

Expert system for Online medical diagnosis for ENT diseases

1. We have used the prolog programming language and the modules which we have used are-

a) we have used SWI-Prolog Library which states the functioning of the project.

The modules of the project are-

1) the first module declares the all symptoms.

2) the second module states all the rules.

3) the third module shows how to ask questions to the patient.

4) This module shows all the results

5) This shows the prescriptions which should be given to the user.

Implementation code-

```
hypothesis(Disease),
```

```
write('I believe that the patient have'),
```

```
write(Disease),
```

```
nl,
```

```
write('TAKE CARE '),
```

```
undo.
```

```
/*Hypothesis that should be tested*/
```

```
hypothesis(cold) :- cold, !.
```

```
hypothesis(flu) :- flu, !.
```

```
hypothesis(typhoid) :- typhoid, !.
```

hypothesis(measles) :- measles, !.

hypothesis(malaria) :- malaria, !.

hypothesis(unknown). /* no diagnosis*/

/*Hypothesis Identification Rules*/

cold :-

verify(headache),

verify(runny_nose),

verify(sneezing),

verify(sore_throat),

write('Advices and Sugestions:'),

nl,

write('1: Tylenol/tab'),

nl,

write('2: panadol/tab'),

nl,

write('3: Nasal spray'),

nl,

write('Please weare warm cloths Because'),

nl.

flu :-

verify(fever),

verify(headache),

```
verify(chills),  
  
verify(body_ache),  
  
write('Advices and Sugestions:'),  
  
nl,  
  
write('1: Tamiflu/tab'),  
  
nl,  
  
write('2: panadol/tab'),  
  
nl,  
  
write('3: Zanamivir/tab'),  
  
nl,  
  
write('Please take a warm bath and do salt gargling Because'),  
  
nl.
```

typhoid :-

```
verify(headache),  
  
verify(abdominal_pain),  
  
verify(poor_appetite),  
  
verify(fever),  
  
write('Advices and Sugestions:'),  
  
nl,  
  
write('1: Chloramphenicol/tab'),  
  
nl,  
  
write('2: Amoxicillin/tab'),
```

nl,
write('3: Ciprofloxacin/tab'),
nl,
write('4: Azithromycin/tab'),
nl,
write('Please do complete bed rest and take soft Diet Because'),
nl.

measles :-

verify(fever),
verify(runny_nose),
verify(rash),
verify(conjunctivitis),
write('Advices and Sugestions:'),
nl,
write('1: Tylenol/tab'),
nl,
write('2: Aleve/tab'),
nl,
write('3: Advil/tab'),
nl,
write('4: Vitamin A'),
nl,

write('Please Get rest and use more liquid Because'),

nl.

malaria :-

verify(fever),

verify(sweating),

verify(headache),

verify(nausea),

verify(vomiting),

verify(diarrhea),

write('Advices and Sugestions:'),

nl,

write('1: Aralen/tab'),

nl,

write('2: Qualaquin/tab'),

nl,

write('3: Plaquenil/tab'),

nl,

write('4: Mefloquine'),

nl,

write('Please do not sleep in open air and cover your full skin Because'),

nl.

```
/* how to ask questions */
```

```
ask(Question) :-
```

```
write('Does the patient have following symptom:'),
```

```
write(Question),
```

```
write('? '),
```

```
read(Response),
```

```
nl,
```

```
( (Response == yes ; Response == y)
```

```
->
```

```
assert(yes(Question)) ;
```

```
assert(no(Question)), fail).
```

```
:- dynamic yes/1,no/1.
```

```
/*How to verify something */
```

```
verify(S) :-
```

```
(yes(S)
```

```
->
```

```
true ;
```

```
(no(S)
```

```
->
```

```
fail ;
```

```
ask(S))).
```

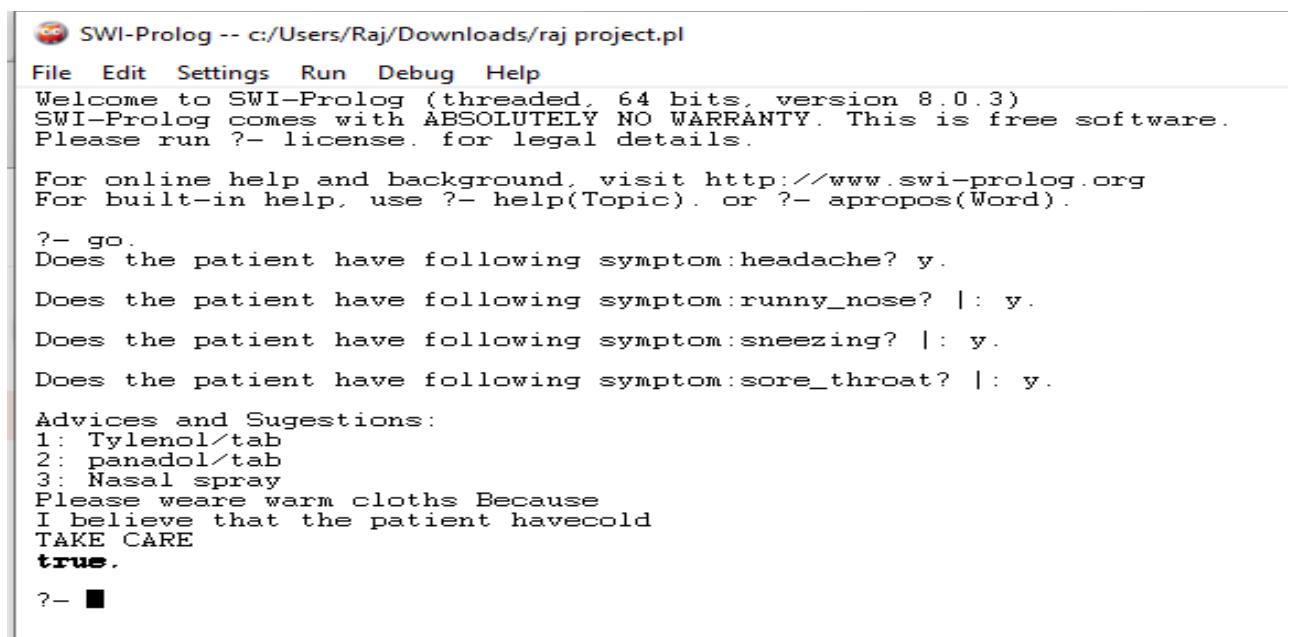
```
/* undo all yes/no assertions*/
```

```
undo :- retract(yes(_)),fail.
```

```
undo :- retract(no(_)),fail.
```

```
undo.
```

Output 1-



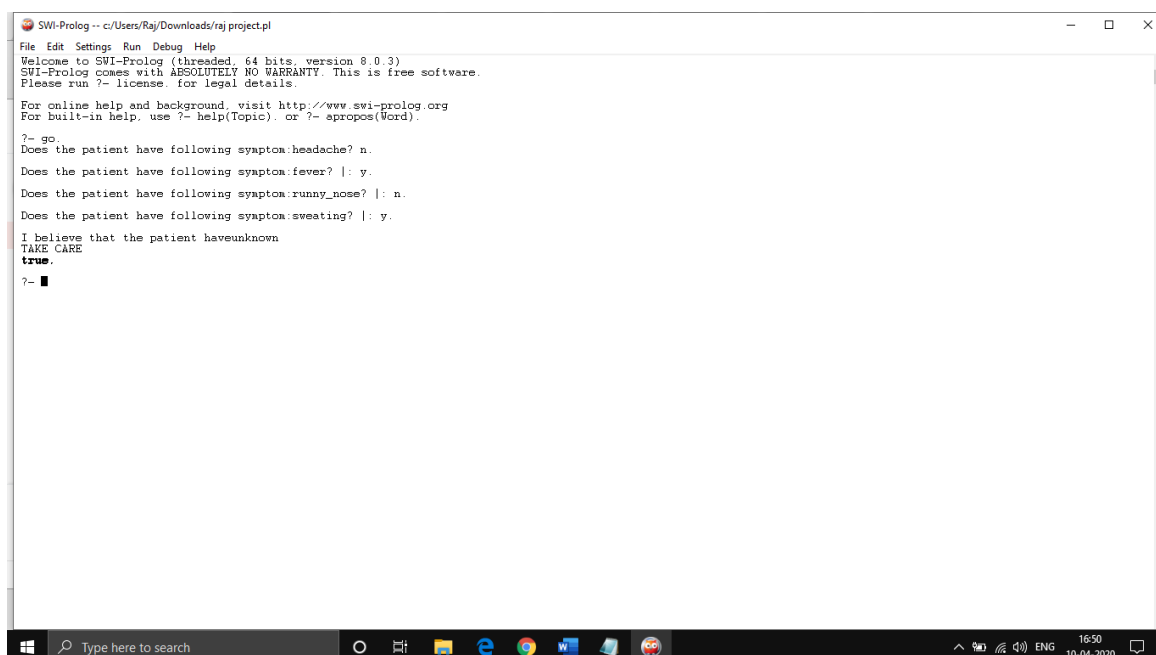
```
SWI-Prolog -- c:/Users/Raj/Downloads/raj project.pl
File Edit Settings Run Debug Help
Welcome to SWI-Prolog (threaded, 64 bits, version 8.0.3)
SWI-Prolog comes with ABSOLUTELY NO WARRANTY. This is free software.
Please run ?- license. for legal details.

For online help and background, visit http://www.swi-prolog.org
For built-in help, use ?- help(Topic). or ?- apropos(Word).

?- go.
Does the patient have following symptom:headache? y.
Does the patient have following symptom:runny_nose? |: y.
Does the patient have following symptom:sneezing? |: y.
Does the patient have following symptom:sore_throat? |: y.

Advices and Sugestions:
1: Tylenol/tab
2: panadol/tab
3: Nasal spray
Please weare warm cloths Because
I believe that the patient havecold
TAKE CARE
true.
?- █
```

Output 2-



```
SWI-Prolog -- c:/Users/Raj/Downloads/raj project.pl
File Edit Settings Run Debug Help
Welcome to SWI-Prolog (threaded, 64 bits, version 8.0.3)
SWI-Prolog comes with ABSOLUTELY NO WARRANTY. This is free software.
Please run ?- license. for legal details.

For online help and background, visit http://www.swi-prolog.org
For built-in help, use ?- help(Topic). or ?- apropos(Word).

?- go.
Does the patient have following syapton:headache? n.
Does the patient have following syapton:fever? |: y.
Does the patient have following syapton:runny_nose? |: n.
Does the patient have following syapton:sweating? |: y.

I believe that the patient haveunknown
TAKE CARE
true.
?- █
```

3. The innovation or the newness of this project is that it considers all the symptoms and according to the rules it describes all the results and what the problems a patient can have using the symptoms. It also shows the prescriptions to be given to the patient to cure that problem.

REPORT FOR PROJECT

Objective-We have written a code which decides based on the symptoms a patient have

and accordingly, the modules show the output as a disease and it also shows the prescriptions which should be recommended to the patient.

Modules-

- 1) the first module declares the all symptoms
- 2) the second module states all the rules.
- 3) the third module shows how to ask questions to the patient.
- 4) This module shoes all the results
- 5)This shows the prescriptions which should be given to the user.

We have used the knowledge of the expert by declaring all the rules and we have accordingly described all the outputs.

Conclusion-

This project basically shows all the functionalities for disease identification, based on the symptoms shown by the patient we have given the output. Our project shows all the presrcptions which needs to be recommended to the patient. All the functionalities have been stated accordingly.

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Student Declaration

This is to declare that this report has been written by me/us. No part of the report is copied from other sources. All information included from other sources have been duly acknowledged. I/We aver that if any part of the report is found to be copied, I/we are shall take full responsibility for it.

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BONAFIDE CERTIFICATE

Certified that this project report “**Expert system for Online medical diagnosis for ENT diseases**” is the bonafide work of **Rakibul Sk(Roll No-RK19BBA07)**, **Saraswat Naman Sanjay(Roll No-RK19BBA01)**, **Sai Sowjanya Kallempudi(Roll No-RK19BBA10)**, **Dishant totade(Roll No- RK163B17)**,who carried out the project work under my supervision.

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