

## LP-1

### Artificial Intelligence and Robotics

#### Assignment No: 02

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#### **Problem Statement:**

Implement any one of the following Expert System 1. Medical

Diagnosis of 10 diseases based on adequate symptoms.

2. Identifying birds of India based on characteristics. **Code:**

```
go:hypothesis(Disease), write('It is suggested that the
patient has '), write(Disease), nl, undo; write('Sorry, the
system is unable to identify the disease'),nl,undo.
```

```
hypothesis(dengue)
:symptom(fever),
symptom(vomiting),
symptom(headache), symptom(rash),
symptom(joint_pain),
symptom(eye_pain),
symptom(nose_bleed),
symptom(fatigue),
```

```
nl, write('Advices and Sugestions:'), nl, write('1 : Drink plenty
of fluids and get plenty of rest.'), nl, write('2: Maintain a clean
and hygienic environment at home'), nl, write('3: Use
mosquito repellents and nets'), nl, write('4: follow proper
diet'), nl,
write('Dengue is spread by the Aedes mosquito, which prefers biting during the day time (sunlight
```

hours). Even a single mosquito bite can lead to dengue. Thus it is important to protect loved ones, both indoors and outdoors, especially during the day. Before stepping out, the use of personal repellents like Goodknight Fabric Roll-On (or the Goodknight cool gel/patches etc.) can prevent mosquito bites. Please do not sleep in open air and cover your full skin because'), nl, !.

```
hypothesis(cold) :symptom(headache),  
symptom(runny_nose),  
symptom(sneezing), symptom(sore_throat),
```

```
nl, write('Advices and Sugestions:'), nl,  
write('1: Tylenol'), nl, write('2: Panadol'),  
nl, write('3: Nasal spray'), nl, write('Please  
weare warm cloths because'), nl, !.
```

```
hypothesis(influenza)  
:symptom(sore_throat),  
symptom(fever), symptom(headache),  
symptom(chills),  
symptom(body_ache),
```

```
nl, write('Advices and Sugestions:'), nl, write('1: Tamiflu'),  
nl, write('2: Panadol'), nl, write('3: Zanamivir'), nl,  
write('Please take a warm bath and do salt gargling  
because'), nl, !.
```

```
hypothesis(typhoid) :symptom(headache), symptom(abdominal_pain),  
symptom(poor_appetite), symptom(fever),
```

```
nl, write('Advices and  
Sugestions:'), nl, write('1:  
Chloramphenicol'), nl, write('2: Amoxicillin'),  
nl, write('3:  
Ciprofloxacin'), nl, write('4: Azithromycin'), nl, write('Please  
do complete bed rest and take soft diet because'), nl, !.  
hypothesis(chicken_pox) :symptom(rash),
```

symptom(body\_ache), symptom(fever), nl, write('Advices and Sugestions:'), nl, write('1: Varicella vaccine'), nl, write('2: Immunoglobulin'), nl, write('3: Acetomenaphin'), nl, write('4: Acyclovir'), nl, write('Please do have oatmeal bath and stay at home because'), nl.

hypothesis(measles) :symptom(fever),  
symptom(runny\_nose), symptom(rash),  
symptom(conjunctivitis), nl, write('Advices and Sugestions:'), nl, write('1: Tylenol'), nl, write('2: Aleve'), nl, write('3: Advil'), nl, write('4: Vitamin A'), nl, write('Please get rest and use more liquid because'), nl, !.

hypothesis(diabetes)  
:symptom(headache),  
symptom(increased\_hunger),  
symptom(dry\_mouth), symptom(fatigue),  
symptom(blurred\_vision),  
symptom(frequent\_urination),  
symptom(weightloss),

nl, write('Advices and Sugestions:'),  
nl, write('1:

Metformin '), nl, write('2: Sulfonylureas'), nl, write('3: Thiazolidinediones'), nl, write('4: DPP-4 inhibitors'), nl, write('4: GLP-1 receptor agonists'), nl, write('4: SGLT2 inhibitors'), nl, write('4: Insulin Therapy'), nl, write('Please check your blood sugar level at least twice a day. Control your blood pressure, cholesterol, and triglyceride levels. Get A1c blood tests to find out your average blood sugar

for the past 2 to 3 months to track your carbohydrates because '), nl,!.  
ask(Question) :write('Does the patient has

the symptom '), write(Question), write("?  
: '),

read(Response),

nl,

( (Response == yes ; Response == y) ->

assert(yes(Question)) ; assert(no(Question)),

fail).

:- dynamic yes/1,no/1.

symptom(S) :-

(yes(S)

-> true

;

(no(S) ->

fail ; ask(S))).

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

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

## Output:

go.

Does the patient has the symptom fever? : y.

Does the patient has the symptom vomiting? : y

Does the patient has the symptom headache? : y.

Does the patient has the symptom rash? : y.

Does the patient has the symptom joint\_pain? : y.

Does the patient has the symptom eye\_pain? : y.

Does the patient has the symptom nose\_bleed? : y.

Does the patient has the symptom fatigue? : y.

Advices and Sugestions:

- 1 : Drink plenty of fluids and get plenty of rest.
- 2: Maintain a clean and hygienic environment at home
- 3: Use mosquito repellents and nets
- 4: follow proper diet

Dengue is spread by the Aedes mosquito, which prefers biting during the day time (sunlight hours). Even a single mosquito bite can lead to dengue. Thus it is important to protect loved ones, both indoors and outdoors, especially during the day. Before stepping out, the use of personal repellents like Goodknight Fabric Roll-On (or the Goodknight cool gel/patches etc.) can prevent mosquito bites. Please do not sleep in open air and cover your full skin because

It is suggested that the patient has dengue