An Expert System to Recognize Cold, Fever

ARTIFICIAL INTELLIGENCE
(INT404)

Sr. No.	Registration No	Name of Students	Roll No
1	11800965	VIVEK RAJPUROHIT	05
2	11801469	ABHISHEK VERMA	06

Submitted to Pooja Rana,
Lovely Professional University
Jalandhar, Punjab, India.

Abstract:

Traditionally diagnoses of diseases done manually by consultant with the expert or a physician. In general human can perform a major role to solve complex medical problems as an expert. Now as the population is increasing and the time has become more valuable for modern civilization they don't have time for an appointment to the physician, so expert systems were designed to recognize diseases at home or office by simply putting the symptoms and find out the recommended medicine and reduce the burden of hospitals. In this project, a knowledge based expert system is designed to diagnoses diseases Flu, Common Cold, Mumps, Chicken Pox, Whooping Cough, Meningitis, Diphtheria, Influenza, Typhoid Fever , Anaemia for provide good services in health.

Introduction:

An Expert System or master frameworks utilize artificial intelligence to display a choice that specialists or experts in the field would make. Unlike decision support systems with many options from which the user may choose, expert systems pass on the scheme that computer settled on the best choice in view of criteria that expert would use. Expert system use knowledge of human expert to solve real-world problems where generally need interfere of human intelligence. Within the computer this knowledge is often represented by some rules or as data and depending on problem requirement, these rules can be evoked .Expert system can help physicians by advising them about unrecognized data needs of a diagnosis,analysing and treatment procedures by the helps of tools comprises of symptoms, conditions and finally come out with actual result. The significant issue in building up a medical decision support neural network is relies on substantial number of training cases which are required to pick up a decent diagnostic ability . These substantial numbers of training cases may not be generally available always.

Proposed Methodology:

Generally, patients complain about their diseases by visiting any medical hub but in this case there situated an automated machine called expert system interviews the patients through many questions and basis of their response expert system searches the appropriate symptoms from the database according to the patient's problem. If some match symptoms found in the database then the expert system comes to a conclusion and provides a prescription on basis of that particular conclusion. The proposed framework is shown in picture.
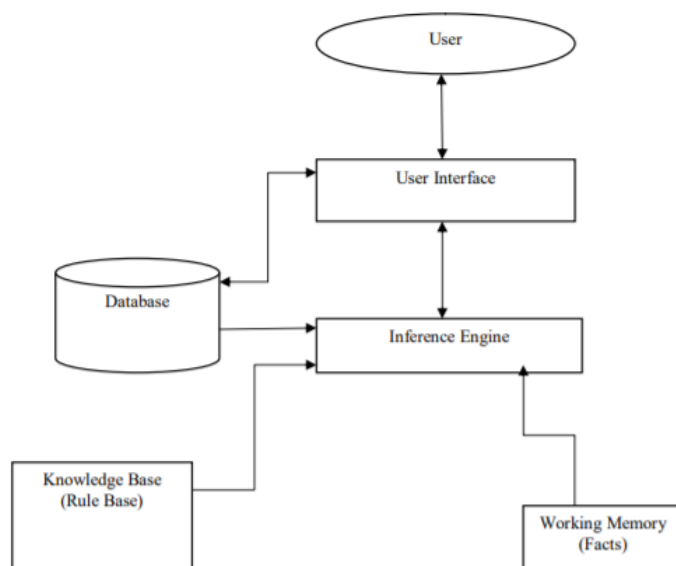
Knowledge Accession Process :

The primary power of the expert system is knowledge. Rules are built by all available facts contained in the knowledge base. For this in expert System main source of rules is knowledge.

 Rule-base for the propsed model

- 1. IF (fever for more than 2 days AND runny nose AND cough AND rash,usually covers the face,the body AND conjunctivitis AND body_ache) THEN MEASLES .

- 2. IF(fever for more than 2 days AND runny nose AND rash,usually covers the face,the body AND sore throat) THEN GERMAN_MEASLES .
- 3. IF(fever for more than 2 days AND runny nose AND cough AND conjunctivitis AND body_ache AND headache AND sneezing) THEN FLU.
- 4. IF(runny nose AND cough AND headache AND sneezing AND sore throat AND) THEN COMMON_COLD .
- 5. IF (fever for more than 2 days AND swollen salivary glands AND dry mouth) THEN MUMPS.
- 6. IF (rash,usually covers the face,the body AND itching skin AND general weakness) THEN CHICKEN-POX .
- 7. IF(cough AND Sneezing AND runny nose) THEN WHOOPING COUGH .
- 8. IF(fever for more than 2 day AND rash,usually covers the face,the body AND body_ache AND vomiting AND headache) THEN MENINGITIS.
- 9. IF(fever for more than 2 day AND lymph nodes in the neck enlarged AND slurred speech AND difficulty breathing or swallowing AND skin lesion with pain,red and swollen AND double vision) THEN DIPHTHERIA .
- 10. IF (fever for more than 2 days AND cough AND headache AND myalgia) THEN INFLUENZA .
- 11. IF(fever for more than 2 days AND rash,usually covers the face,the body AND rose colored spot on body AND general weakness AND headache) THEN TYPHOID-FEVER.
- 12. IF(chest pain AND Paleness AND low blood pressure AND general weakness AND difficulty breathing or swallowing) THEN ANAEMIA .

Result :

The result is the Expert System which gives us response depending on the input message provided.

A snapshot of output.

```
Please enter symptoms separated by commas: runny nose
You may have these diseases:
cold
Enter the disease diagonised by the system :
Enter Disease Name: cold
Cause Of Disease :
["The common cold is a viral infection of your nose and throat (upper respiratory tract).It's usually harmless, although it mig
ht not feel that way.", 'Many types of viruses can cause a common cold.']
Medicine that patient can take are :
['Tylenol ', ' panadol ', ' Nasal spray']
['Tylenol', '|', 'panadol', '|', 'Nasal', 'spray']
Advices And Suggestions :
Please wear warm cloths
```

Conclusion:

Today world is driven by knowledge base expert system which is one of very useful technology in artificial intelligence's world.Stored knowledge is extracted and this knowledge can be used as an expert in case of demise. It perform an important role especially in medical field as there exist a few number of specialist person. In this paper, a rule based expert framework can be design to diagnose diseases apart from traditional method. In future databases of corresponding medical should be enough good and fair so that it can reduce queue of patients and easy to generate result data after accurate diagnosis of diseases.

GIT HUB LINK OF PROJECT:

https://github.com/vivekrajpurohit/AI-PROJECT-

References:

We have taken references from these below websites:-

- https://github.com/ronak-07/Medical-Expert-System-Knowledge-Base
- https://www.edureka.co/blog/expert-system-in-artificial-intelligence/
- https://www.researchgate.net/publication/307977681_Knowledge_Management_in_E
  SMDA_Expert_System_for_Medical_Diagnostic_Assistance
- https://mail.python.org/pipermail/tutor/2011-June/084045.html