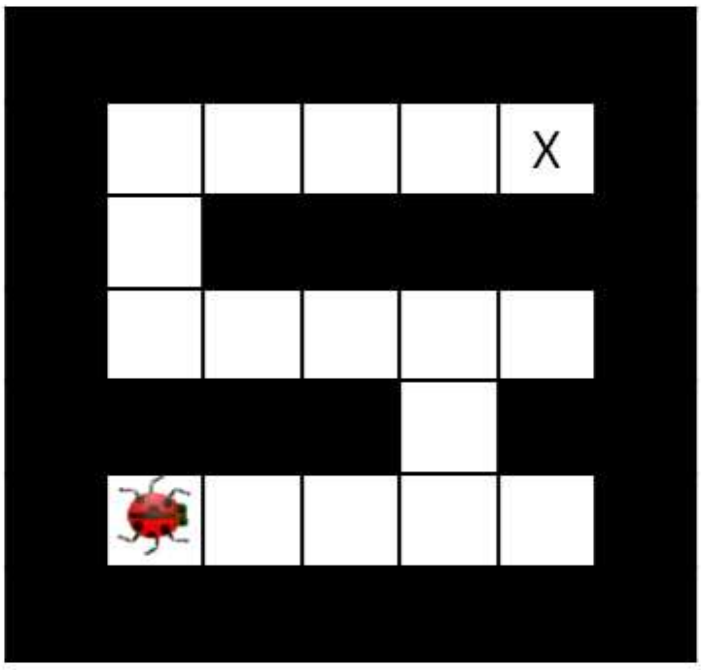
hw1_search_q5_hive_minds_lonely_bug

Question 5: Hive Minds: Lonely Bug

9/9 points (ungraded)

You control a single insect as shown in the maze below, which must reach a designated target location X, also known as the hive. There are no other insects moving around.



Which of the following is a *minimal* correct state space representation?

- An integer d encoding the Manhattan distance to the hive.
- A tuple (x, y) encoding the x and y coordinates of the insect. ✔
- A tuple (x, y, d) encoding the insect's x and y coordinates as well as the Manhattan distance to the hive.

- ○ This cannot be represented as a search problem.

What is the size of the state space?

- ◉ MN ✔
- ○ $(MN)^2$
- ○ 2^{MN}
- ○ M^N
- ○ N^M
- ○ $\max(M, N)$

Which of the following heuristics are admissible (if any)?

- ☑ Manhattan distance from the insect's location to the hive.
- ☑ Euclidean distance from the insect's location to the hive.
- ☐ Number of steps taken by the insect.

✔

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✔ Correct (9/9 points)