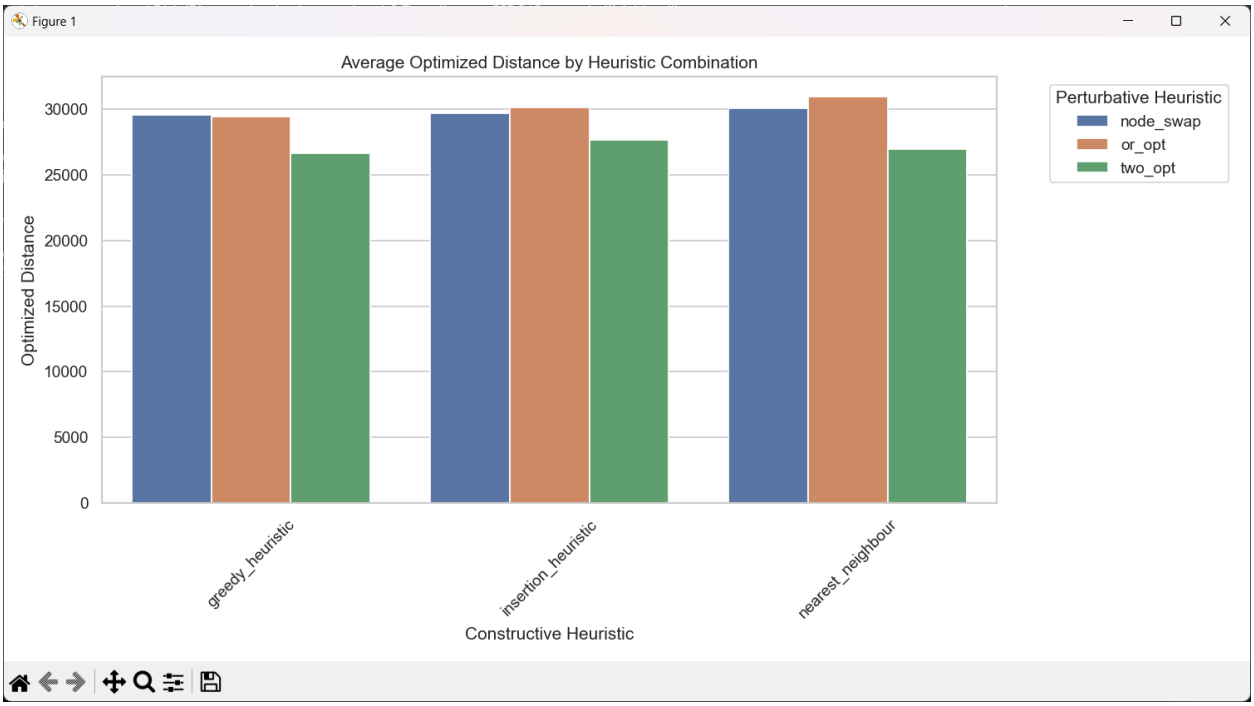
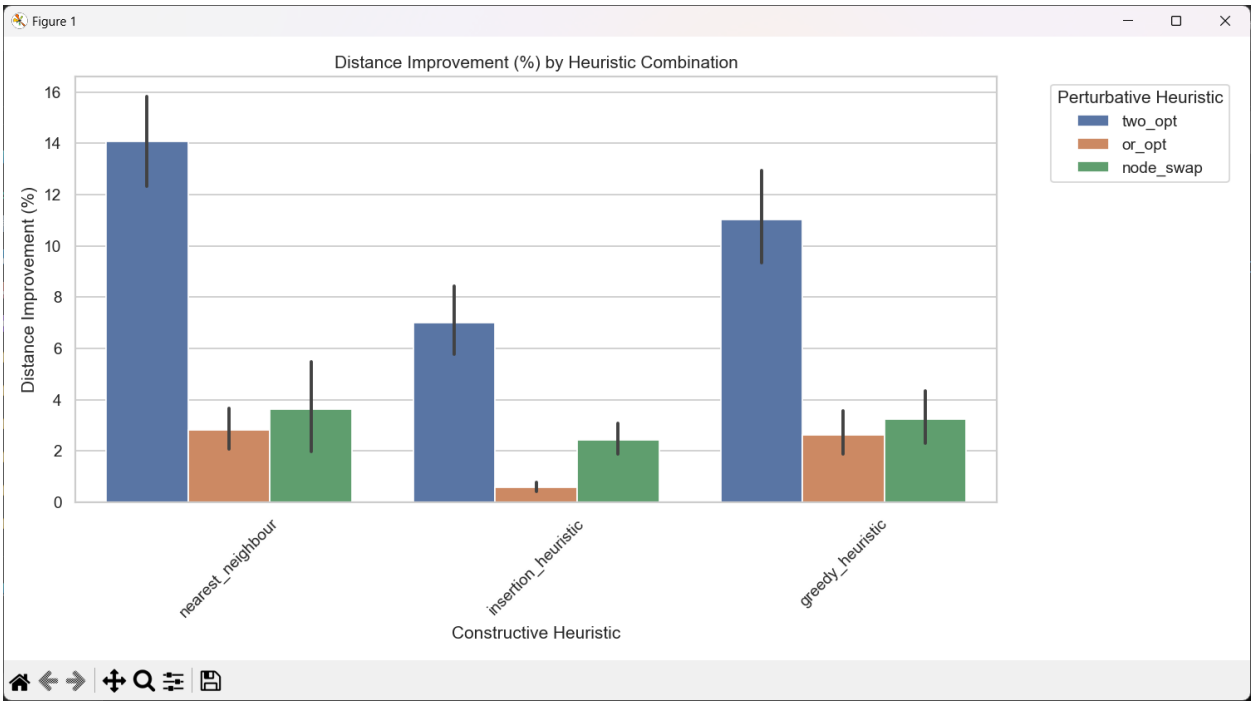
Here are four visualizations comparing the heuristic performances:

1. **Average Optimized Distance by Heuristic Combination**:
    - This bar chart compares the average optimized distances achieved by each heuristic combination. It helps identify which heuristics produce shorter routes on average.



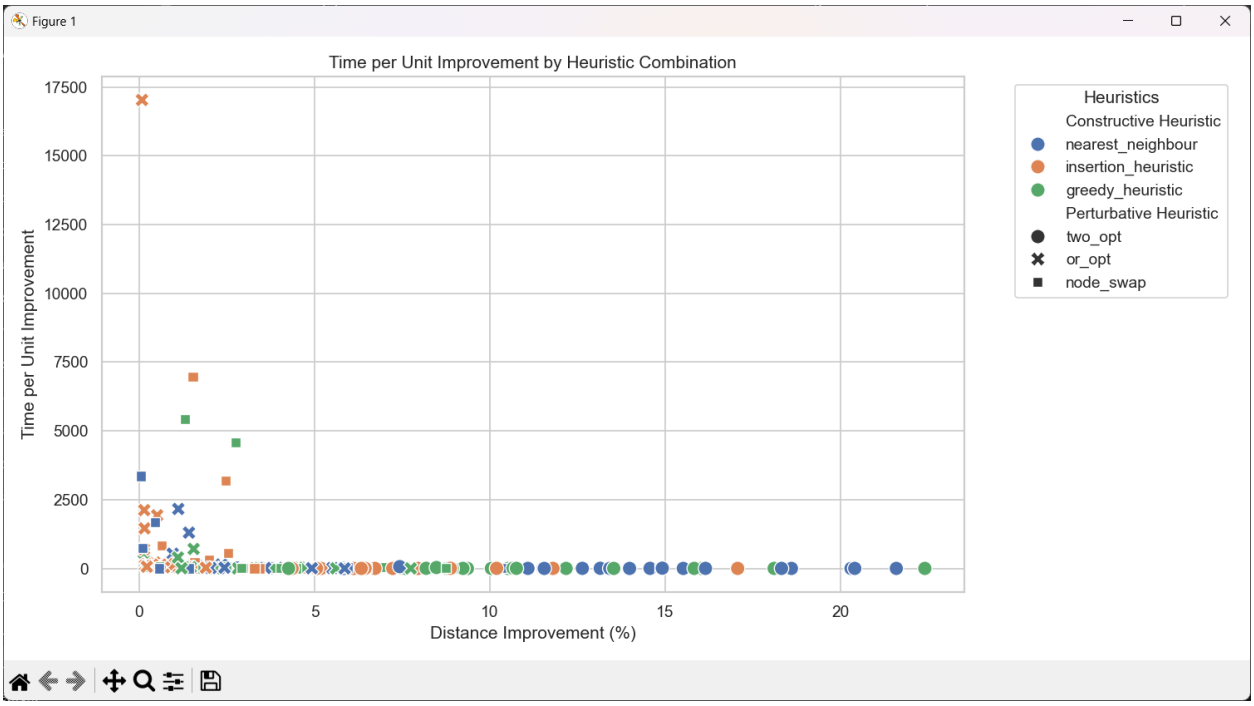
Comment: Here greedy heuristic performs better than other constructive algorithms. And two_opt heuristic in combination with greedy heuristic as perturbative algorithm performs better than any other combinations.

1. **Distance Improvement (%) by Heuristic Combination**:
    - This bar chart shows the average distance improvement for each combination of constructive and perturbative heuristics. It highlights which combinations lead to the largest improvements in route distance.



Comment: Here in all cases, two_opt heuristic performs best and or_opt performs the worst.

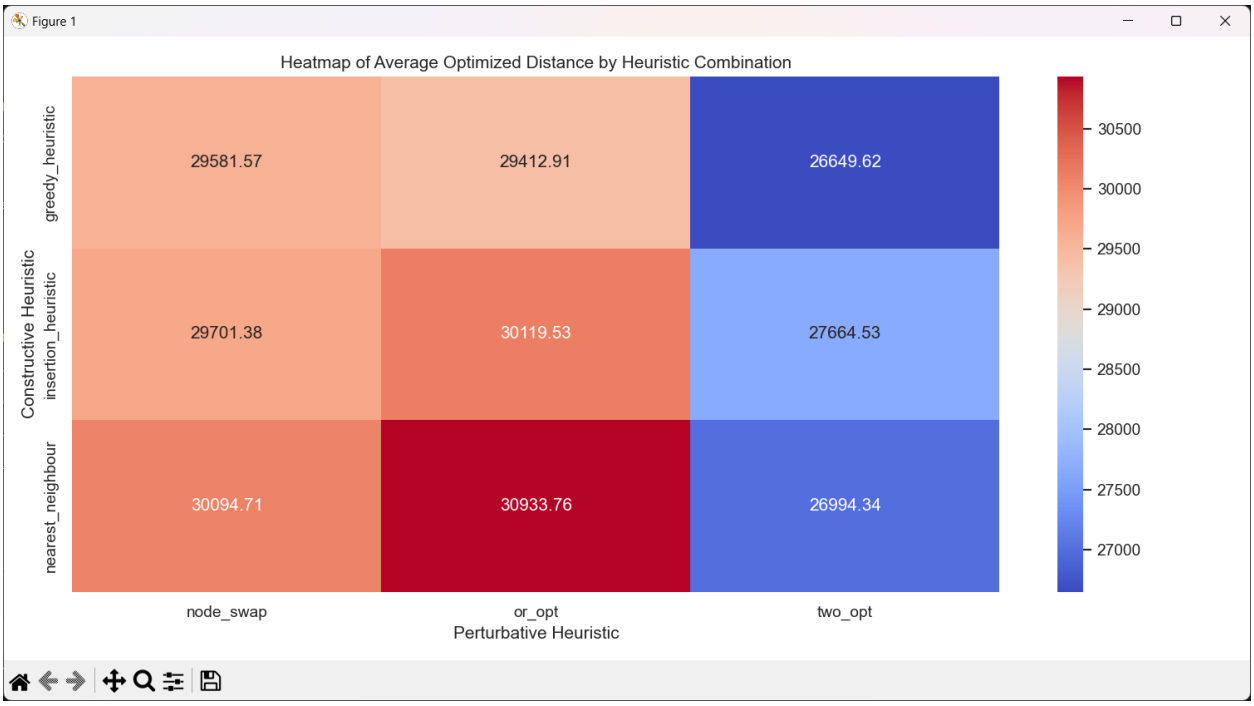
2. **Time Efficiency (Time per Unit Improvement) by Heuristic Combination**:
    - This scatter plot shows the time required per unit of distance improvement. Combinations closer to the bottom indicate more time-efficient heuristics for each percentage of improvement in distance.



Comment: Here two_opt take least time to improve unit distance and on the other hand, or_opt take maximum time to improve unit distance.

4. Heuristic Efficiency Surface Plot (Heatmap):

- Create a heatmap to show the average **Optimized Distance** and/or **Time per Unit Improvement** for each combination of constructive and perturbative heuristics. This gives an overview of which combinations tend to yield the best results overall.



Comment: Heatmap shows that two_opt in combination with greedy heuristic perform the best on average and or_opt in combination with nearest neighbor performs worst.