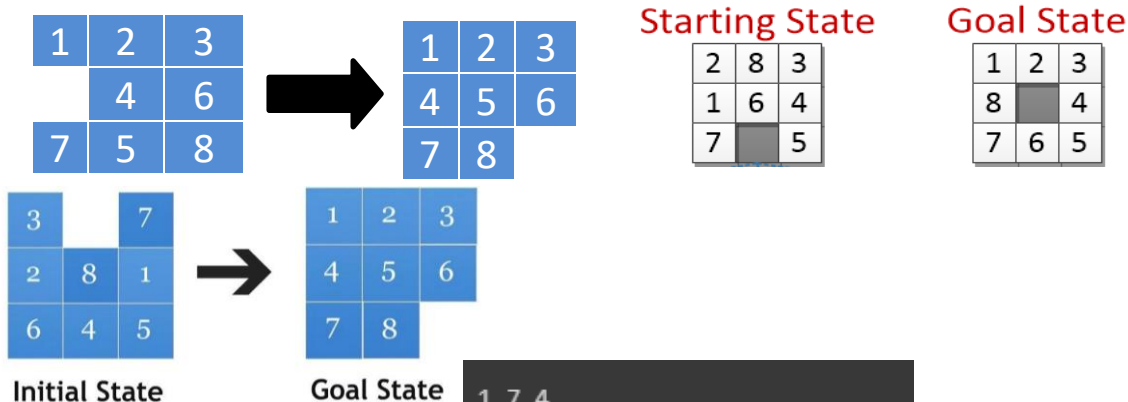# 2CEIT602: Artificial Intelligence
Practical-3

Aim: Write a python program to solve 8 puzzle problem using the A* algorithm.

- Create Enum named "Action" for this problem
- Don't use any global variable.
- Create Class Node with support of compare node & sort node.
- Class AstarSearch, with appropriate variables and methods like perform_algorithm(), execution(), final_output(), get_path() etc.
- Print execution time & number of steps needed to reach goal state.
- Don't use any python packages throughout program except enum and time.
- Perform different test cases for 8 puzzles. Some examples are attached below.

Output:


```
1 7 4
6 8 3
2 5 _

Action.MoveRight
1 7 4
6 8 3
2 _ 5

Action.MoveRight
1 7 4
6 8 3
_ 2 5

Action.MoveDown
1 7 4
_ 8 3
6 2 5
...
Action.MoveLeft
1 2 3
4 5 _
7 8 6

Action.MoveUp
1 2 3
4 5 6
7 8 _

Total Performed Move: 24
Execution Time=  136793.22 ms
```

```
1 2 3
_ 4 6
7 5 8

Action.MoveLeft
1 2 3
4 _ 6
7 5 8

Action.MoveUp
1 2 3
4 5 6
7 _ 8

Action.MoveLeft
1 2 3
4 5 6
7 8 _

Total Performed Move: 3
Execution Time=  0.07 ms
```