2.1 List of Rules

1: **would you like to proceed? if the user is :**

→ No.

Then, the answer is “we are waiting to serve you any time.”

2: **would you like to proceed? if the user is**

**// VC**

→Yes.

**Then:**

→ do you feel lassitude?

→ do you feel irritability?

→do you feel in a joint?

→do you feel muscle pain?

If the answer is “ **Yes** ” Then, the answer is “You have deficiency in Vitamin C.”

If the answer is “ **No” , “ you don’ have any symptoms”** go to the next question .

3: →Yes.

**// VE**

→ do you feel muscle weakness?

→ do you have vision problem?

→do you feel loss of feelings in arms and legs?

→do you feel loss of body movement control?

If the answer is “ **Yes** ” Then, the answer is “You have deficiency in Vitamin E ”

If the answer is “ **No” , “ you don’ have any symptoms”** go to the next question .

4: →Yes.

**// VA**

→ do you have acnes?

→ do you have slow wound healing?

→do you have skin dryness?

If the answer is “ **Yes** ” Then, the answer is “You have deficiency in Vitamin A ”

If the answer is “ **No” , “ you don’ have any symptoms”** go to the next question .

5: →Yes.

**// VB12**

→ do you have headache?

→ do you feel depressed?

→do you have mood disturbances?

If the answer is “ **Yes** ” Then, the answer is “You have deficiency in Vitamin B12”

If the answer is “ **No” , “ you don’ have any symptoms”** go to the next question .

6: →Yes.

**// VB6**

→ do have ulceration of the tongue?

→ do have dermatitis?

If the answer is “ **Yes** ” Then, the answer is “You have deficiency in Vitamin B6”

If the answer is “ **No” , “ you don’ have any symptoms”** go to the next question .

6: →Yes.

**// copper**

→ do you have anemia?

→ do you always feel cold?

→do you notice any loss of pigment from the skin?

→do you have any thyroids problem?

If the answer is “ **Yes** ” Then, the answer is “You have deficiency in copper”

If the answer is “ **No” , “ you don’ have any symptoms”** go to the next question .

7: →Yes.

**// iron**

→ do you suffer from breathlessness?

→ do you have poor memory?

→do you have poor performance?

→do you get infected frequently?

If the answer is “ **Yes** ” Then, the answer is “You have deficiency in iron”

If the answer is “ **No” , “ you don’ have any symptoms”** go to the next question .

8: →Yes.

**// Zinc**

→ do you suffer from hair loss?

→ do you have diarrhea?

→have you noticed any change in your nails?

→do you lack of taste and smell?

If the answer is “ **Yes** ” Then, the answer is “You have deficiency in zinc”

If the answer is “ **No” , “ you don’ have any symptoms”** go to the next question .

8: →Yes.

**// folate**

→ do you feel shortness of breath?

→ do you feel dizzy most of the time?

If the answer is “ **Yes** ” Then, the answer is “You have deficiency in folate”

If the answer is “ **No” , “ you don’ have any symptoms”** go to the next question .

2.2 Technique of Acquiring Knowledge

The technique we used is backward-chaining, we have collected all possible results for the user

and write a rules based on those results, by using Experta library in python .