## Exercise 1 The SimpleRooms Environment

## THE SIMPLEROOMS ENVIRONMENT

In this exercise, you will examine one implementation of a grid world type environment.

Make sure that you have completed the setup requirements as described in the Set Up Lab Environments section.

Sign into your Azure Notebooks account at [https://notebooks.azure.com](https://notebooks.azure.com/), go to the library that you cloned for this course, and go to the LabFiles folder. We have provided several helper files and starter code for you.

Let's start with the lib\envs folder. There are several files in that folder, including:

* simple\_rooms.py
* cliff\_walking.py
* bandit.py

Those are implementation of the several environments that we will use throughout this course. Open and examine the simple\_rooms.py file.

The Environment class is provided as an interface. An environment must have some representation of the state of which the agent is interacting with. In addition, an environment must be able to reset it self and step to the next state. These are implemented in both the reset() and the step() function. The reset() function should return the initial state, while the step() function should take in an action and at the minimum, return the next state and the reward(). The actions() function maintains the information of how many type of actions in the environment. This is used in conjunction with the ActionSpace class.

Let's take a look at the SimpleRoomsEnv class, which implements the Environment class, and examine this in more details. The SimpleRoomsEnv is a simple environment of a 4x4 rooms, limited by walls. The initial state has the agent starting at the room on top left corner, with the goal to reach the room at the bottom right corner. Take some time to study the implementation of this environment. Start by examining how the states are represented in this environment. Also, look at how the SimpleRoomsEnv class implements the reset() and step() functions as these two are the ones used to interact with an agent.

