ARTIFICIAL INTELLIGENCE

Practical-10

ROLL NO. : 18BCE191
DATE: 23/11/2021

Aim

Implement 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

    else:
        [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))
    expert(tree)
```

Output

```
(base) rajat@rajat-VivoBook-S14-X430UA:/Rajat1/Books/Artificial Intelligence/Practicals$ python -u "/Rajat1/Books/Artificial Intelligence/Practicals/Prac10.py"

Using this expert system tree:

['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']
      ]
    ]
Do you have fever? (y/n) y
Do you have cough? (y/n) n
Do you have swollen glands? (y/n) y
You have Mumps
(base) rajat@rajat-VivoBook-S14-X430UA:/Rajat1/Books/Artificial Intelligence/Practicals$
```

```
(base) rajat@rajat-VivoBook-S14-X430UA:/Rajat1/Books/Artificial Intelligence/Practicals$ python -u "/Rajat1/Books/Artificial Intelligence/Practicals/Prac10.py"

Using this expert system tree:

['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']
      ]
    ]
Do you have fever? (y/n) y
Do you have cough? (y/n) y
Do you have headache? (y/n) n
You have Measles
(base) rajat@rajat-VivoBook-S14-X430UA:/Rajat1/Books/Artificial Intelligence/Practicals$
```