LAB PROGRAM 4

Implement vaccum cleaner agent.

State space – Vaccum cleaner
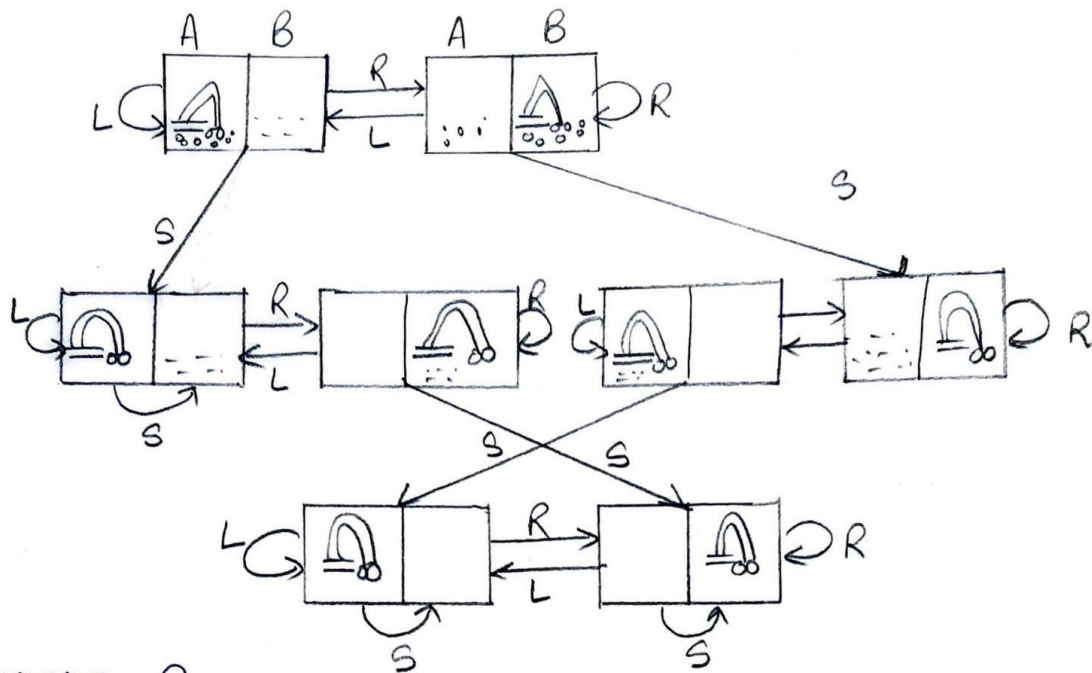
Successor function __Result (s, a)__   s → state , a → action

Vaccum cleaner

Pseudocode :

```
def vacuum-cleaner-agent (location, status):
    x,y = location
    if status[x][y] == 'Dirty':
        return f" the vacuum cleaner is at ({x}, {y}) and it is
            dirty. Cleaning."
    else:
        return f" the vacuum cleaner is at ({x}, {y}) and it is
            clean. Moving."

status = [['Dirty', 'clean'], ['Dirty', 'Dirty']]
location = (0,0)

while True:
    action = vacuum-cleaner-agent( location, status)
    print (action)

    x,y = location
    if status[x][y] == 'Dirty':
        status [x][y] = 'clean'

    if status [0][0] == 'clean' and status [0][1] == 'clean'
    and status [1][0] == 'clean' and status [1][1] == 'clean':
        print (" All locations are clean")
        break

    if y < 1:
        location = (x, y+1)
    elif x < 1:
        location = (x+1, 0)
```

Code:

```
def vacuum_cleaner_agent(location, status):
    x, y = location
    if status[x][y] == 'Dirty':
        return f"The vacuum cleaner is at ({x}, {y}) and it is dirty. Cleaning."
    else:
        return f"The vacuum cleaner is at ({x}, {y}) and it is clean. Moving."


status = [['Dirty', 'Clean'], ['Dirty', 'Dirty']]
location = (0, 0)


while True:
    action = vacuum_cleaner_agent(location, status)
    print(action)


    x, y = location
    if status[x][y] == 'Dirty':
        status[x][y] = 'Clean'


    if status[0][0] == 'Clean' and status[0][1] == 'Clean' and status[1][0] == 'Clean' and status[1][1] == 'Clean':
        print("All locations are clean. The vacuum cleaner is finished.")
        break


    if y < 1:
        location = (x, y + 1)
    elif x < 1:
        location = (x + 1, 0)
```

Output:

```
The vacuum cleaner is at (0, 0) and it is dirty. Cleaning.
The vacuum cleaner is at (0, 1) and it is clean. Moving.
The vacuum cleaner is at (1, 0) and it is dirty. Cleaning.
The vacuum cleaner is at (1, 1) and it is dirty. Cleaning.
All locations are clean. The vacuum cleaner is finished.
```

Start coding or generate with AI.