Family doctor Assistant

A family doctor has the responsibilities to consult, state diagnostics and treatments, and gives prescriptions for his/her patients.

A disease is characterized by its symptoms[1] and signs[2]. For example, diabetes has the following symptoms and signs: dyspepsia, restless leg syndrome, weight loss, fainting, nail discoloration, shortness of breath. However, a symptom or sign may indicate another disease. For instance, the shortness of breath is a symptom of asthma, too. In addition, more diseases may manifest the same symptoms and signs. For instance, cold, flu, and allergy have the following symptoms and signs: headache, nasal congestion, runny nose, sneezing, cough, and sore throat.

The treatment which a patient should follow is described in a medical protocol. A medical protocol contains the descriptions of the activities that must be realized by the health provider (i.e. physician) or consumer (patient) in order to treat a disease. The description indicates the order in which these activities have place. Each activity finishes with results that may be used by the subsequent activities. An activity may be another medical protocol or a simple operation.

The activities that imply the medicines taking are also specified in one or more medical prescriptions. A prescription may have different compensation percents, depending on the disease and the contained medicines. For instance, the patients who have cancer, all the medicines are supported by the government with 90% from the sale price. For other diseases, like those mental, the medicines are free of charge that is they are fully supported by the government (100%).

The family doctor decides to buy the "Family doctor Assistant" software system for supporting him/her during the patient's diagnosis.

The system provides the following services:

A. To allow inserting and storing (in a persistent repository) all the information about the diseases and their treatments. For each disease type, the physician will type or choose the symptoms and signs of the disease. In the second case, it is about the symptoms and signs that appear at other disease and their data were already memorized by the system.

B. Whenever a physician needs the system's support for diagnosis and selection of a medical protocol, he/she chooses the disease symptoms and signs as they are memorized by the system. As a response, the system shows the name of disease (or diseases) that matches the previously selected symptoms and signs. If there are more diseases, the physician chooses the one that best matches and the system shows the associated medical protocol.

   In order to have the system's prescription, the physician has to input the data about the patient and if the protocol holds out more then one month, the physician can choose one or more months for which the prescription applies. After that, the system will automatically supply a prescription and will memorize the data about the patient, his/her disease, and prescription.

C. To allow to physician to browse the information about the diseases, medical protocols, medicines and patients. The information will be list in an alphabetical order depending on the different criteria like the disease type.

In the second stage of the project we wish to create a network of family doctor applications so that they can exchange information. The system should allow doctors to publish new treatments and new case-studies in a central repositories from where they can be downloaded or commented by other doctors.

This system should also expose a web page to the prospective patients so that they can choose their family doctors based on their history.

Develop the four architectures of the system: business architecture, Information technology architecture, information architecture and application architecture.
A working test system must be produced using a component-based architecture implemented in Enterprise Java Beans 3.0.