

THE MODIFIED N-PUZZLE PROBLEM

- To solve the modified n puzzle problem, we were required to create 100 inputs to test the Manhattan and misplaced method, so I used "[1,5,'-',2,7,4,6,3,'-']" as the possible values to generate the random inputs.
- While running the algorithm for the Manhattan method, different moves required was calculated and stored in the file "manhattan.txt"
- While running the algorithm for the misplaced method, different moves required was calculated and stored in the file "misplaced.txt"
- Then the difference between the above methods was calculated and obtained a mean value of "54.94"
- By considering **"Misplaced" as null hypothesis and "Manhattan" as alternative** the probability of obtaining results at least as extreme as the observed results of a statistical hypothesis test is calculate using statistics method in SciPy library. It is "p=.12239756224987167"
- By considering **"Manhattan" as null hypothesis and "Misplaced" as alternative** the probability of obtaining results at least as extreme as the observed results of a statistical hypothesis test is calculate using statistics method in SciPy library. It is "p=.12239756224987167"
- But A p-value higher than 0.05 (> 0.05) is not statistically significant and indicates strong evidence for the null hypothesis. This means we retain the null hypothesis and reject the alternative hypothesis. You should note that you cannot accept the null hypothesis, we can only reject the null or fail to reject it. A statistically significant result cannot prove that a research hypothesis is correct (as this implies 100% certainty). Instead, we may state our results "provide support for" or "give evidence for" our research hypothesis (as there is still a slight probability that the results occurred by chance and the null hypothesis was correct – e.g. less than 5%).
- So we cannot come to a conclusion to choose one as the best method.