# AI Assignment 1 Report

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### PEAS description concerning the Actor agent (8 pts)

**Performance Measure:**

1. Being able to reach home without getting terminated by Covid.

**Environment:**

1. Partially Observable, the environment is said to be partially observable if the agent can see part of the world via its sensor. For our agent, its world is a 9 by 9 grid with only the location of the home is known to him, the location of the covid and the doctor are revealed to him when he gets sufficiently close to them. Therefore, the environment is said to be partially observable.

2. Single Agent. In the 9 by 9 grid there exist only one agent, it's a lonely world.

3. Stochastic. The environment is said to be stochastic if it is random and cannot be determined completely. This idea is reflected partially in the fact that the environment is partially observable. On top of that, the covids, the doctors, the mask, and the home are generated randomly. This environment is ever-changing in the sense of every time the game is restarted it would not be the same game, unlike chess where the pieces stay at the same place every time we start a new game. Therefore, the environment is said to be stochastic.

4. Sequential. In a sequential environment, an agent requires memory of past actions to determine the next best actions. The agent in our environment has to know where he is and where he was to successfully navigate the 9 by 9 grid to get back home safely. Thus, the environment is said to be sequential.

5. Static. By definition, an environment is said to be static if it can not change when the agent is interacting with it. The covids, the doctors, the mask, and the home can not change their location within the grid while the agent is moving about. Therefore, the environment is static.

6. Discrete. By definition, an environment is said to be discrete if there is a finite number of perceptions and actions an agent can take in the environment. This applies to our agent because our agent's perceptions and actions are finite. Therefore, the environment is discrete.

7. Unknown. Even though the agent can make an educated guess where the covid and the doctor might be as it moves toward its home but in the beginning, the agent does not know where the doctors and the covid might be. Therefore, the environment is unknown.

**Actuators:**
0. Backtrack

1. Turn left/right

2. Move forward

3. Mark visited

4. Mark danger

**Sensors**

0. It's perceptions, in my implementation when the agent is near covid it will perceive coughing sound and when it is near the doctor it will perceive alcohol,...