ASSIGNMENT NO 6

Name :Umesh Nanabhau Mahale   **Roll No: B -50**

Problem statement: Implement any one of the following Expert System:

I.   Information management

II. **Hospitals and medical facilities**

III. Help desks management

IV. Employee performance evaluation

V.   Stock market trading

import time

Expanded medical conditions and symptoms medical_data =

{

  "Cardiology": [

    "chest pain", "shortness of breath", "high blood pressure",

    "irregular heartbeat", "palpitations", "dizziness"

  ],

  "Neurology": [

    "headache", "dizziness", "memory loss", "seizures",

    "numbness", "vision problems", "slurred speech"

  ],

  "Orthopedics": [

    "joint pain", "back pain", "bone fracture", "swelling in joints",

    "stiffness", "difficulty walking", "muscle weakness"

  ],

  "General Medicine": [

    "fever", "fatigue", "nausea", "body ache", "cough", "cold",

    "sore throat", "weakness", "loss of appetite"

  ],

  "Gastroenterology": [

    "stomach pain", "indigestion", "constipation", "vomiting",

    "diarrhea", "bloating", "heartburn", "acid reflux"

  ],

  "Dermatology": [

```python
        "skin rash", "itching", "acne", "skin dryness", "eczema",
        "hives", "redness", "peeling skin"
    ],
    "Pulmonology": [
        "shortness of breath", "chronic cough", "wheezing", "chest tightness",        "asthma",
"lung infection", "difficulty breathing"
    ],
    "ENT (Ear, Nose, Throat)": [
        "ear pain", "hearing loss", "sinus congestion", "sore throat",
        "runny nose", "nosebleeds", "voice hoarseness"
    ]
}


# Recommended tests for each department recommended_tests = {
    "Cardiology": ["ECG", "Blood Pressure Check", "Cholesterol Test"],
    "Neurology": ["MRI", "CT Scan", "EEG", "Neurological Examination"],
    "Orthopedics": ["X-ray", "Bone Density Test", "MRI Scan", "Physical Therapy"],
    "General Medicine": ["Blood Test", "Complete Blood Count (CBC)", "Vitals Check"],
    "Gastroenterology": ["Ultrasound", "Endoscopy", "Liver Function Test"],
    "Dermatology": ["Skin Analysis", "Allergy Test", "Biopsy (if needed)"],
    "Pulmonology": ["Chest X-ray", "Pulmonary Function Test", "Oxygen Level Test"],
    "ENT (Ear, Nose, Throat)": ["Hearing Test", "Nasal Endoscopy", "Throat Swab Test"]
}

def get_medical_advice(symptoms):
    possible_departments = []


    # Check which department matches the given symptoms for
department, symptom_list in medical_data.items(): if
any(symptom in symptom_list for symptom in symptoms):

        possible_departments.append(department)


    if not possible_departments:
        return " No matching department found. Please consult a General Physician for further assessment."
```

```python
    advice = " Based on your symptoms, you should visit the following department(s):\n"    for dept in possible_departments:
        advice += f" **{dept}** - Recommended Tests: {', '.join(recommended_tests[dept])}\n"
return advice def hospital_expert_system():
    print(" Welcome to the Hospital Expert System!") print("I will analyze your
    symptoms and recommend the right hospital department.") time.sleep(1)


    # Get user input for symptoms user_input = input("\nEnter your symptoms separated by commas (e.g.:
    cold, cough, headache, dizziness,
nausea): ").lower()   symptoms = [symptom.strip() for symptom in user_input.split(",")] #
    Get medical advice based on symptoms  result
= get_medical_advice(symptoms)   print("\n" + result)

    # Ask if the user wants further assistance          while
True:
        more_help = input("\nWould you like to check another symptom? (yes/no): ").lower()
if more_help == "yes": return
        hospital_expert_system()

elif more_help == "no": print("\nThank you for using the Hospital Expert
        System. Stay healthy! ") break

else: print(" Invalid input. Please enter 'yes' or 'no'.")

# Run the expert system if
name_____== "_main_":

hospital_expert_system()
```

```
Shell ×

>>> %Run pr6ai.py
  🏥 Welcome to the Hospital Expert System!
 I will analyze your symptoms and recommend the right hospital department.

 Enter your symptoms separated by commas (e.g.: cold, cough, headache, dizziness,
 nausea): cough

  🔍 Based on your symptoms, you should visit the following department(s):
 ☑ **General Medicine** - Recommended Tests: Blood Test, Complete Blood Count (C
 BC), Vitals Check


 Would you like to check another symptom? (yes/no): yes
  🏥 Welcome to the Hospital Expert System!
 I will analyze your symptoms and recommend the right hospital department.

 Enter your symptoms separated by commas (e.g.: cold, cough, headache, dizziness,
 nausea): cold, dizziness

  🔍 Based on your symptoms, you should visit the following department(s):
 ☑ **Cardiology** - Recommended Tests: ECG, Blood Pressure Check, Cholesterol Te
 st
 ☑ **Neurology** - Recommended Tests: MRI, CT Scan, EEG, Neurological Examinatio
 n
```

```
Shell ×

 st
 ☑ **Neurology** - Recommended Tests: MRI, CT Scan, EEG, Neurological Examinatio
 n
 ☑ **General Medicine** - Recommended Tests: Blood Test, Complete Blood Count (C
 BC), Vitals Check


 Would you like to check another symptom? (yes/no): yes
  🏥 Welcome to the Hospital Expert System!
 I will analyze your symptoms and recommend the right hospital department.

 Enter your symptoms separated by commas (e.g.: cold, cough, headache, dizziness,
 nausea): headache, nausea

  🔍 Based on your symptoms, you should visit the following department(s):
 ☑ **Neurology** - Recommended Tests: MRI, CT Scan, EEG, Neurological Examinatio
 n
 ☑ **General Medicine** - Recommended Tests: Blood Test, Complete Blood Count (C
 BC), Vitals Check


 Would you like to check another symptom? (yes/no): no

 Thank you for using the Hospital Expert System. Stay healthy! 😊
>>>
```