

Medical Diagnosis Expert System

By Periwinkle

Medical Diagnosis Expert System is used to provide preliminary medical diagnosis for its clients based on Jess, a rule engine for Java platform. It is practically not possible for the expert system to include all possible illnesses/diseases, hence it is developed by considering some of the important and most common ones. It is a rule based expert system that provides diagnosis for the following illnesses/diseases based on the symptoms described:

1. Meningitis: This is caused by virus, bacteria or certain drugs in some cases.

- Fever
- Headache
- Intolerance to bright light
- Stiff neck
- Loss of appetite
- Nausea
- Vomiting
- Confusion or difficulty concentrating

2. Mono: This is a viral disease.

- Fever
- Headache
- Swollen lymph nodes, tonsils, spleen
- Sore throat
- Long fatigue

3. Jaundice: This is a liver disease caused in advanced stages of hepatitis.

- Fever
- Headache
- Yellowing of skin and eyes
- Muscle and joint pains
- Discomfort or uneasiness
- Vomiting
- Diarrhea

4. Common Cold: This is a viral disease.

- Headache
- Stuffy nose and watery eyes
- Frequent sneezing
- Cough
- Sore throat

5. Flu: This is a viral disease also known as influenza.

- Fever
- Headache

- Muscle and joint pains
- Fatigue
- Sore throat

6. Malaria: This is caused by a parasitic protozoan called Plasmodium.

- Fever
- Headache
- Convulsions and chills
- Fatigue
- Vomiting
- Muscle and joint pains

7. Diabetes: This is a pancreatic disease also known as diabetes mellitus.

- Blurry vision
- Increased thirst and hunger
- Weight loss
- Frequent urination

8. Tuberculosis: This is a bacterial disease.

- Fever
- Blood tinged cough
- Loss of appetite
- Night sweats and chills
- Fatigue
- Weight loss

9. Ebola: This is a viral disease.

- Fever
- Headache
- Muscle and joint pains
- Abdominal or chest pain
- Vomiting
- Diarrhea
- Fatigue
- Sore throat

10. Hypertension:

- Headache
- High blood pressure
- Lightheadedness or vertigo
- Fast heart rate

11. Hypotension:

- Fever
- Headache
- Low blood pressure
- Chest pain
- Irregular heartbeat
- Fatigue

The questions asked by the system are self-intuitive. Once the user chooses the answer to a question, expert system populates the facts and then prompts the user with related questions and possible diagnosis. The knowledge of the product “Medical Diagnosis Expert System” is limited to the above mentioned illnesses/diseases. If the expert system does not have enough facts or expertise to diagnose the illness, it prompts the user to visit a doctor.

Product use and test cases:

- Unzip the file Project1-Periwinkle.zip
- Run periwinkle.clp using jess
- This opens a java.Console titled Medical Diagnosis Expert System.
- Follow the instructions and answer the questions on the console.

Test Cases:

- Give the answers to the questions as follows:
Do you have a fever? **no**
Do you have a headache? **no**
Are you experiencing blurry vision? **yes**
Are you experiencing increased hunger and thirst? **Yes**
The diagnosis results in diabetes mellitus
- Give the answers to the questions as follows:
Do you have a fever? **yes**
Do you have a headache? **no**
Are you experiencing blood tinged cough? **yes**
Do you have decreased appetite? **yes**
Do you experience night sweats or chills? **yes**
The diagnosis results in tuberculosis