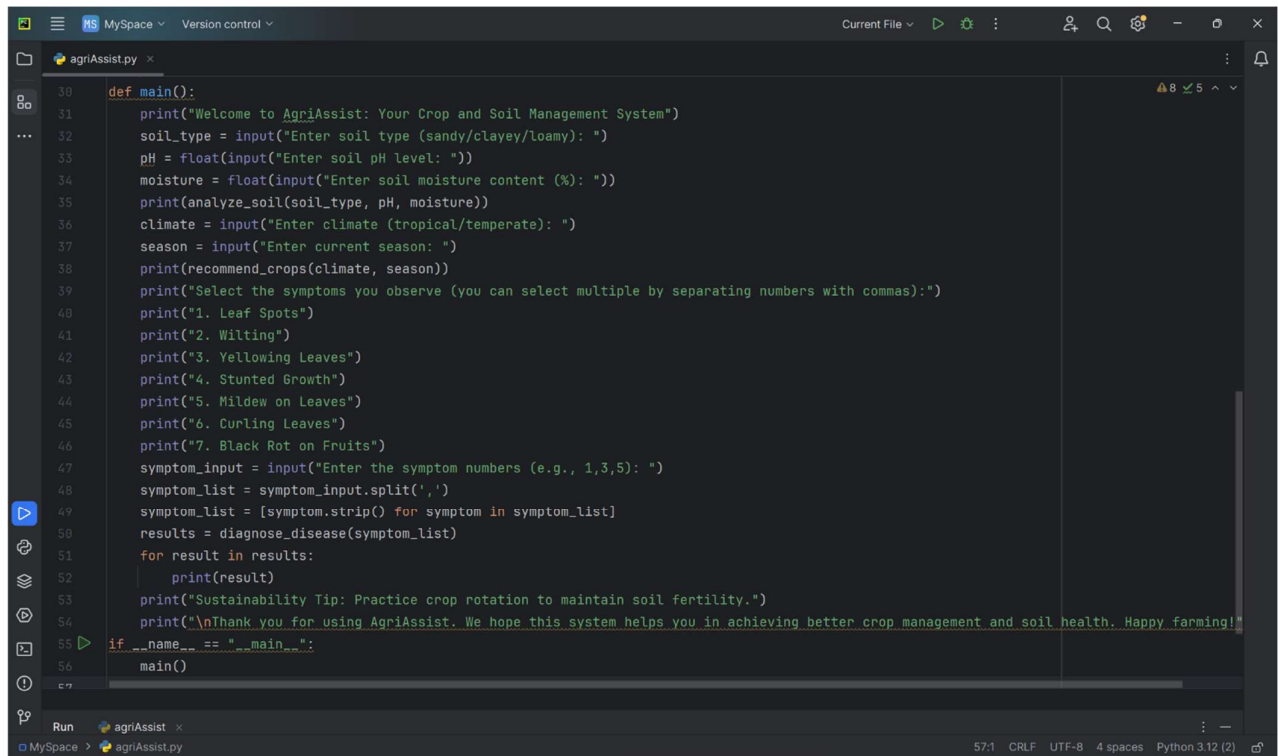


Code Snippets:

```
1 usage
2 def analyze_soil(soil_type, pH, moisture):
3     if soil_type == 'loamy' and 6 <= pH <= 7:
4         return "Ideal for most crops."
5     elif soil_type == 'clayey' and moisture > 40:
6         return "Suitable for rice, but improve drainage."
7     else:
8         return "Add organic matter to improve soil quality."
9
10 usage
11 def recommend_crops(climate, season):
12     if climate == 'tropical' and season == 'rainy':
13         return "Recommended Crops: Rice, Maize."
14     elif climate == 'temperate' and season == 'winter':
15         return "Recommended Crops: Wheat, Barley."
16     else:
17         return "Please consult local guidelines."
18
19 usage
20 def diagnose_disease(symptoms):
21     disease_dict = {
22         '1': "Leaf Spot: Possible disease - Leaf Spot. Treatment: Use fungicide.",
23         '2': "Wilting: Possible disease - Fusarium Wilt. Treatment: Improve soil drainage.",
24         '3': "Yellowing Leaves: Possible disease - Nitrogen Deficiency. Treatment: Apply nitrogen-rich fertilizer.",
25         '4': "Stunted Growth: Possible disease - Root Knot Nematodes. Treatment: Use nematocides.",
26         '5': "Mildew on Leaves: Possible disease - Powdery Mildew. Treatment: Apply sulfur-based fungicide.",
27         '6': "Curling Leaves: Possible disease - Aphid Infestation. Treatment: Use insecticidal soap or neem oil.",
28         '7': "Black Rot on Fruits: Possible disease - Anthracnose. Treatment: Remove infected fruits and apply fungicide."
29     }
30     results = []
```

```
25     results = []
26     for symptom in symptoms:
27         result = disease_dict.get(symptom, "Symptom not recognized. Please consult an expert.")
28         results.append(result)
29     return results
30
31 usage
32 def main():
33     print("Welcome to AgriAssist: Your Crop and Soil Management System")
34     soil_type = input("Enter soil type (sandy/clayey/loamy): ")
35     pH = float(input("Enter soil pH level: "))
36     moisture = float(input("Enter soil moisture content (%): "))
37     print(analyze_soil(soil_type, pH, moisture))
38     climate = input("Enter climate (tropical/temperate): ")
39     season = input("Enter current season: ")
40     print(recommend_crops(climate, season))
41     print("Select the symptoms you observe (you can select multiple by separating numbers with commas):")
42     print("1. Leaf Spots")
43     print("2. Wilting")
44     print("3. Yellowing Leaves")
45     print("4. Stunted Growth")
46     print("5. Mildew on Leaves")
47     print("6. Curling Leaves")
48     print("7. Black Rot on Fruits")
49     symptom_input = input("Enter the symptom numbers (e.g., 1,3,5): ")
50     symptom_list = symptom_input.split(',')
51     symptom_list = [symptom.strip() for symptom in symptom_list]
52     results = diagnose_disease(symptom_list)
```

A screenshot of a code editor window titled 'MySpace' with a file named 'agriAssist.py'. The code is written in Python and implements a system for crop and soil management. It includes a main function that prompts the user for soil type, pH level, moisture content, climate, and season. It then calls functions to analyze soil, recommend crops, and diagnose diseases based on user input. The code also includes a sustainability tip and a thank you message. The editor shows line numbers from 30 to 57. The bottom status bar indicates the file is 57 lines long, uses CRLF line endings, UTF-8 encoding, 4 spaces for indentation, and is running Python 3.12 (2).

```
30 def main():
31     print("Welcome to AgriAssist: Your Crop and Soil Management System")
32     soil_type = input("Enter soil type (sandy/clayey/loamy): ")
33     pH = float(input("Enter soil pH level: "))
34     moisture = float(input("Enter soil moisture content (%): "))
35     print(analyze_soil(soil_type, pH, moisture))
36     climate = input("Enter climate (tropical/temperate): ")
37     season = input("Enter current season: ")
38     print(recommend_crops(climate, season))
39     print("Select the symptoms you observe (you can select multiple by separating numbers with commas):")
40     print("1. Leaf Spots")
41     print("2. Wilting")
42     print("3. Yellowing Leaves")
43     print("4. Stunted Growth")
44     print("5. Mildew on Leaves")
45     print("6. Curling Leaves")
46     print("7. Black Rot on Fruits")
47     symptom_input = input("Enter the symptom numbers (e.g., 1,3,5): ")
48     symptom_list = symptom_input.split(',')
49     symptom_list = [symptom.strip() for symptom in symptom_list]
50     results = diagnose_disease(symptom_list)
51     for result in results:
52         print(result)
53     print("Sustainability Tip: Practice crop rotation to maintain soil fertility.")
54     print("\nThank you for using AgriAssist. We hope this system helps you in achieving better crop management and soil health. Happy farming!")
55 if __name__ == "__main__":
56     main()
57
```

Steps involved in Code Implementation:

Key Features:

1. Soil Analysis:

- Users input soil type, pH level, and moisture content. The system then provides recommendations on soil suitability and necessary improvements.

2. Crop Recommendation:

- Based on climate type and season, the application suggests crops that are best suited to the conditions, aiding farmers in making informed planting decisions.

3. Disease Diagnosis:

- Farmers can select multiple symptoms they observe in their crops. The system then diagnoses potential diseases and suggests treatments.

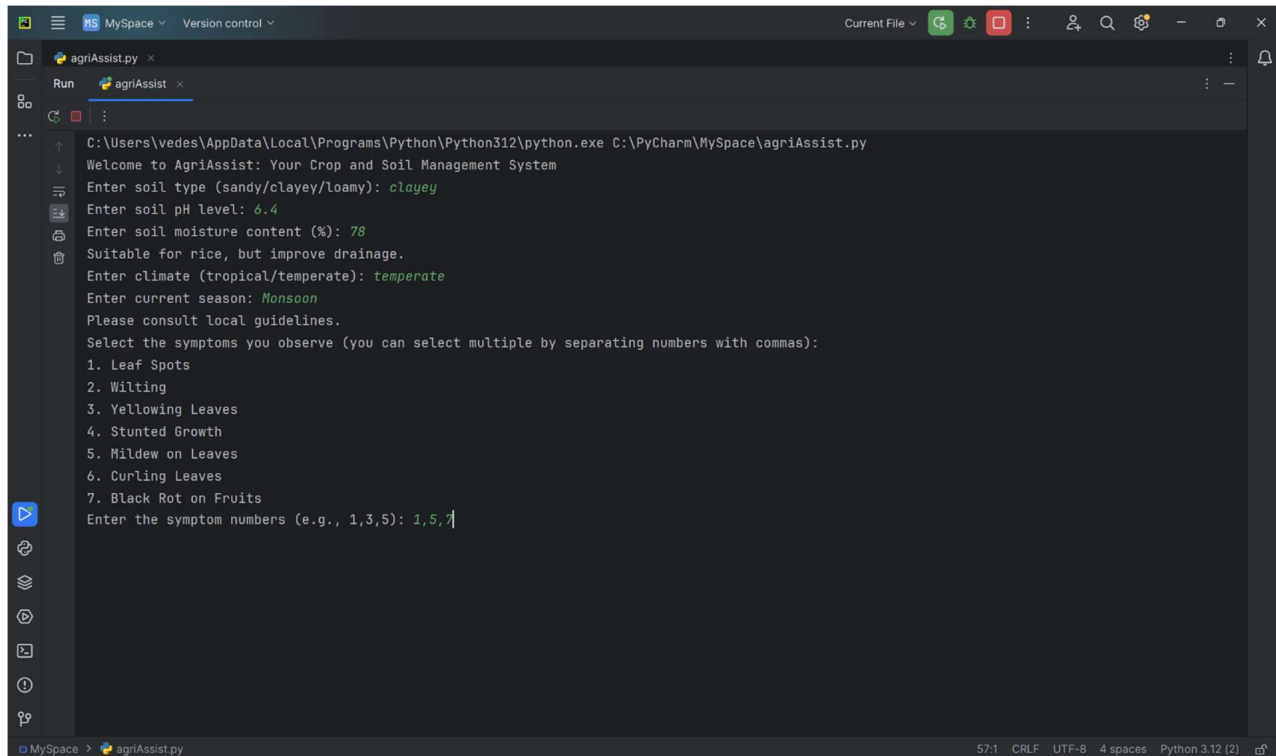
4. Sustainability Tips:

- The application offers general farming tips, like crop rotation, to promote long-term soil health and sustainability.

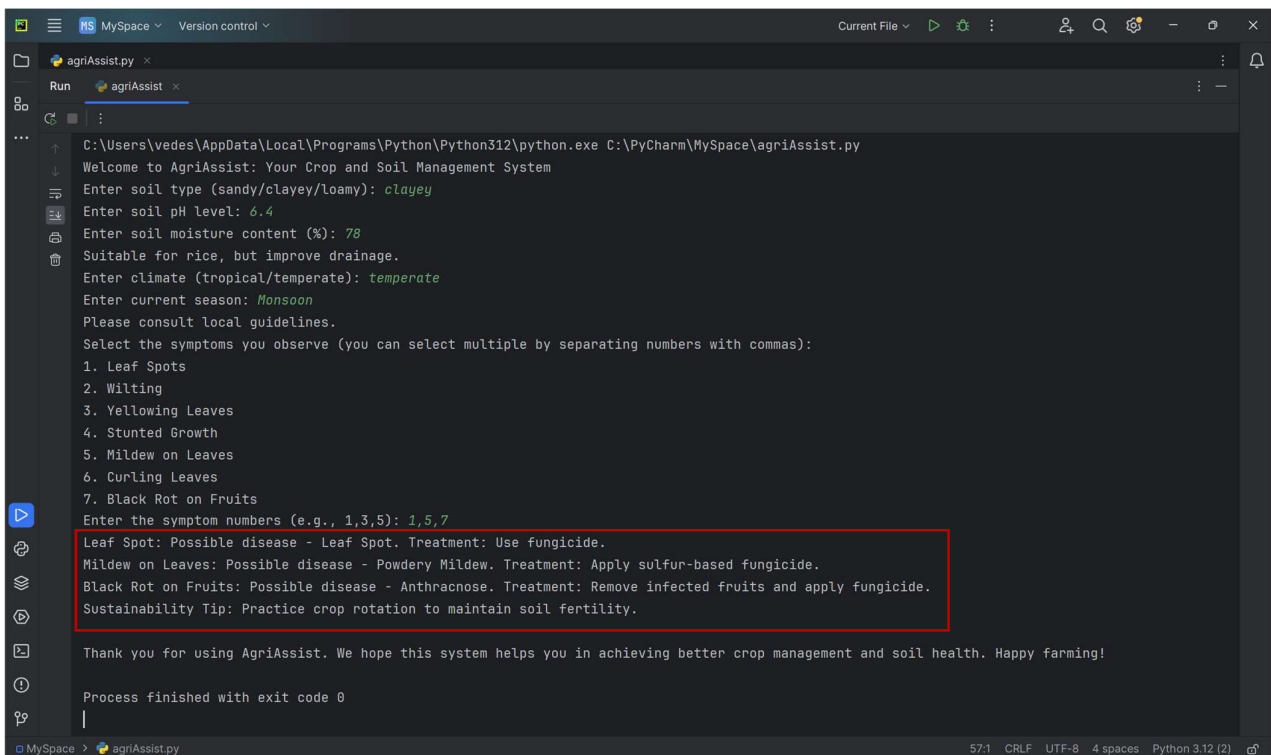
User Interaction:

- The application is entirely text-based, guiding users through simple prompts to receive tailored advice.

Output:



```
C:\Users\vedes\AppData\Local\Programs\Python\Python312\python.exe C:\PyCharm\MySpace\agriAssist.py
Welcome to AgriAssist: Your Crop and Soil Management System
Enter soil type (sandy/clayey/loamy): clayey
Enter soil pH level: 6.4
Enter soil moisture content (%): 78
Suitable for rice, but improve drainage.
Enter climate (tropical/temperate): temperate
Enter current season: Monsoon
Please consult local guidelines.
Select the symptoms you observe (you can select multiple by separating numbers with commas):
1. Leaf Spots
2. Wilting
3. Yellowing Leaves
4. Stunted Growth
5. Mildew on Leaves
6. Curling Leaves
7. Black Rot on Fruits
Enter the symptom numbers (e.g., 1,3,5): 1,5,7
```



```
C:\Users\vedes\AppData\Local\Programs\Python\Python312\python.exe C:\PyCharm\MySpace\agriAssist.py
Welcome to AgriAssist: Your Crop and Soil Management System
Enter soil type (sandy/clayey/loamy): clayey
Enter soil pH level: 6.4
Enter soil moisture content (%): 78
Suitable for rice, but improve drainage.
Enter climate (tropical/temperate): temperate
Enter current season: Monsoon
Please consult local guidelines.
Select the symptoms you observe (you can select multiple by separating numbers with commas):
1. Leaf Spots
2. Wilting
3. Yellowing Leaves
4. Stunted Growth
5. Mildew on Leaves
6. Curling Leaves
7. Black Rot on Fruits
Enter the symptom numbers (e.g., 1,3,5): 1,5,7
Leaf Spot: Possible disease - Leaf Spot. Treatment: Use fungicide.
Mildew on Leaves: Possible disease - Powdery Mildew. Treatment: Apply sulfur-based fungicide.
Black Rot on Fruits: Possible disease - Anthracnose. Treatment: Remove infected fruits and apply fungicide.
Sustainability Tip: Practice crop rotation to maintain soil fertility.

Thank you for using AgriAssist. We hope this system helps you in achieving better crop management and soil health. Happy farming!

Process finished with exit code 0
```