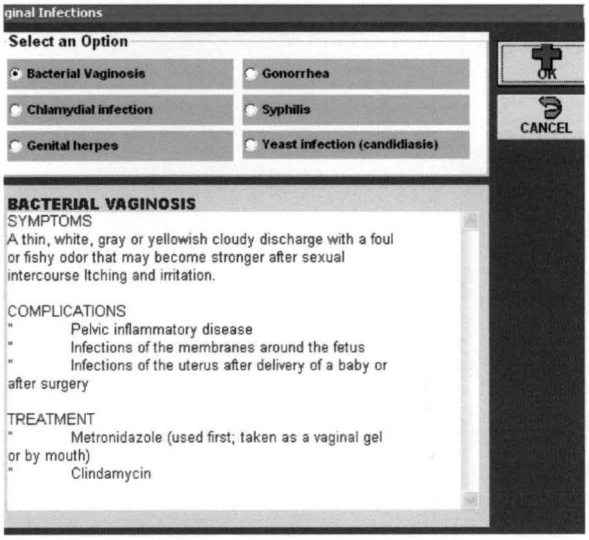
PELVIC INFLAMMATORY DISEASE DIAGNOSIS

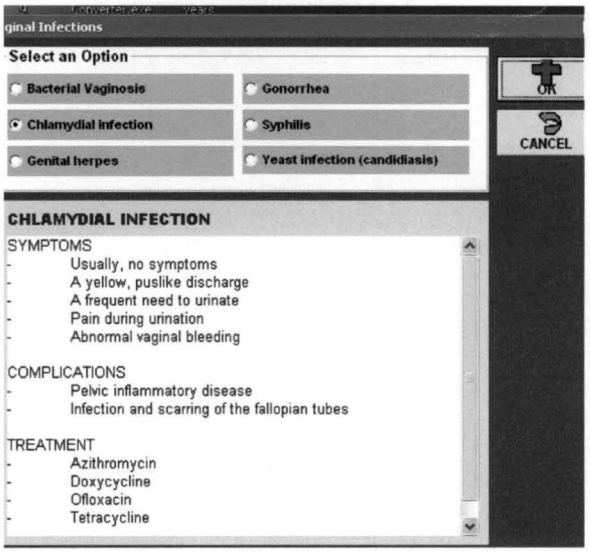


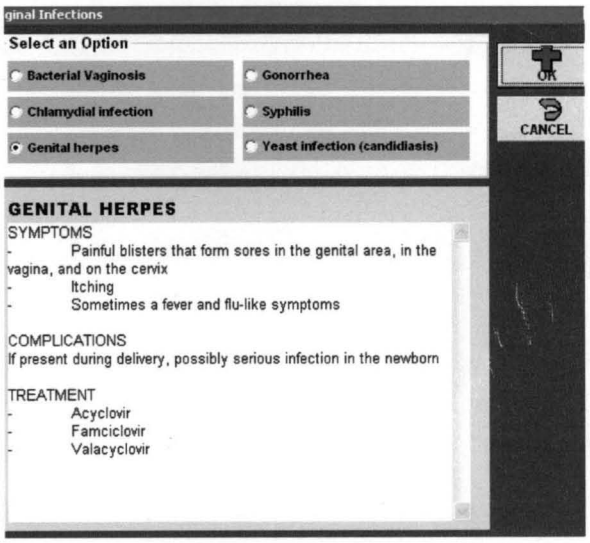


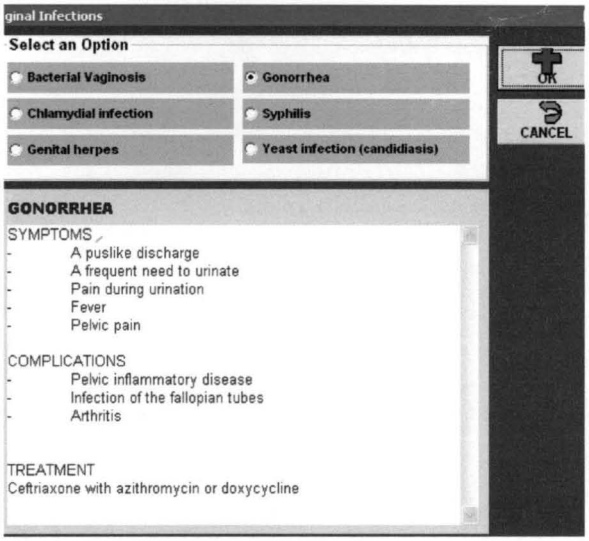
VIRGINAL INFECTION

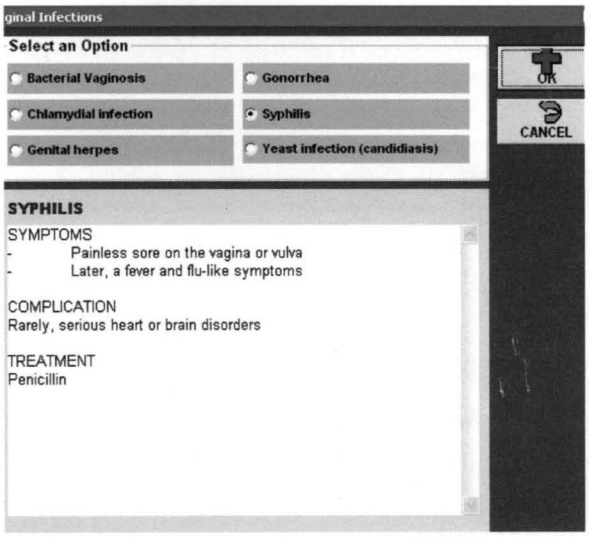


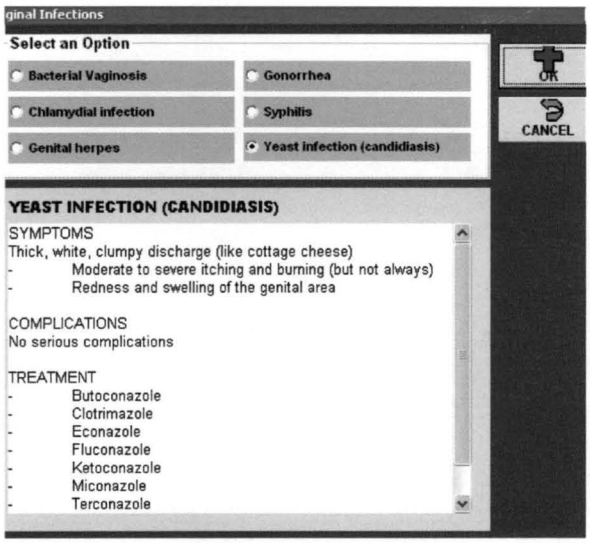



ginal Infections
Select an Option
Bacterial Vaginosis
Gonorrhea
Chlamydial infection
Syphilis
Genital herpes
Yeast infection (candidiasis)
OK
CANCEL
CHLAMYDIAL INFECTION
SYMPTOMS
- Usually, no symptoms
- A yellow, puslike discharge
- A frequent need to urinate
- Pain during urination
- Abnormal vaginal bleeding
COMPLICATIONS
- Pelvic inflammatory disease
- Infection and scarring of the fallopian tubes
TREATMENT
- Azithromycin
- Doxycycline
- Ofloxacin
- Tetracycline


ginal Infections
Select an Option
Bacterial Vaginosis
Gonorrhea
Chlamydial infection
Syphilis
Genital herpes
Yeast infection (candidiasis)
OK
CANCEL
GENITAL HERPES
SYMPTOMS
- Painful blisters that form sores in the genital area, in the vagina, and on the cervix
- Itching
- Sometimes a fever and flu-like symptoms
COMPLICATIONS
If present during delivery, possibly serious infection in the newborn
TREATMENT
- Acyclovir
- Famciclovir
- Valacyclovir


ginal Infections
Select an Option
Bacterial Vaginosis
Gonorrhea
Chlamydial infection
Syphilis
Genital herpes
Yeast infection (candidiasis)
OK
CANCEL
GONORRHEA
SYMPTOMS
- A puslike discharge
- A frequent need to urinate
- Pain during urination
- Fever
- Pelvic pain
COMPLICATIONS
- Pelvic inflammatory disease
- Infection of the fallopian tubes
- Arthritis
TREATMENT
Ceftriaxone with azithromycin or doxycycline


ginal Infections
Select an Option
Bacterial Vaginosis
Gonorrhea
Chlamydial infection
Syphilis
Genital herpes
Yeast infection (candidiasis)
OK
CANCEL
SYPHILIS
SYMPTOMS
- Painless sore on the vagina or vulva
- Later, a fever and flu-like symptoms
COMPLICATION
Rarely, serious heart or brain disorders
TREATMENT
Penicillin


ginal Infections
Select an Option
Bacterial Vaginosis
Gonorrhea
Chlamydial infection
Syphilis
Genital herpes
Yeast infection (candidiasis)
OK
CANCEL
YEAST INFECTION (CANDIDIASIS)
SYMPTOMS
Thick, white, clumpy discharge (like cottage cheese)
- Moderate to severe itching and burning (but not always)
- Redness and swelling of the genital area
COMPLICATIONS
No serious complications
TREATMENT
- Butoconazole
- Clotrimazole
- Econazole
- Fluconazole
- Ketoconazole
- Miconazole
- Terconazole

4.4 Source Code Listing

Program Main Menu Form

```
Begin VB.Form MainMenu
  BackColor      =  &H00FFFFFF&
  Caption        =  "Medical Expert  System For Gynecology"
  ClientHeight   =  10710
  ClientLeft     =  165
  ClientTop      =  855
  ClientWidth    =  15240
  Icon           =  "MainMenu.frx":0000
  LinkTopic      =  "Form1"
  Picture        =  "MainMenu.frx":08CA
  ScaleHeight    =  10710
  ScaleWidth     =  15240
  StartUpPosition =  3  'Windows Default
  WindowState    =  2  'Maximized
  Begin VB.PictureBox Picture6
    BackColor      =  &H00C0C0C0&
    BorderStyle    =  0  'None
    Height         =  10215
    Left           =  0
    ScaleHeight    =  10215
    ScaleWidth     =  3135
    TabIndex       =  11
    Top            =  0
    Visible        =  0  'False
    Width          =  3135
    Begin VB.CommandButton Command10
      BackColor      =  &H00C0C0C0&
      Caption        =  "Back"
      BeginProperty Font
        Name           =  "Arial"
        Size           =  8.25
        Charset        =  0
        Weight         =  700
        Underline      =  0  'False
        Italic         =  0  'False
        Strikethrough  =  0  'False
      EndProperty
      Height         =  735
      Left           =  240
      Style          =  1  'Graphical
      TabIndex       =  19
      Top            =  9240
```

```
  Width          =  2655
End
Begin VB.CommandButton Command9
  BackColor      =  &H00C0C0C0&
  Caption        =  "Prenatal Care"
  BeginProperty Font
    Name         =  "Arial"
    Size         =  8.25
    Charset      =  0
    Weight       =  700
    Underline    =  0   'False
    Italic       =  0   'False
    Strikethrough  =  0   'False
  EndProperty
  Height         =  735
  Left           =  240
  Style          =  1  'Graphical
  TabIndex       =  18
  Top            =  8040
  Width          =  2655
End
Begin VB.CommandButton Command8
  BackColor      =  &H00C0C0C0&
  Caption        =  "Birth Plan"
  BeginProperty Font
    Name         =  "Arial"
    Size         =  8.25
    Charset      =  0
    Weight       =  700
    Underline    =  0   'False
    Italic       =  0   'False
    Strikethrough  =  0   'False
  EndProperty
  Height         =  735
  Left           =  240
  Style          =  1  'Graphical
  TabIndex       =  17
  Top            =  6720
  Width          =  2655
End
Begin VB.CommandButton Command7
  BackColor      =  &H00C0C0C0&
  Caption        =  "Sex and Pregnancy"
  BeginProperty Font
    Name         =  "Arial"
    Size         =  8.25
```

```
    Charset         =  0
    Weight          =  700
    Underline       =  0  'False
    Italic          =  0  'False
    Strikethrough   =  0  'False
  EndProperty
  Height          =  735
  Left            =  240
  Style           =  1  'Graphical
  TabIndex        =  16
  Top             =  5400
  Width           =  2655
End
Begin VB.CommandButton Command6
  BackColor       =  &H00C0C0C0&
  Caption         =  "Morning Sickness"
  BeginProperty Font
    Name          =  "Arial"
    Size          =  8.25
    Charset       =  0
    Weight        =  700
    Underline     =  0  'False
    Italic        =  0  'False
    Strikethrough =  0  'False
  EndProperty
  Height          =  735
  Left            =  240
  Style           =  1  'Graphical
  TabIndex        =  15
  Top             =  4080
  Width           =  2655
End
Begin VB.CommandButton Command5
  BackColor       =  &H00C0C0C0&
  Caption         =  "Pregnancy and Sleep"
  BeginProperty Font
    Name          =  "Arial"
    Size          =  8.25
    Charset       =  0
    Weight        =  700
    Underline     =  0  'False
    Italic        =  0  'False
    Strikethrough =  0  'False
  EndProperty
  Height          =  735
  Left            =  240
```

```
    Style          =  1  'Graphical
    TabIndex       =  14
    Top            =  2760
    Width          =  2655
  End
  Begin VB.CommandButton Command4
    BackColor      =  &H00C0C0C0&
    Caption        =  "Early Pregnancy Symptoms"
    BeginProperty Font
      Name         =  "Arial"
      Size         =  8.25
      Charset      =  0
      Weight       =  700
      Underline    =  0  'False
      Italic       =  0  'False
      Strikethrough  =  0  'False
    EndProperty
    Height         =  735
    Left           =  240
    Style          =  1  'Graphical
    TabIndex       =  13
    Top            =  1440
    Width          =  2655
  End
  Begin VB.Label Label4
    BackStyle      =  0  'Transparent
    Caption        =  "What would you like to know about Pregnancy?"
    BeginProperty Font
      Name         =  "Arial"
      Size         =  9.75
      Charset      =  0
      Weight       =  700
      Underline    =  0  'False
      Italic       =  0  'False
      Strikethrough  =  0  'False
    EndProperty
    Height         =  735
    Left           =  240
    TabIndex       =  12
    Top            =  480
    Width          =  2655
  End
End
Begin VB.PictureBox Picture1
  BackColor      =  &H00C0C0C0&
  BorderStyle    =  0  'None
```

```
Height          =  9975
Left            =  0
ScaleHeight     =  9975
ScaleWidth      =  3015
TabIndex        =  1
Top             =  0
Width           =  3015
Begin VB.CommandButton Command1
   Height          =  1335
   Left            =  480
   Picture         =  "MainMenu.frx":F5EE
   Style           =  1  'Graphical
   TabIndex        =  2
   Top             =  720
   Width           =  1935
End
Begin VB.PictureBox Picture3
   BackColor       =  &H80000007&
   Height          =  1575
   Left            =  360
   ScaleHeight     =  1515
   ScaleWidth      =  2115
   TabIndex        =  8
   Top             =  600
   Width           =  2175
End
Begin VB.CommandButton Command3
   BackColor       =  &H00C0C0C0&
   Height          =  1335
   Left            =  480
   Picture         =  "MainMenu.frx":10B0F
   Style           =  1  'Graphical
   TabIndex        =  4
   Top             =  5760
   Width           =  1935
End
Begin VB.CommandButton Command2
   BackColor       =  &H00C0C0C0&
   Height          =  1335
   Left            =  480
   Picture         =  "MainMenu.frx":17361
   Style           =  1  'Graphical
   TabIndex        =  3
   Top             =  3240
   Width           =  1935
End
```

```
Begin VB.PictureBox Picture4
  BackColor      =  &H80000007&
  Height         =  1575
  Left           =  360
  ScaleHeight    =  1515
  ScaleWidth     =  2115
  TabIndex       =  9
  Top            =  3120
  Width          =  2175
End
Begin VB.PictureBox Picture5
  BackColor      =  &H00000000&
  Height         =  1575
  Left           =  360
  ScaleHeight    =  1515
  ScaleWidth     =  2115
  TabIndex       =  10
  Top            =  5640
  Width          =  2175
End
Begin VB.Label Label3
  BackStyle      =  0  'Transparent
  Caption        =  "About Software"
  BeginProperty Font
    Name           =  "Arial Black"
    Size           =  9.75
    Charset        =  0
    Weight         =  400
    Underline      =  0  'False
    Italic         =  0  'False
    Strikethrough  =  0  'False
  EndProperty
  Height         =  375
  Left           =  480
  TabIndex       =  7
  Top            =  2280
  Width          =  1935
End
Begin VB.Label Label2
  Alignment      =  2  'Center
  BackStyle      =  0  'Transparent
  Caption        =  "Diseases/Diagnosis"
  BeginProperty Font
    Name           =  "Arial Black"
    Size           =  9.75
    Charset        =  0
```

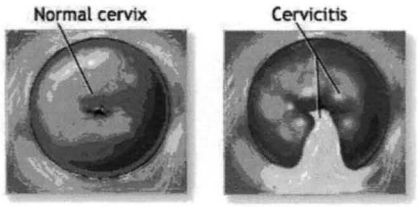
```
      Weight         =  400
      Underline      =  0  'False
      Italic         =  0  'False
      Strikethrough  =  0  'False
    EndProperty
    Height         =  375
    Left           =  360
    TabIndex       =  6
    Top            =  7200
    Width          =  2175
  End
  Begin VB.Label Label1
    Alignment      =  2  'Center
    BackStyle      =  0  'Transparent
    Caption        =  "Pregnancy"
    BeginProperty Font
      Name           =  "Arial Black"
      Size           =  9.75
      Charset        =  0
      Weight         =  400
      Underline      =  0  'False
      Italic         =  0  'False
      Strikethrough  =  0  'False
    EndProperty
    Height         =  375
    Left           =  360
    TabIndex       =  5
    Top            =  4680
    Width          =  2055
  End
End
Begin VB.PictureBox Picture2
  BackColor      =  &H00C0C0C0&
  BorderStyle    =  0  'None
  Height         =  735
  Left           =  0
  ScaleHeight    =  735
  ScaleWidth     =  15255
  TabIndex       =  0
  Top            =  9960
  Width          =  15255
End
Begin VB.Menu mnuMenu
  Caption        =  "Menu"
  Begin VB.Menu sep1
    Caption        =  "-"
```

```
    End
    Begin VB.Menu mnuexit
      Caption        =   "Exit"
    End
  End
End
Attribute VB_Name = "MainMenu"
Attribute VB_GlobalNameSpace = False
Attribute VB_Creatable = False
Attribute VB_PredeclaredId = True
Attribute VB_Exposed = False
Private Sub Command1_Click()
frmAbout.Show
End Sub

Private Sub Command10_Click()
Picture6.Visible = False
End Sub

Private Sub Command11_Click()

End Sub

Private Sub Command12_Click()
Frame1.Visible = False
End Sub

Private Sub Command2_Click()
Dim good As String
      good = MsgBox("Do You Have a Question About Pregnancy?", vbQuestion + _
      vbYesNo, "Confirm")
      If good = vbNo Then GoTo Err Else
      If good = vbYes Then
      Picture6.Visible = True
      End If
Err:
End Sub

Private Sub MiDocView1_FitmodeChanged()

End Sub

Private Sub Command3_Click()
Form12.Show
End Sub
```

CERVICITIES

ervicitis

Cervicitis symptoms include a red and inflamed cervix with an unusual discharge



DEFINITION
Cervicitis is swelling (inflammation) of the end of the uterus (cervix).

ALTERNATIVE NAMES
Cervical inflammation; Inflammation - cervix

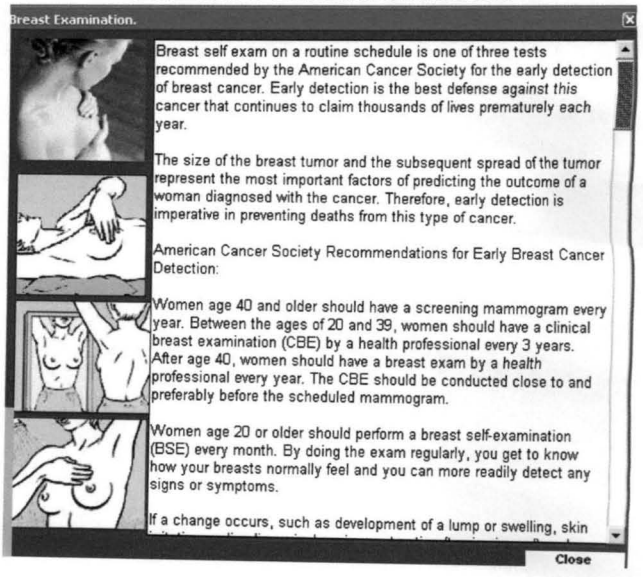
CAUSES
Cervicitis is most often caused by an infection. However, in a few cases it may be due to:

1. A device inserted into the pelvic area such as:
   a. Cervical cap
   b. Device to support the uterus (pessary)
   c. Diaphragm
2. An allergy to spermicides used for birth control or to latex in condoms
3. Exposure to a chemical

Cervicitis is very common, affecting more than half of all women at some point during their adult lives. Risks include:

Close

BREAST EXAMINATION



```
Private Sub Command4_Click()
Form2.Show
End Sub

Private Sub Command5_Click()
Form3.Show
End Sub

Private Sub Command6_Click()
Form1.Show
End Sub

Private Sub Command7_Click()
Form4.Show
End Sub

Private Sub Command8_Click()
Form5.Show
End Sub

Private Sub Command9_Click()
Form6.Show
End Sub

Private Sub mnuexit_Click()
End
End Sub

Attribute VB_Name = "Loading"
Attribute VB_GlobalNameSpace = False
Attribute VB_Creatable = False
Attribute VB_PredeclaredId = True
Attribute VB_Exposed = False
Private Declare Function sndplaysound Lib "Winmm.dll" Alias "sndPlaySoundA"
(ByVal lpszsoundName As String, ByVal uflags As Long) As Long



Private Sub Form_Unload(Cancel As Integer)
   sndplaysound (App.Path & "\1.wav"), 1

End Sub

' this will make ur progress bar Run
Private Sub Timer1_Timer()
   On Error GoTo Rani:
```

```
        With PROGLOAD
            .Value = .Value + 1
    End With
Exit Sub
Rani:
    If Err.Number = 380 Then
    sndplaysound (App.Path & "\click.wav"), 1

        Unload Me
            'Head.Show 'vbModal
            MainMenu.Show
    End If
End Sub

Attribute VB_Name = "Form1"
Attribute VB_GlobalNameSpace = False
Attribute VB_Creatable = False
Attribute VB_PredeclaredId = True
Attribute VB_Exposed = False
Private Declare Function SendMessage Lib "user32" Alias "SendMessageA" (ByVal
hwnd As Long, ByVal wMsg As Long, ByVal wParam As Long, lParam As Any) As
Long
Private Const EM_SCROLL As Long = &HB5
Private Const EM_GETLINECOUNT As Long = &HBA
Private Const EM_LINESCROLL = &HB6

Dim PSP As Integer

Private Sub Command1_Click()
End Sub

Private Sub Form_Load()
    RichTextBox1.Text = Text1.Text
    Dim lCount As Long
    lCount = SendMessage(RichTextBox1.hwnd, EM_GETLINECOUNT, 0, ByVal 0&)
    VScroll1.Min = 0
    VScroll1.Max = lCount - ((RichTextBox1.Height - 60) / Me.TextHeight("A"))
    VScroll1.SmallChange = 1
    VScroll1.LargeChange = 10
    PSP = 0
End Sub

Private Sub Label1_Click()
Unload Me
End Sub
```

```
Private Sub VScroll1_Change()
VScroll1_Scroll
End Sub

Private Sub VScroll1_Scroll()
   Dim l As Long
   Dim i
   With RichTextBox1

      If VScroll1.Value > PSP Then
         For i = PSP + 1 To VScroll1.Value
               l = SendMessage(.hwnd, EM_SCROLL, 1, 0)
         Next i
      ElseIf VScroll1.Value < PSP Then
         For i = VScroll1.Value + 1 To PSP
            l = SendMessage(.hwnd, EM_SCROLL, 0, 1)
         Next i
      End If

      PSP = VScroll1.Value

   End With
End Sub



Attribute VB_Name = "Form2"
Attribute VB_GlobalNameSpace = False
Attribute VB_Creatable = False
Attribute VB_PredeclaredId = True
Attribute VB_Exposed = False
Private Declare Function SendMessage Lib "user32" Alias "SendMessageA" (ByVal
hwnd As Long, ByVal wMsg As Long, ByVal wParam As Long, lParam As Any) As
Long
Private Const EM_SCROLL As Long = &HB5
Private Const EM_GETLINECOUNT As Long = &HBA
Private Const EM_LINESCROLL = &HB6

Dim PSP As Integer

Private Sub Command1_Click()
End Sub

Private Sub Form_Load()
```

```
    RichTextBox1.Text = Text1.Text
    Dim lCount As Long
    lCount = SendMessage(RichTextBox1.hwnd, EM_GETLINECOUNT, 0, ByVal 0&)
    VScroll1.Min = 0
    VScroll1.Max = lCount - ((RichTextBox1.Height - 60) / Me.TextHeight("A"))
    VScroll1.SmallChange = 1
    VScroll1.LargeChange = 10
    PSP = 0
End Sub

Private Sub Label1_Click()
Unload Me
End Sub

Private Sub VScroll1_Change()
VScroll1_Scroll
End Sub

Private Sub VScroll1_Scroll()
    Dim l As Long
    Dim i
    With RichTextBox1

        If VScroll1.Value > PSP Then
            For i = PSP + 1 To VScroll1.Value
                l = SendMessage(.hwnd, EM_SCROLL, 1, 0)
            Next i
        ElseIf VScroll1.Value < PSP Then
            For i = VScroll1.Value + 1 To PSP
                l = SendMessage(.hwnd, EM_SCROLL, 0, 1)
            Next i
        End If

        PSP = VScroll1.Value

    End With
End Sub



Attribute VB_Name = "Form3"
Attribute VB_GlobalNameSpace = False
Attribute VB_Creatable = False
Attribute VB_PredeclaredId = True
Attribute VB_Exposed = False
```

```
Private Declare Function SendMessage Lib "user32" Alias "SendMessageA" (ByVal
hwnd As Long, ByVal wMsg As Long, ByVal wParam As Long, lParam As Any) As
Long
Private Const EM_SCROLL As Long = &HB5
Private Const EM_GETLINECOUNT As Long = &HBA
Private Const EM_LINESCROLL = &HB6

Dim PSP As Integer

Private Sub Command1_Click()
End Sub

Private Sub Form_Load()
   RichTextBox1.Text = Text1.Text
   Dim lCount As Long
   lCount = SendMessage(RichTextBox1.hwnd, EM_GETLINECOUNT, 0, ByVal 0&)
   VScroll1.Min = 0
   VScroll1.Max = lCount - ((RichTextBox1.Height - 60) / Me.TextHeight("A"))
   VScroll1.SmallChange = 1
   VScroll1.LargeChange = 10
   PSP = 0
End Sub

Private Sub Label1_Click()
Unload Me
End Sub

Private Sub VScroll1_Change()
VScroll1_Scroll
End Sub

Private Sub VScroll1_Scroll()
   Dim l As Long
   Dim i
   With RichTextBox1

      If VScroll1.Value > PSP Then
         For i = PSP + 1 To VScroll1.Value
               l = SendMessage(.hwnd, EM_SCROLL, 1, 0)
         Next i
      ElseIf VScroll1.Value < PSP Then
         For i = VScroll1.Value + 1 To PSP
            l = SendMessage(.hwnd, EM_SCROLL, 0, 1)
         Next i
      End If
```

```
    PSP = VScroll1.Value

  End With
End Sub



Attribute VB_Name = "Form4"
Attribute VB_GlobalNameSpace = False
Attribute VB_Creatable = False
Attribute VB_PredeclaredId = True
Attribute VB_Exposed = False
Private Declare Function SendMessage Lib "user32" Alias "SendMessageA" (ByVal
hwnd As Long, ByVal wMsg As Long, ByVal wParam As Long, lParam As Any) As
Long
Private Const EM_SCROLL As Long = &HB5
Private Const EM_GETLINECOUNT As Long = &HBA
Private Const EM_LINESCROLL = &HB6

Dim PSP As Integer

Private Sub Command1_Click()
End Sub

Private Sub Form_Load()
  RichTextBox1.Text = Text1.Text
  Dim lCount As Long
  lCount = SendMessage(RichTextBox1.hwnd, EM_GETLINECOUNT, 0, ByVal 0&)
  VScroll1.Min = 0
  VScroll1.Max = lCount - ((RichTextBox1.Height - 60) / Me.TextHeight("A"))
  VScroll1.SmallChange = 1
  VScroll1.LargeChange = 10
  PSP = 0
End Sub

Private Sub Label1_Click()
Unload Me
End Sub

Private Sub VScroll1_Change()
VScroll1_Scroll
End Sub

Private Sub VScroll1_Scroll()
  Dim l As Long
  Dim i
```

```
    With RichTextBox1

        If VScroll1.Value > PSP Then
            For i = PSP + 1 To VScroll1.Value
                l = SendMessage(.hwnd, EM_SCROLL, 1, 0)
            Next i
        ElseIf VScroll1.Value < PSP Then
            For i = VScroll1.Value + 1 To PSP
                l = SendMessage(.hwnd, EM_SCROLL, 0, 1)
            Next i
        End If

        PSP = VScroll1.Value

    End With
End Sub



Attribute VB_Name = "Form5"
Attribute VB_GlobalNameSpace = False
Attribute VB_Creatable = False
Attribute VB_PredeclaredId = True
Attribute VB_Exposed = False
Private Declare Function SendMessage Lib "user32" Alias "SendMessageA" (ByVal
hwnd As Long, ByVal wMsg As Long, ByVal wParam As Long, lParam As Any) As
Long
Private Const EM_SCROLL As Long = &HB5
Private Const EM_GETLINECOUNT As Long = &HBA
Private Const EM_LINESCROLL = &HB6

Dim PSP As Integer

Private Sub Command1_Click()
End Sub

Private Sub Form_Load()
    RichTextBox1.Text = Text1.Text
    Dim lCount As Long
    lCount = SendMessage(RichTextBox1.hwnd, EM_GETLINECOUNT, 0, ByVal 0&)
    VScroll1.Min = 0
    VScroll1.Max = lCount - ((RichTextBox1.Height - 60) / Me.TextHeight("A"))
    VScroll1.SmallChange = 1
    VScroll1.LargeChange = 10
    PSP = 0
```

```
End Sub

Private Sub Label1_Click()
Unload Me
End Sub

Private Sub VScroll1_Change()
VScroll1_Scroll
End Sub

Private Sub VScroll1_Scroll()
  Dim l As Long
  Dim i
  With RichTextBox1

    If VScroll1.Value > PSP Then
      For i = PSP + 1 To VScroll1.Value
          l = SendMessage(.hwnd, EM_SCROLL, 1, 0)
      Next i
    ElseIf VScroll1.Value < PSP Then
      For i = VScroll1.Value + 1 To PSP
        l = SendMessage(.hwnd, EM_SCROLL, 0, 1)
      Next i
    End If

    PSP = VScroll1.Value

  End With
End Sub



Attribute VB_Name = "Form6"
Attribute VB_GlobalNameSpace = False
Attribute VB_Creatable = False
Attribute VB_PredeclaredId = True
Attribute VB_Exposed = False
Private Declare Function SendMessage Lib "user32" Alias "SendMessageA" (ByVal
hwnd As Long, ByVal wMsg As Long, ByVal wParam As Long, lParam As Any) As
Long
Private Const EM_SCROLL As Long = &HB5
Private Const EM_GETLINECOUNT As Long = &HBA
Private Const EM_LINESCROLL = &HB6

Dim PSP As Integer
```

```
Private Sub Command1_Click()
End Sub

Private Sub Form_Load()
   RichTextBox1.Text = Text1.Text
   Dim lCount As Long
   lCount = SendMessage(RichTextBox1.hwnd, EM_GETLINECOUNT, 0, ByVal 0&)
   VScroll1.Min = 0
   VScroll1.Max = lCount - ((RichTextBox1.Height - 60) / Me.TextHeight("A"))
   VScroll1.SmallChange = 1
   VScroll1.LargeChange = 10
   PSP = 0
End Sub

Private Sub Label1_Click()
Unload Me
End Sub

Private Sub VScroll1_Change()
VScroll1_Scroll
End Sub

Private Sub VScroll1_Scroll()
   Dim l As Long
   Dim i
   With RichTextBox1

      If VScroll1.Value > PSP Then
         For i = PSP + 1 To VScroll1.Value
              l = SendMessage(.hwnd, EM_SCROLL, 1, 0)
         Next i
      ElseIf VScroll1.Value < PSP Then
         For i = VScroll1.Value + 1 To PSP
            l = SendMessage(.hwnd, EM_SCROLL, 0, 1)
         Next i
      End If

      PSP = VScroll1.Value

   End With
End Sub


Attribute VB_Name = "Form7"
Attribute VB_GlobalNameSpace = False
```

```
Attribute VB_Creatable = False
Attribute VB_PredeclaredId = True
Attribute VB_Exposed = False
Private Declare Function SendMessage Lib "user32" Alias "SendMessageA" (ByVal
hwnd As Long, ByVal wMsg As Long, ByVal wParam As Long, lParam As Any) As
Long
Private Const EM_SCROLL As Long = &HB5
Private Const EM_GETLINECOUNT As Long = &HBA
Private Const EM_LINESCROLL = &HB6

Dim PSP As Integer

Private Sub Command1_Click()
End Sub

Private Sub Form_Load()
   RichTextBox1.Text = Text1.Text
   Dim lCount As Long
   lCount = SendMessage(RichTextBox1.hwnd, EM_GETLINECOUNT, 0, ByVal 0&)
   VScroll1.Min = 0
   VScroll1.Max = lCount - ((RichTextBox1.Height - 60) / Me.TextHeight("A"))
   VScroll1.SmallChange = 1
   VScroll1.LargeChange = 10
   PSP = 0
End Sub

Private Sub Label1_Click()
Unload Me
End Sub

Private Sub Label5_Click()
Unload Me
End Sub

Private Sub VScroll1_Change()
VScroll1_Scroll
End Sub

Private Sub VScroll1_Scroll()
   Dim l As Long
   Dim i
   With RichTextBox1

      If VScroll1.Value > PSP Then
         For i = PSP + 1 To VScroll1.Value
               l = SendMessage(.hwnd, EM_SCROLL, 1, 0)
```

```
      Next i
    ElseIf VScroll1.Value < PSP Then
      For i = VScroll1.Value + 1 To PSP
        l = SendMessage(.hwnd, EM_SCROLL, 0, 1)
      Next i
    End If

    PSP = VScroll1.Value

  End With
End Sub



Attribute VB_Name = "Form8"
Attribute VB_GlobalNameSpace = False
Attribute VB_Creatable = False
Attribute VB_PredeclaredId = True
Attribute VB_Exposed = False
Private Declare Function SendMessage Lib "user32" Alias "SendMessageA" (ByVal
hwnd As Long, ByVal wMsg As Long, ByVal wParam As Long, lParam As Any) As
Long
Private Const EM_SCROLL As Long = &HB5
Private Const EM_GETLINECOUNT As Long = &HBA
Private Const EM_LINESCROLL = &HB6

Dim PSP As Integer

Private Sub Command1_Click()
End Sub

Private Sub Form_Load()
  RichTextBox1.Text = Text1.Text
  Dim lCount As Long
  lCount = SendMessage(RichTextBox1.hwnd, EM_GETLINECOUNT, 0, ByVal 0&)
  VScroll1.Min = 0
  VScroll1.Max = lCount - ((RichTextBox1.Height - 60) / Me.TextHeight("A"))
  VScroll1.SmallChange = 1
  VScroll1.LargeChange = 10
  PSP = 0
End Sub

Private Sub Label1_Click()
Unload Me
End Sub
```

```
Private Sub Label5_Click()
Unload Me
End Sub

Private Sub VScroll1_Change()
VScroll1_Scroll
End Sub

Private Sub VScroll1_Scroll()
   Dim l As Long
   Dim i
   With RichTextBox1

      If VScroll1.Value > PSP Then
         For i = PSP + 1 To VScroll1.Value
               l = SendMessage(.hwnd, EM_SCROLL, 1, 0)
         Next i
      ElseIf VScroll1.Value < PSP Then
         For i = VScroll1.Value + 1 To PSP
            l = SendMessage(.hwnd, EM_SCROLL, 0, 1)
         Next i
      End If

      PSP = VScroll1.Value

   End With
End Sub


Attribute VB_Name = "Form9"
Attribute VB_GlobalNameSpace = False
Attribute VB_Creatable = False
Attribute VB_PredeclaredId = True
Attribute VB_Exposed = False
Private Declare Function SendMessage Lib "user32" Alias "SendMessageA" (ByVal
hwnd As Long, ByVal wMsg As Long, ByVal wParam As Long, lParam As Any) As
Long
Private Const EM_SCROLL As Long = &HB5
Private Const EM_GETLINECOUNT As Long = &HBA
Private Const EM_LINESCROLL = &HB6

Dim PSP As Integer

Private Sub Command1_Click()
End Sub
```

```
Private Sub Form_Load()
   RichTextBox1.Text = Text1.Text
   Dim lCount As Long
   lCount = SendMessage(RichTextBox1.hwnd, EM_GETLINECOUNT, 0, ByVal 0&)
   VScroll1.Min = 0
   VScroll1.Max = lCount - ((RichTextBox1.Height - 60) / Me.TextHeight("A"))
   VScroll1.SmallChange = 1
   VScroll1.LargeChange = 10
   PSP = 0
End Sub

Private Sub Label1_Click()
Unload Me
End Sub

Private Sub Label5_Click()
Unload Me
End Sub

Private Sub VScroll1_Change()
VScroll1_Scroll
End Sub

Private Sub VScroll1_Scroll()
   Dim l As Long
   Dim i
   With RichTextBox1

      If VScroll1.Value > PSP Then
         For i = PSP + 1 To VScroll1.Value
               l = SendMessage(.hwnd, EM_SCROLL, 1, 0)
         Next i
      ElseIf VScroll1.Value < PSP Then
         For i = VScroll1.Value + 1 To PSP
            l = SendMessage(.hwnd, EM_SCROLL, 0, 1)
         Next i
      End If

      PSP = VScroll1.Value

   End With
End Sub
```

```
Attribute VB_Name = "Form10"
Attribute VB_GlobalNameSpace = False
Attribute VB_Creatable = False
Attribute VB_PredeclaredId = True
Attribute VB_Exposed = False
Private Declare Function SendMessage Lib "user32" Alias "SendMessageA" (ByVal
hwnd As Long, ByVal wMsg As Long, ByVal wParam As Long, lParam As Any) As
Long
Private Const EM_SCROLL As Long = &HB5
Private Const EM_GETLINECOUNT As Long = &HBA
Private Const EM_LINESCROLL = &HB6

Dim PSP As Integer

Private Sub Command1_Click()
End Sub

Private Sub Form_Load()
   RichTextBox1.Text = Text1.Text
   Dim lCount As Long
   lCount = SendMessage(RichTextBox1.hwnd, EM_GETLINECOUNT, 0, ByVal 0&)
   VScroll1.Min = 0
   VScroll1.Max = lCount - ((RichTextBox1.Height - 60) / Me.TextHeight("A"))
   VScroll1.SmallChange = 1
   VScroll1.LargeChange = 10
   PSP = 0
End Sub

Private Sub Label1_Click()
Unload Me
End Sub

Private Sub Label5_Click()
Unload Me
End Sub

Private Sub VScroll1_Change()
VScroll1_Scroll
End Sub

Private Sub VScroll1_Scroll()
   Dim l As Long
   Dim i
   With RichTextBox1

      If VScroll1.Value > PSP Then
```

```
        For i = PSP + 1 To VScroll1.Value
            l = SendMessage(.hwnd, EM_SCROLL, 1, 0)
        Next i
    ElseIf VScroll1.Value < PSP Then
        For i = VScroll1.Value + 1 To PSP
            l = SendMessage(.hwnd, EM_SCROLL, 0, 1)
        Next i
    End If

    PSP = VScroll1.Value

  End With
End Sub



Attribute VB_Name = "Form11"
Attribute VB_GlobalNameSpace = False
Attribute VB_Creatable = False
Attribute VB_PredeclaredId = True
Attribute VB_Exposed = False
Private Sub Command1_Click()
If Combo1 = "" Then
MsgBox "Please answer the Question to enable an accurate diagnosis"
Exit Sub

ElseIf Combo2 = "" Then
MsgBox "Please answer the Question to enable an accurate diagnosis"
Exit Sub

ElseIf Combo3 = "" Then
MsgBox "Please answer the Question to enable an accurate diagnosis"
Exit Sub

ElseIf Combo4 = "" Then
MsgBox "Please answer the Question to enable an accurate diagnosis"
Exit Sub

ElseIf Combo5 = "" Then
MsgBox "Please answer the Question to enable an accurate diagnosis"
Exit Sub

ElseIf Combo6 = "" Then
MsgBox "Please answer the Question to enable an accurate diagnosis"
```

```
Exit Sub

ElseIf Combo7 = "" Then
MsgBox "Please answer the Question to enable an accurate diagnosis"
Exit Sub

ElseIf Combo8 = "" Then
MsgBox "Please answer the Question to enable an accurate diagnosis"
Exit Sub

ElseIf Combo9 = "" Then
MsgBox "Please answer the Question to enable an accurate diagnosis"
Exit Sub
End If


If Combo1.Text = "Yes" And Combo2.Text = "Yes" And Combo3.Text = "Yes" And
Combo4.Text = "Yes" And Combo5.Text = "Yes" And Combo6.Text = "Yes" And
Combo7.Text = "Yes" And Combo8.Text = "Yes" And Combo9.Text = "Yes" Then
MsgBox " You have Serious Breast Infection and need to be examined and treated
Immediately!!"
Exit Sub

ElseIf Combo1.Text = "No" And Combo2.Text = "No" And Combo3.Text = "No" And
Combo4.Text = "No" And Combo5.Text = "No" And Combo6.Text = "No" And
Combo7.Text = "No" And Combo8.Text = "No" And Combo9.Text = "No" Then
MsgBox "Your Breast is Cool, there is Nothing to worry about !! "
Exit Sub

ElseIf Combo1.Text = "Yes" And Combo2.Text = "No" And Combo3.Text = "No" And
Combo4.Text = "No" And Combo5.Text = "No" And Combo6.Text = "No" And
Combo7.Text = "No" And Combo8.Text = "No" And Combo9.Text = "No" Then
MsgBox "You have Breast enlargement on one side only, However, you will need to be
examined by a Doctor!! "
Exit Sub

ElseIf Combo1.Text = "No" And Combo2.Text = "Yes" And Combo3.Text = "No" And
Combo4.Text = "No" And Combo5.Text = "No" And Combo6.Text = "No" And
Combo7.Text = "No" And Combo8.Text = "No" And Combo9.Text = "No" Then
MsgBox "You have a lump in your breast, This might not be an problem but have a
doctor look at it!!"
Exit Sub
```

```
ElseIf Combo1.Text = "No" And Combo2.Text = "No" And Combo3.Text = "Yes" And
Combo4.Text = "No" And Combo5.Text = "No" And Combo6.Text = "No" And
Combo7.Text = "No" And Combo8.Text = "No" And Combo9.Text = "No" Then
MsgBox "Breast pain is sometime normal, take the self breast examination and if pain
persist consult you doctor!!"
Exit Sub


ElseIf Combo1.Text = "No" And Combo2.Text = "No" And Combo3.Text = "No" And
Combo4.Text = "Yes" And Combo5.Text = "No" And Combo6.Text = "No" And
Combo7.Text = "No" And Combo8.Text = "No" And Combo9.Text = "No" Then
MsgBox "This might not be a breast related disease, nonetheless see a dcotor ASAP!!"
Exit Sub

ElseIf Combo1.Text = "No" And Combo2.Text = "No" And Combo3.Text = "No" And
Combo4.Text = "No" And Combo5.Text = "Yes" And Combo6.Text = "No" And
Combo7.Text = "No" And Combo8.Text = "No" And Combo9.Text = "No" Then
MsgBox "You have to get the Breast checked out!!"
Exit Sub

ElseIf Combo1.Text = "No" And Combo2.Text = "No" And Combo3.Text = "No" And
Combo4.Text = "No" And Combo5.Text = "Yes" And Combo6.Text = "Yes" Or
Combo7.Text = "No" Or Combo8.Text = "No" Or Combo9.Text = "No" Then
MsgBox "You have Breast infection, get to the lab and do sometest!!"
Exit Sub

ElseIf Combo1.Text = "No" And Combo2.Text = "No" And Combo3.Text = "No" And
Combo4.Text = "No" And Combo5.Text = "No" And Combo6.Text = "No" And
Combo7.Text = "No" And Combo8.Text = "Yes" And Combo9.Text = "Yes" Then
MsgBox "You have to get the Breast checked out!!"
Exit Sub



End If



End Sub

Private Sub Command2_Click()
Unload Me
End Sub
```

```
Private Sub Form_Load()
Combo1.Clear
With Combo1
   .AddItem "Yes"
   .AddItem "No"
End With

Combo2.Clear
With Combo2
   .AddItem "Yes"
   .AddItem "No"
End With

Combo3.Clear
With Combo3
   .AddItem "Yes"
   .AddItem "No"
End With

Combo4.Clear
With Combo4
   .AddItem "Yes"
   .AddItem "No"
End With

Combo5.Clear
With Combo5
   .AddItem "Yes"
   .AddItem "No"
End With

Combo6.Clear
With Combo6
   .AddItem "Yes"
   .AddItem "No"
End With

Combo7.Clear
With Combo7
   .AddItem "Yes"
   .AddItem "No"
End With

Combo8.Clear
With Combo8
```

```
    .AddItem "Yes"
    .AddItem "No"
End With

Combo9.Clear
With Combo9
    .AddItem "Yes"
    .AddItem "No"
End With



End Sub



Attribute VB_Name = "Form12"
Attribute VB_GlobalNameSpace = False
Attribute VB_Creatable = False
Attribute VB_PredeclaredId = True
Attribute VB_Exposed = False
Private Sub Command1_Click()

If Option1 = True Then
Form7.Show
Exit Sub

ElseIf Option2 = True Then
Form9.Show
Exit Sub

ElseIf Option3 = True Then
Form8.Show
Exit Sub

ElseIf Option4 = True Then
Form11.Show
Exit Sub

ElseIf Option5 = True Then
Form10.Show
Exit Sub

ElseIf Option6 = True Then
Form13.Show
```

```
Attribute VB_Name = "Form13"
Attribute VB_GlobalNameSpace = False
Attribute VB_Creatable = False
Attribute VB_PredeclaredId = True
Attribute VB_Exposed = False
Private Sub Command1_Click()
If Combo1 = "" Then
MsgBox "Please answer the Question to enable an accurate diagnosis"
Exit Sub

ElseIf Combo2 = "" Then
MsgBox "Please answer the Question to enable an accurate diagnosis"
Exit Sub

ElseIf Combo3 = "" Then
MsgBox "Please answer the Question to enable an accurate diagnosis"
Exit Sub

ElseIf Combo4 = "" Then
MsgBox "Please answer the Question to enable an accurate diagnosis"
Exit Sub

ElseIf Combo5 = "" Then
MsgBox "Please answer the Question to enable an accurate diagnosis"
Exit Sub

ElseIf Combo6 = "" Then
MsgBox "Please answer the Question to enable an accurate diagnosis"
Exit Sub

ElseIf Combo7 = "" Then
MsgBox "Please answer the Question to enable an accurate diagnosis"
Exit Sub

End If

If Combo1.Text = "Yes" And Combo2.Text = "Yes" And Combo3.Text = "Yes" And
Combo4.Text = "Yes" And Combo5.Text = "Yes" And Combo6.Text = "Yes" And
Combo7.Text = "Yes" Then
MsgBox " You have a complicated PID and need urgent medical attention!!"
Exit Sub
```

```
ElseIf Combo1.Text = "No" And Combo2.Text = "No" And Combo3.Text = "No" And
Combo4.Text = "No" And Combo5.Text = "No" And Combo6.Text = "No" And
Combo7.Text = "No" Then
MsgBox "This might not be a PID, nonetheless see a dcotor ASAP!!"
Exit Sub

ElseIf Combo1.Text = "Yes" And Combo2.Text = "No" And Combo3.Text = "No" And
Combo4.Text = "No" And Combo5.Text = "No" And Combo6.Text = "No" And
Combo7.Text = "No" Then
MsgBox "See Your Doctor for Further medical examination!!"
Exit Sub

ElseIf Combo1.Text = "No" And Combo2.Text = "Yes" And Combo3.Text = "Yes" And
Combo4.Text = "Yes" And Combo5.Text = "Yes" And Combo6.Text = "Yes" And
Combo7.Text = "Yes" Then
MsgBox "See Your Doctor for Further medical examination!!"
Exit Sub

ElseIf Combo1.Text = "No" And Combo2.Text = "No" And Combo3.Text = "Yes" And
Combo4.Text = "Yes" And Combo5.Text = "Yes" And Combo6.Text = "Yes" And
Combo7.Text = "Yes" Then
MsgBox "See Your Doctor for Further medical examination!!"
Exit Sub

ElseIf Combo1.Text = "No" And Combo2.Text = "No" And Combo3.Text = "No" And
Combo4.Text = "Yes" And Combo5.Text = "Yes" And Combo6.Text = "Yes" And
Combo7.Text = "Yes" Then
MsgBox "See Your Doctor for Further medical examination!!"
Exit Sub

ElseIf Combo1.Text = "No" And Combo2.Text = "No" And Combo3.Text = "No" And
Combo4.Text = "Yes" And Combo5.Text = "Yes" And Combo6.Text = "Yes" And
Combo7.Text = "Yes" Then
MsgBox "See Your Doctor for Further medical examination!!"
Exit Sub

ElseIf Combo1.Text = "No" And Combo2.Text = "No" And Combo3.Text = "No" And
Combo4.Text = "Yes" And Combo5.Text = "Yes" And Combo6.Text = "No" And
Combo7.Text = "No" Then
MsgBox "Not Neccessarily PID related but See Your Doctor for Further medical
examination!!"
Exit Sub

ElseIf Combo1.Text = "Yes" Or Combo2.Text = "Yes" Or Combo3.Text = "Yes" Or
Combo4.Text = "Yes" Or Combo5.Text = "Yes" Or Combo6.Text = "No" Or
Combo7.Text = "No" Then
```

```
MsgBox "Not Neccessarily PID related but See Your Doctor for Further medical
examination!!"
Exit Sub

'ElseIf Combo1.Text = "No" And Combo2.Text = "Yes" Or Combo3.Text = "Yes" Or
Combo4.Text = "Yes" Or Combo5.Text = "Yes" Or Combo6.Text = "Yes" Or
Combo7.Text = "Yes" Then
'MsgBox "No signs of Abdominal Pain but other Signs points to PID!!"
'Exit Sub

ElseIf Combo1.Text = "No" And Combo2.Text = "No" And Combo3.Text = "No" And
Combo4.Text = "No" And Combo5.Text = "No" And Combo6.Text = "No" And
Combo7.Text = "No" Then
MsgBox "You dont have any symptons of PID!!"
Exit Sub


End If



End Sub

Private Sub Command2_Click()
Unload Me
End Sub

Private Sub Form_Load()
Combo1.Clear
With Combo1
   .AddItem "Yes"
   .AddItem "No"
End With

Combo2.Clear
With Combo2
   .AddItem "Yes"
   .AddItem "No"
End With

Combo3.Clear
With Combo3
   .AddItem "Yes"
   .AddItem "No"
```

```
End With

Combo4.Clear
With Combo4
   .AddItem "Yes"
   .AddItem "No"
End With

Combo5.Clear
With Combo5
   .AddItem "Yes"
   .AddItem "No"
End With

Combo6.Clear
With Combo6
   .AddItem "Yes"
   .AddItem "No"
End With

Combo7.Clear
With Combo7
   .AddItem "Yes"
   .AddItem "No"
End With


End Sub
```

4.5 **System Documentation**

4.5.1 **Running the Program**

5. Load the Disk of drive containing the program "Medical diagnosis expert system for Gynecology"
6. Open the Folder "Medical diagnosis expert system for Gynecology"

7. Click on the file in the folder.

8. Follow the screen menu display to utilize the program

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

In conclusion of this research work, this chapter deals with the interpretation of data analyzed based on the research questions and purpose of study, with the summary of findings made during the data analysis and interpretation phase and some recommendations that will help in the implementation of the new medical diagnosis expert system for human anatomy on gynecology.

5.2 Summary

The chapter one of the research work entailed the introduction and proposal of the research work. In the chapter, the problem statement was discussed; the objectives of the study were emphasized. The objective of this research work was to design a medical expert system for the human anatomy on gynecology, which will provide professionals, patients and medical students with a detail and computerized system for easy explorations of the branch and also diagnosis and treatment of various diseases that are peculiar to the field.

In chapter two, the research proceeded with the review of related reviews of literatures that have a direct importance and significance to the ongoing project.

In order to fortify the research design and development, in chapter three, Interviews were made at different respondents level on the fields of operation, and questionnaires were developed and administered which helped in the gathering of

data for the analysis of the research work, which enable an effective system designed and expert involvement in the medical diagnosis issues as related with human anatomy and gynecology.

Chapter four comprised of the system analysis and design, which entailed the review of the overall methodology and design approached employed in the design and development of the software system. It also included the database structure, dataflow diagram et cetera.

Chapter five recapitulated the program design and development in the terms of the actual previewing the program outputs, users manual, flowcharts etc.

5.3 *Conclusion*

In conclusion the study thus far has examined the procedures involved in performing these diagnoses as it involves gynecological issues and operations and its obvious problems. Nevertheless, during the course of the study a medical expert system for human anatomy diagnosis of gynecological issues was designed.

5.4 *Problems Encountered*

Below are the problems encounters during the execution of the research.

i. High cost of computational resources.

ii. Insufficient time allotted for the research work.

iii. Low response of Gynaecologist on relevant expert related issues.

5.5 *Recommendations*

Based on the finding, the following recommendations have been made.

i. Medical doctors in all practices should embrace the newly developed software system for an effective diagnosis of gynecological related issues.

ii. Health care services should endeavor to increase the awareness of practitioners in keeping abreast with the current trend in computer appreciations as it will go along way in improving effective service delivery.

iii. Further study and research is recommended in order to improve on the available limitations of the research work thus far.

Reference

- Arnold Holdings. (1989), Gynecology in Review, Ellis Horwood Limited, England
- Becker Edison (1999), Gynecology Diseases and Diagnosis, McGraw Publishing Limited, England.
- Britannica Encyclopedia (2007), Expert System Concepts and Review.
- Cather Raw (2003), Expert Systems in Action, Houston, Texas USA.
- Encarta Encyclopedia (2008), Medical Expert System Overview, Microsoft Corporation. USA
- Fisher Todler (2000), Gynecological Reviews, McGill Gynecology, London Press.
- Nworgu B. G, (1991), Educational Research, Wisdom Publishers Limited, Nigeria.
- Osuala E.C. (2001), Introduction to Research Methodology, UNN, 3rd Edition.
- Susan Dialo, (1996), Managing Gynecological Issues and Diseases, Evans Ltd.
- Terry lucey, (1997), Management Information System 3rd Edition.
- Thirkettle G.L. (1974), Wheldon's Business Statistics and Statistical Method, 7th Edition. Hill Publications, London.
- www.perinatal.nhs.uk/ctg/index_ctg.htm
- www.pitt.edu/~super1/lecture/lec5671/
- www.who.int/reproductive-health/impac/
- www.motherisk.org/FAR/