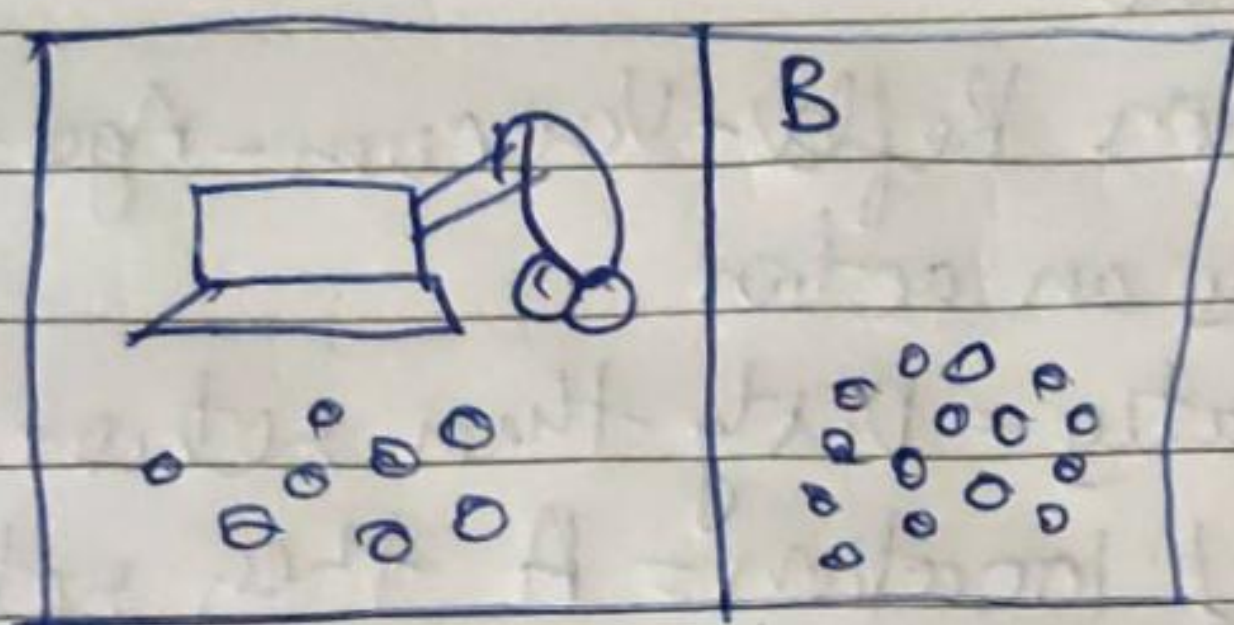Lab-5   Vacuum cleaner Agent

It is a goal-based agent & the goal of the agent, which is the vaccum cleaner, is to clean up the whole area. The vaccum cleaner can perform can perform the following functions: move left, move right, move forward, move backward & to suck dust.

Precepts: location & contents [A, Dirty]

Actions: left, Right, Up, down, Such, Noop

Explanations:

Percepts:- The percept sequence consists of the history of percepts the vaccum cleaner senses & the agent function maps each each percept of the sequence to an action. The agent function for this vaccum cleaning agent is:

Agent function = {([A: Clean], Right), ([A: Dirty], clean), ([B: Clean], left), ([B: Dirty], clean), ([A: Clean, B: Clean], Stop), ([A: Clean, B: Dirty], Clean), ... }

Actions: There are 5 actions available: go forward, turn right by 90°, turn left by 90°, suck up dirt & turn off.

Environment: The environment consists of a grid of squa

some squares contain obstacles (walls & furniture) &
other squares are open space. Some of the open squares
contain dirt. Each "go forward" action moves one
square unless there is an obstacle in that square
in which case the agent stays where it is but the
touch sensor goes on. A "suck up dirt" action always
cleans up the dirt. A "turn off" command ends the
simulation

Pseudocode:
function Reflex-Vaccum-Agent([location, status])
returns an action
If status = Dirty then return Suck
else if location = A then return Right
else if location = B then return Left
Since here there are only 2 rooms, the possibility
of agent to move are only left & right.
If there are more than 2 rooms then the possibility
will be left, right, up & down

Implenting vaccum cleaner agent:

1) To clean a room
   def clean (floor):
      (i) Declare a grid of size m×n
      (ii) Here 0 represents the clean state of rooms
      1 represents the dirty state of room
      (iii) Traverse through the grid depending on the
value i.e clean (0) or dirty (1) if the state is 1 then
change state to 0 else no action & continue to
check for states of other rooms

(iv) Depending on the room location the agent moves left, right, up & down

2) Print the states of room in each move
  def print_floor (floor, row, col);

v) Printing the grid every time we move another room to check the state of room.

(vi) Once the states of all rooms are 0 it shows that all rooms are cleaned.