Exercise 3.1 (Search and Path-Finding)

Consider the following grid world. A robot $S$ is moving to $G$.

Moving into a white cell costs 1, and moving into a gray cell costs 2.

(a) Draw the optimal trajectory. (1pt)

(b) $A^*$ is used in the search. The heuristic is Manhattan distance. Is this heuristic admissible, why? (1pt)

(c) Define the second heuristic which is admissible. (1pt)

(d) Use real-time adaptive $A^*$ to solve the problem. (look ahead 2 steps). (2pt)

This exercise should be submitted during the lecture on Tuesday (Nov. 16th)