

Practical 10

AI

19BCE248

Aim: Design an Expert System of your choice.

Code:

```
medicalTree = [
    'Do you have fever?',
    [
        'Do you have cough?',
        [
            'Do you have headache?',
            [
                'Do you have body ache?',
                [
                    'Flu'
                ],
            ],
            [
                'Do you have rash?',
                [
                    'Do you have chills?',
                    [
                        'Common Cold'
                    ],
                ],
                [
                    'German Measles'
                ]
            ],
            [
                'Chicken Pox'
            ]
        ]
    ],
    [
        'Measles'
    ]
],
[
    'Do you have swollen glands?',
    [
        'Mumps'
    ],
    [
        'Common Cold'
    ]
]
],
[
    'Are you Sneezing?',
    [
        'Do you have headache?',
        [
            'Flu'
        ],
    ],
    [
        'Allergies'
    ]
],
[
    'Healthy Body'
```

```

    ]
]
]

```

```

def expert(tree):
    currentNode = tree
    while len(currentNode) == 3:
        [question, yesNode, noNode] = currentNode # name the parts of the list
        if agree(question):
            currentNode = yesNode
        else:
            currentNode = noNode
    # When the while loop is over, currentNode is a leaf with a single element.
    [result] = currentNode
    print("You have {}".format(result))

def agree(question):
    answer = input(question + ' (y/n) ')
    return answer.startswith('y')

def prettyStr(tree, indent='', dif=' '):
    if len(tree) == 1:
        return indent + repr(tree) # repr(string) -> quoted form used in programs
    [question, t1, t2] = tree
    t1Str = prettyStr(t1, indent + dif)
    t2Str = prettyStr(t2, indent + dif)
    return '''{indent}[{question!r},
{t1Str},
{t2Str}
{indent}]'''.format(**locals())

if __name__ == '__main__':
    tree = medicalTree
    #print("\nUsing this expert system tree:\n")
    #print(prettyStr(tree))
    more = True
    while more:
        expert(tree)
        more = agree('\nDo you want to use the expert system some more?')

```

Input and Output:

Do you want to use the expert system some more? (y/n) n
Do you have fever? (y/n) y
Do you have cough? (y/n) n
Do you have swollen glands? (y/n) n
You have Common Cold

Do you want to use the expert system some more? (y/n) y
Do you have fever? (y/n) y
Do you have cough? (y/n) y
Do you have headache? (y/n) y
Do you have body ache? (y/n) y
You have Flu

