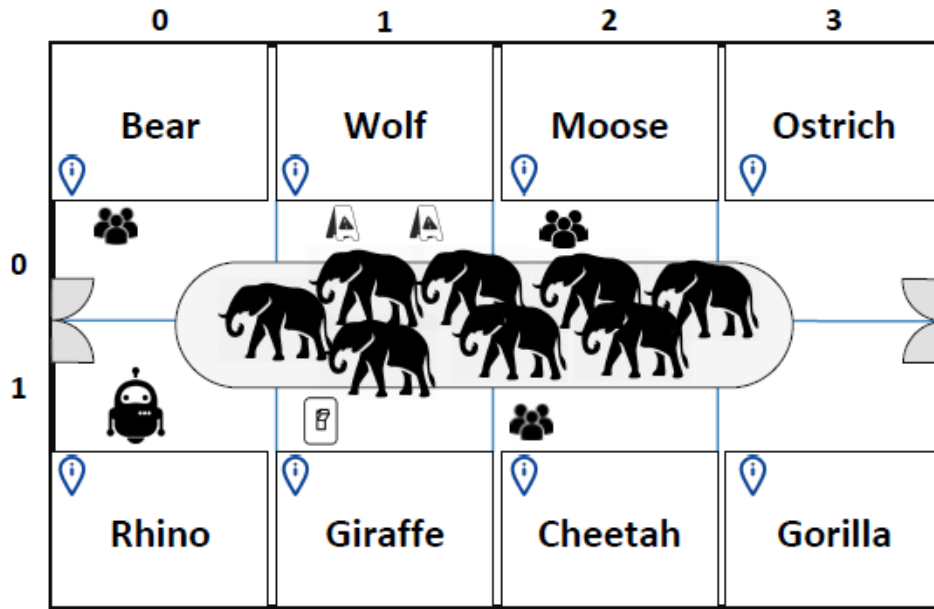# Museum



(a) Describe the domain in PDDL

(b) Describe the problem in PDDL

(c) Discuss the forward planning process to reach the goal, using a perfect heuristic that gives for each state the number of steps to reach the goal; for each step, show the current state, the applicable actions and the state resulting from the application of the chosen action.

Our robot MARRtino works at the natural history museum in NYC and it knows the map of the museum, which is represented as a grid world (see figure). MARRtino starts from the cell in front of the rhino and it can navigate within the environment by moving in any of the adjacent cells, but it cannot enter the display areas with the animals nor the area with the wet floor signs. MARRtino is acting as the museum guide and its task is to turn the light on using the switch, and then reach each location where there are visitors and play the corresponding audio file. During the execution of the plan, people will patiently remain in the same location, waiting for MARRtino.