ECE 479/579
Spring 2024

Homework #2
Due: Feb 24, 2024 (11pm, via D24)

Consider a sliding block puzzle with the following initial configuration:

B	B	B	W	W	W	E

There are three black tiles (B), three white tiles (W), and an empty cell (E). The puzzle has the following moves:

a. A tile may move into an adjacent empty cell with unit cost.
b. A tile may hop over at most two other tiles into an empty cell with a cost equal to the number of tiles hopped over.

The goal of the puzzle is to have all the white tiles to the left of all of the black tiles (regardless of the position of the blank cell).

You can use any open and available AI tools to:

1. Solve this problem in the most efficient and optimal way.
2. Show the solutions, and how the solutions were obtained, specifically:
    a. a heuristic is advised that you should explain in the material you hand in.
    b. an efficient search algorithm is advised that you should explain (how it works)
    c. attach the code that your or generative AI has written for you or explain what off-the-shelf modules you have used.

Show 5 sample solutions for five different initial states (for instance the state drawn above is:

BBBWWWE

The report should include answers to items 1) and 2) and sample solutions.

NO HANDWRITTEN materials will be accepted.