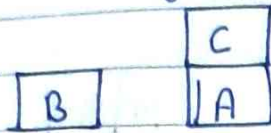
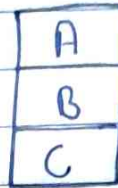


Assignment 4.

Q1 Solve Using Global Heuristic Function



Initial State



Goal State

Rules .

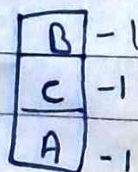
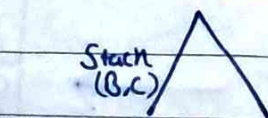
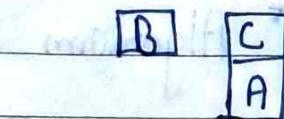
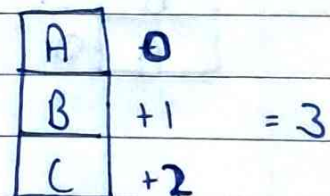
Stack(x, y)

Lift(x)

Putg(x)

Unstack(x, y)

Using global heuristic based on the No of Stacked correct ones = +1
No of Stacked Incorrect = -1



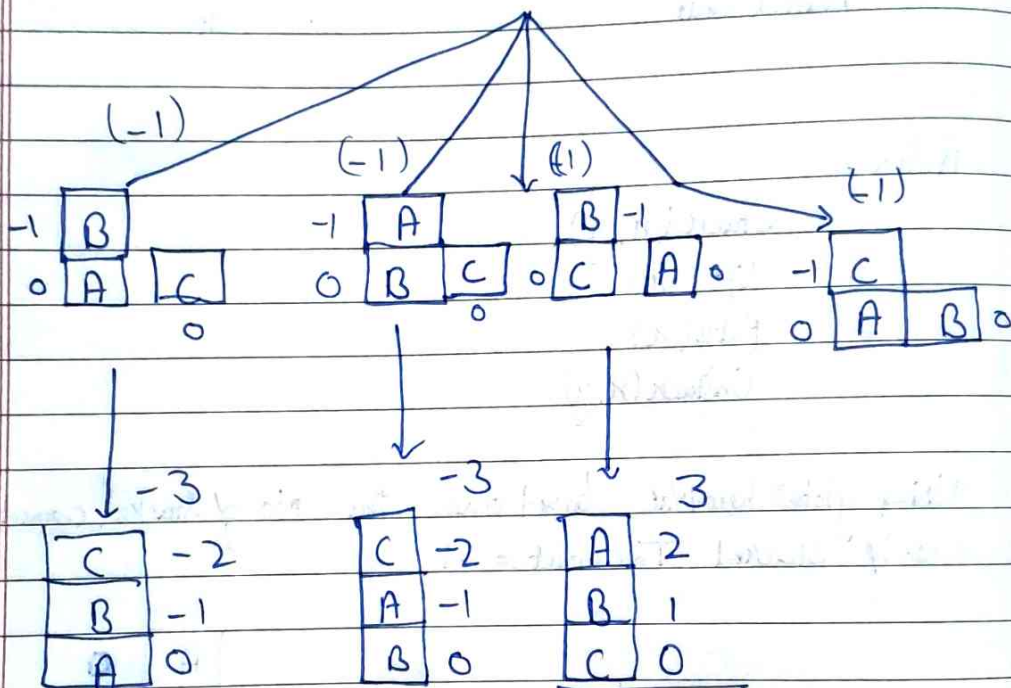
B	0	C	-1
		A	0

Start State

B	-2
C	-1
A	0

0	0	0
B	A	C

-1	B
0	C
	A



Goal State

Q2 Solve Using A* Algorithm

2	8	3
1	6	4
7		5



1	2	3
8		4
7	6	5

Initial

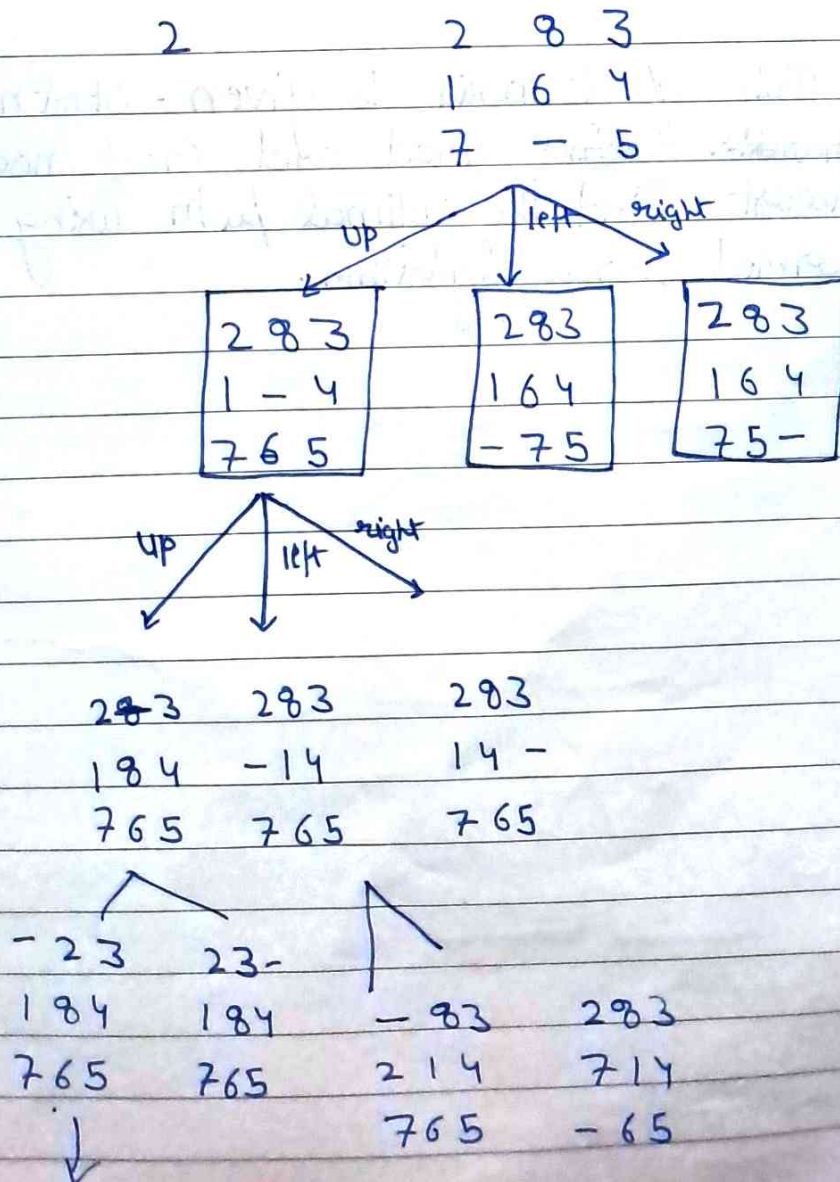
Goal

Constraints →

1. 3x3 Sliding Puzzle (8 tiles + one block)
2. Move - UP, Down, Right, Left
3. Can not move outside the board
4. No additional tiles or swaps
5. Avoid Reversing (Rewriting)

Actions:-

Move Up, Down, Left, Right.



1	2	3
-	8	4
7	6	5

down
↓

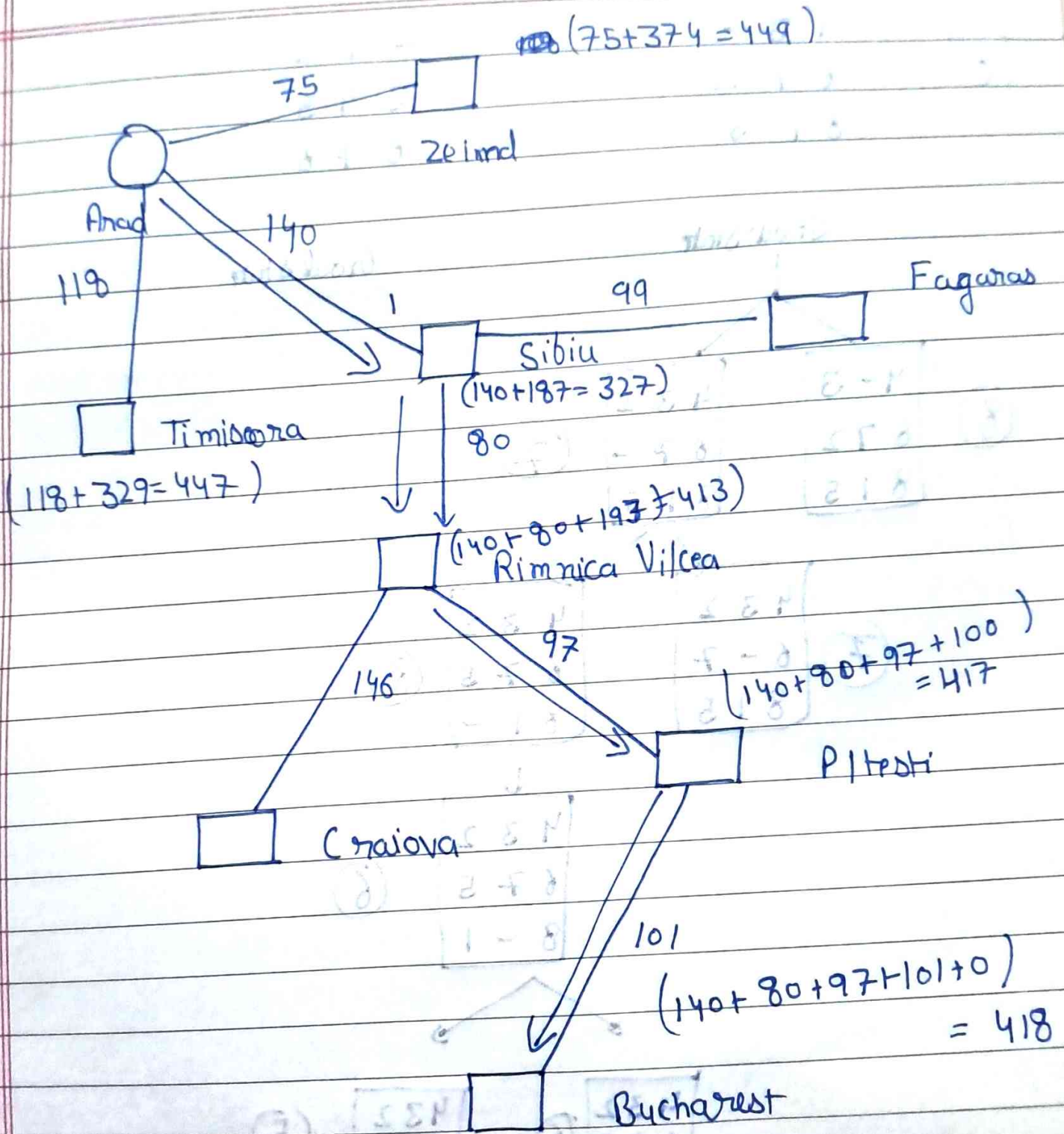
1	2	3
7	8	4
-	6	5

right
→

1	2	3
8	-	4
7	6	5

Q3

The Map of Romania is given. Start node is ~~Bucharest~~. Find Arad and Goal node is Bucharest. Find the optimal path using informed search algorithm.



Q4.

(8)

4 3 -
6 7 2
8 1 5

- 1 2
3 4 5
6 7 8

Start State

Goal State

(8)

4 - 3
6 7 2
8 1 5

4 3 2
6 7 -
8 1 5

(7)

(7)

4 3 2
6 - 7
8 1 5

4 3 2
6 7 5
8 1 -

(8)

4 3 2
6 7 5
8 - 1

(6)

4 3 2
6 7 5
8 1

(6)

4 3 2
6 - 5
8 7 1

(5)

(5)

4 - 2
6 3 5
8 7 1

4 3 2
- 6 5
8 7 1

(5)

4 3 2
6 5 -
8 7 1

(7)

(5)

- 4 2
6 3 5
8 7 1

4 2
6 3 5
8 7 1

(6)

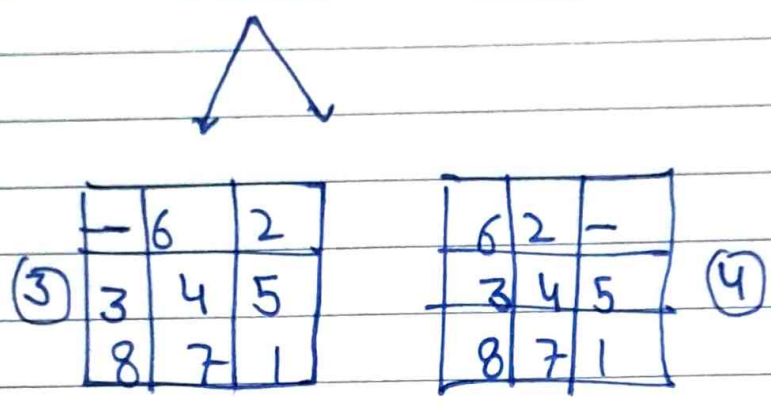
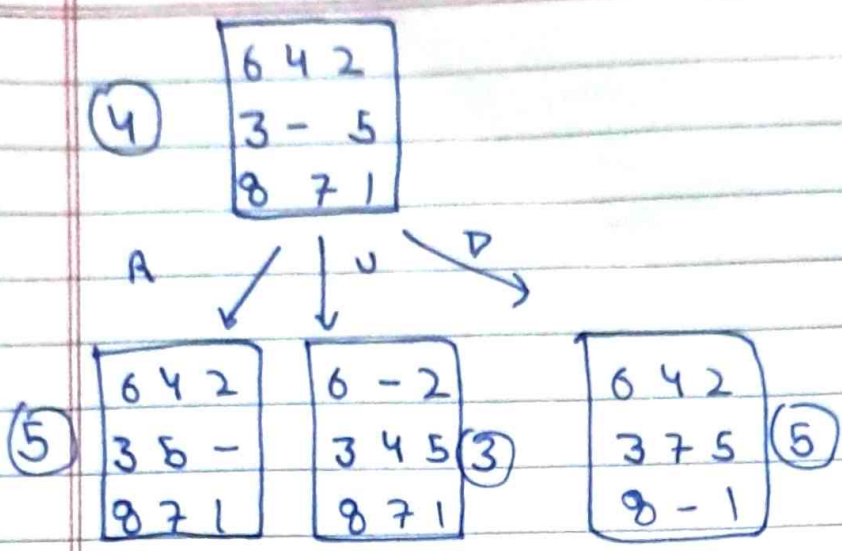
(5)

6 4 2
- 3 5
8 7 1

6 4 2
3 - 5
8 7 1

X

6 4 2
8 3 5
- 7 1



(3)

-	6	2
3	4	5
8	7	1

 → Goal State

↓ d

using
Simplest
Hill Climbing

(4)

3	6	2
-	4	5
8	7	1

 (as $n = 3 < 4$)