Report
Using the assignment code 50 random initial states were generated.
The final state to be reached was

```
1 2 3
4 5 6
7 8 0
```

The code used both A* and IDA* to find the solution for the 8 puzzle problem.
Code was written in python 2.7

In the assignment, 5 heuristics were used to solve the 8 puzzle with A* and IDA*

a) Manhattan distance
b) Zero heuristic
c) Linear distance
d) Linear least squares heuristic
e) Manhattan least squares heuristic

According to 50 random inputs generated and solved using the above heuristics the results are as follows :

Manhattan always gives optimum solution amongst all by expanding least number of nodes and in least time.
In second position comes the linear heuristic, which expands second least number of nodes with second best time results.
In third position comes the Manhattan least squares heuristic, which on an average expands third least number of nodes with third best time results.
In fourth position comes the Linear Least Squares heuristic and in the last the zero heuristic.