

# AI LAB 9 – 9557-Gaurav Mishra – Batch B

## Simple Prototype for expert system

### Code:

```
class ExpertSystem:
```

```
    def __init__(self):
```

```
        self.rules = {
```

```
            "low_calorie": "Focus on consuming fruits, vegetables, lean proteins,  
and whole grains. Limit added sugars and fats.",
```

```
            "high_protein": "Include plenty of protein-rich foods such as lean meats,  
fish, eggs, dairy, legumes, and nuts.",
```

```
            "low_carb": "Limit carbohydrate intake and focus on consuming non-  
starchy vegetables, lean proteins, and healthy fats.",
```

```
            "balanced_diet": "Eat a variety of foods from all food groups, including  
fruits, vegetables, grains, protein-rich foods, and healthy fats."
```

```
        }
```

```
    def consult(self, dietary_needs):
```

```
        recommendations = []
```

```
        for need in dietary_needs:
```

```
            if need in self.rules:
```

```
                recommendations.append(self.rules[need])
```

```
            else:
```

```
                recommendations.append("Sorry, I'm not sure what to advise for '{}'  
dietary need.".format(need))
```

```
        return recommendations
```

```
def main():
```

```
expert_system = ExpertSystem()
```

```
# Example consultations
```

```
print("Dietary needs: low_calorie, high_protein")
```

```
print(expert_system.consult(["low_calorie", "high_protein"]))
```

```
print("\nDietary needs: low_carb, balanced_diet")
```

```
print(expert_system.consult(["low_carb", "balanced_diet"]))
```

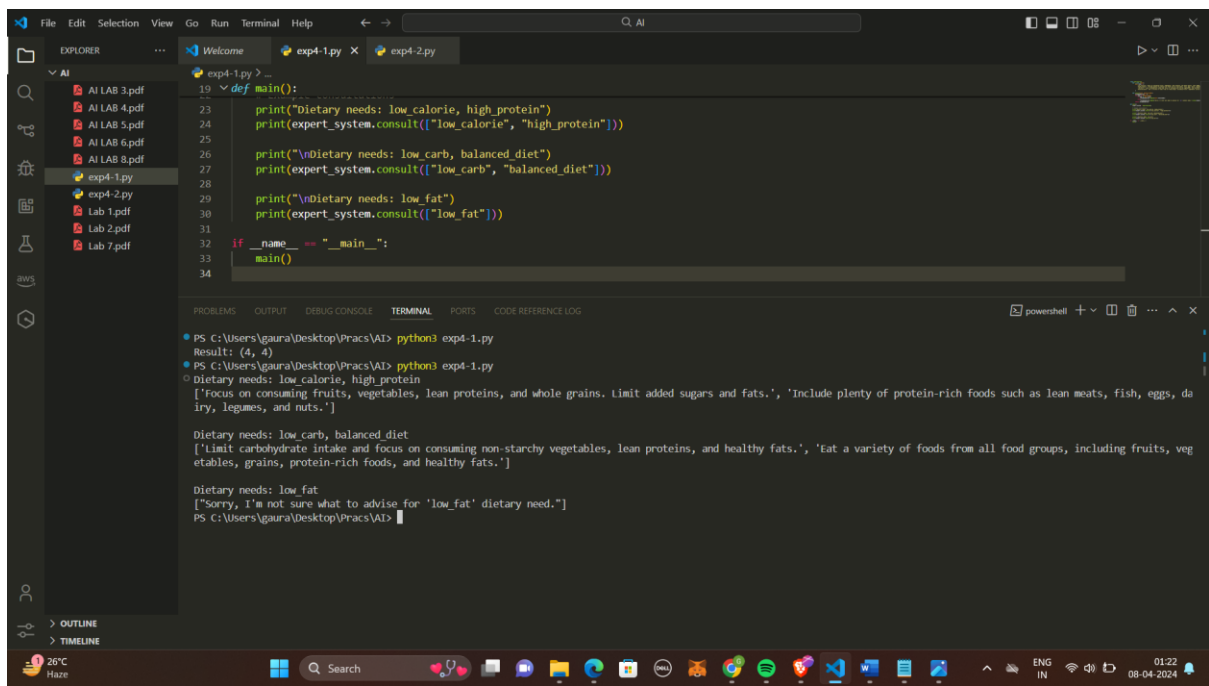
```
print("\nDietary needs: low_fat")
```

```
print(expert_system.consult(["low_fat"]))
```

```
if __name__ == "__main__":
```

```
    main()
```

## OUTPUT:



The screenshot shows a Visual Studio Code editor with a Python file named `exp4-1.py` open. The code defines a `main()` function that prints dietary needs and consults an `expert_system` for three different queries. The terminal at the bottom shows the output of running the script with `python3 exp4-1.py`. The output displays the dietary needs for each query and the corresponding advice from the expert system.

```
PS C:\Users\gaura\Desktop\Pracs\AI> python3 exp4-1.py
Result: (4, 4)
PS C:\Users\gaura\Desktop\Pracs\AI> python3 exp4-1.py
Dietary needs: low_calorie, high_protein
['Focus on consuming fruits, vegetables, lean proteins, and whole grains. Limit added sugars and fats.', 'Include plenty of protein-rich foods such as lean meats, fish, eggs, dairy, legumes, and nuts.']

Dietary needs: low_carb, balanced_diet
['Limit carbohydrate intake and focus on consuming non-starchy vegetables, lean proteins, and healthy fats.', 'Eat a variety of foods from all food groups, including fruits, vegetables, grains, protein-rich foods, and healthy fats.']

Dietary needs: low_fat
['Sorry, I'm not sure what to advise for 'low_fat' dietary need.']
PS C:\Users\gaura\Desktop\Pracs\AI>
```

