

Programming Assignment: Simulate your Intelligence!

Assignment II

Submitted By: Ankit Shrestha

Submitted To: Samriddha Pathak

Date: July 10, 2025

Table of Contents

1. Problem statement:	3
2. Solution:	4
3. Output:.....	7

1. Problem statement:

- Implement simple intelligent agent (Simple reflex agent for vacuum cleaner agent I n our context.) Consider the vacuum cleaner world as shown in Figure1 and eight possible states in vacuum world as shown in Figure 2.

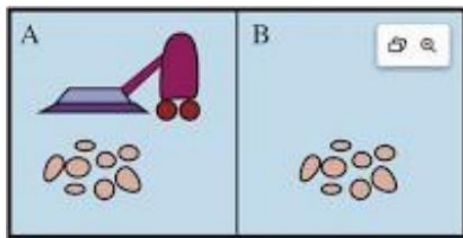


Figure 1: Vacuum Cleaner World

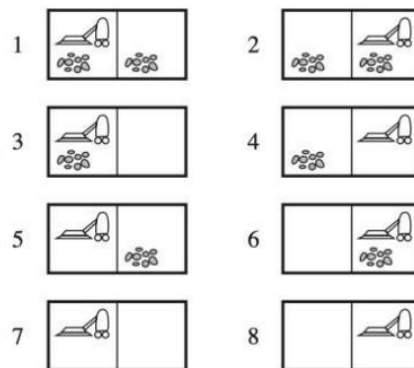


Figure 2: The eight possible states in vacuum world

- Draw the state space graph of the vacuum cleaner world domain that we have taken in to account. (Our goal is to reach either state 7 or state 8.)
- Formulate the appropriate algorithms and implement them in any high-level language as per convenient preferably python.

2. Solution:

```
Assignments > Assignment2.py > vacuum_cleaning
1  import time
2
3  def vacuum_cleaning(dirt,vacuum):
4      while (dirt[0] == True) or (dirt[1] == True):
5          if vacuum[0] == True:
6              print("Vacuum Cleaner is in room A \n")
7              time.sleep(3)
8
9              if dirt[0] == True:
10                 print("Dirt found in room A \n")
11                 time.sleep(3)
12
13                 print("Cleaning dirt in room A \n")
14                 time.sleep(3)
15
16                 print("Cleaning Complete...\n\nNow moving to room B \n")
17                 time.sleep(3)
18
19                 dirt[0] = False
20                 vacuum[0] = False
21                 vacuum[1] = True
22             else:
23                 print("No dirt found in room A \n")
24                 time.sleep(3)
25
26                 print("Moving to room B \n")
27                 time.sleep(3)
28
29                 vacuum[0] = False
30                 vacuum[1] = False
```

Assignments > Assignment2.py > vacuum_cleaning

```
3 def vacuum_cleaning(dirt,vacuum):
28
29     vacuum[0] = False
30     vacuum[1] = True
31
32     else:
33         print("Vacuum Cleaner is in room B \n")
34         time.sleep(3)
35
36         if dirt[1] == True:
37             print("Dirt found in room B \n")
38             time.sleep(3)
39
40             print("Cleaning dirt in room B \n")
41             time.sleep(3)
42
43             print("Cleaning Complete...\n\nNow moving to room A \n")
44             time.sleep(3)
45
46             dirt[1] = False
47             vacuum[0] = True
48             vacuum[1] = False
49         else:
50             print("No dirt found in room B \n")
51             time.sleep(3)
52
53             print("Moving to room A \n")
54             time.sleep(3)
55
56             vacuum[0] = True
```

Assignments > Assignment2.py > vacuum_cleaning

```
3  def vacuum_cleaning(dirt,vacuum):
51      time.sleep(3)
52
53      print("Moving to room A \n")
54      time.sleep(3)
55
56      vacuum[0] = True
57      vacuum[1] = False
58
59      print("The rooms are clean :) \n\n")
60
61  def main():
62      dirt_list = [ False , True ]
63      vaccum_position = [ True , False ]
64      vacuum_cleaning(dirt_list , vaccum_position)
65
66  main()
```

3. Output:

```
PS C:\Users\DELL\Desktop\AIML class> cd Assignments
PS C:\Users\DELL\Desktop\AIML class\Assignments> python Assignment2.py
Vacuum Cleaner is in room A

No dirt found in room A

Moving to room B

Vacuum Cleaner is in room B

Dirt found in room B

Cleaning dirt in room B

Cleaning Complete...

Now moving to room A

The rooms are clean :)

PS C:\Users\DELL\Desktop\AIML class\Assignments> 
```