Exercise 2

For this assignment, I believe you required a priority queue, since a uniform cost search requires a PQ to show the cost of each route that a node can take. I had trouble with this part of the assignment, I tried working with it for hours but it was taking too long and I had figured out the other two correctly. I also believe the files that were sent for the Greedy search algorithm had errors. Unfortunately, I wasn’t able to figure it out on my own, and I do not have many friends that I could ask for help from.

Exercise 3

1. I believe this is a good heuristic for this problem as the main objective is to get everything in the correct spots, and there isn’t a better way of knowing if it is correct than keeping track of the numbers in the wrong spots
2. A heuristic that can be used is, instead of keeping track of how many are misplaced, you can keep track of how many are placed correctly, and make the program stop when the correct amount are in the right place

|  |  |  |
| --- | --- | --- |
| 2 | 8 | 3 |
| 1 | 6 | 4 |
| 7 |  | 5 |

|  |  |  |
| --- | --- | --- |
| 1 | 2 | 3 |
|  | 8 | 4 |
| 7 | 6 | 5 |

|  |  |  |
| --- | --- | --- |
| 2 | 8 | 3 |
| 1 | 6 | 4 |
| 7 |  | 5 |

G(n) = 1

H(n) = 3

F(n) = 4

|  |  |  |
| --- | --- | --- |
| 2 | 8 | 3 |
| 1 |  | 4 |
| 7 | 6 | 5 |

|  |  |  |
| --- | --- | --- |
| 2 | 8 | 3 |
| 1 | 6 | 4 |
|  | 7 | 5 |

|  |  |  |
| --- | --- | --- |
| 2 | 8 | 3 |
| 1 | 6 | 4 |
| 7 | 5 |  |

G(n) = 2

H(n) = 2

F(n) = 4

|  |  |  |
| --- | --- | --- |
| 2 |  | 3 |
| 1 | 8 | 4 |
| 7 | 6 | 5 |

|  |  |  |
| --- | --- | --- |
| 2 | 8 | 3 |
|  | 1 | 4 |
| 7 | 6 | 5 |

|  |  |  |
| --- | --- | --- |
| 2 | 8 | 3 |
| 1 | 6 | 4 |
| 7 |  | 5 |

|  |  |  |
| --- | --- | --- |
| 2 | 8 | 3 |
| 1 | 4 |  |
| 7 | 6 | 5 |

G(n) = 3

H(n) = 1

F(n) = 4

|  |  |  |
| --- | --- | --- |
| 2 | 8 | 3 |
| 1 |  | 4 |
| 7 | 6 | 5 |

|  |  |  |
| --- | --- | --- |
| 2 | 3 |  |
| 1 | 8 | 4 |
| 7 | 6 | 5 |

|  |  |  |
| --- | --- | --- |
|  | 2 | 3 |
| 1 | 8 | 4 |
| 7 | 6 | 5 |

|  |  |  |
| --- | --- | --- |
| 1 | 2 | 3 |
|  | 8 | 4 |
| 7 | 6 | 5 |

|  |  |  |
| --- | --- | --- |
| 2 |  | 3 |
| 1 | 8 | 4 |
| 7 | 6 | 5 |

G(n) = 4

H(n) = 0

F(n) = 4