

SISTEMAS DE INTELIGENCIA ARTIFICIAL (72.27)

TP1

MÉTODOS DE BÚSQUEDA

Grupo 1
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Ejercicio 1 - 8 Puzzle



Preguntas

- ¿Qué estructura de estado utilizarían?
- Al menos 2 heurísticas admisibles no-triviales
- ¿Qué métodos de búsqueda utilizarían, con qué heurística, y por qué?



Estructura de estado

- ❖ Clase para las piezas (1-8)
- ❖ Clase para el vacío





Heurísticas



Heurística 1

Suma de todas las distancias manhattan entre la pieza y donde se supone que debería estar posicionada

Heurística 2

Multiplicación entre $H1$ y la distancia manhattan entre la pieza y el vacío

Heurística 3

Cantidad de piezas en lugar incorrecto

Métodos de búsqueda

- ❖ Algoritmo A* con Heurística de Distancia Manhattan
- ❖ Algoritmo Iterative Deepening A* (IDA*) con Heurística de Distancia Manhattan



Ejercicio 2 - Sokoban



Estructura de estado

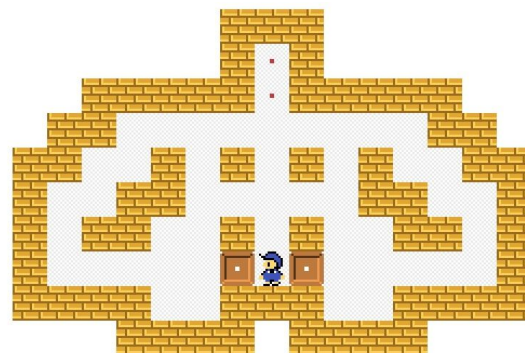
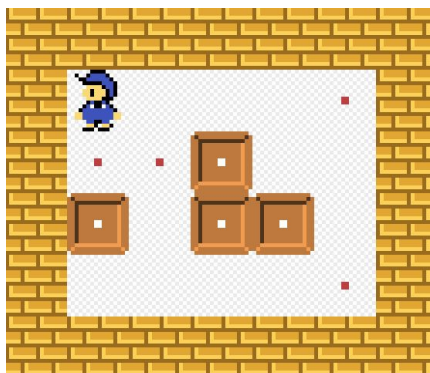
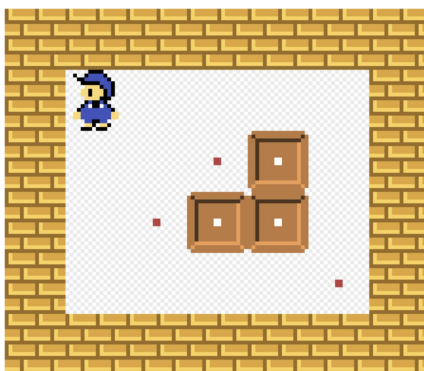
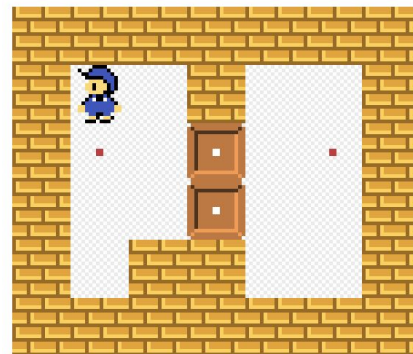
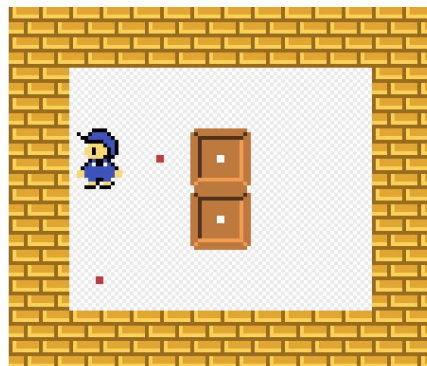
- Posición de las paredes
- Posición del jugador
- Posición del objetivo
- Posición de la/s caja/s
- Posición de los deadlocks



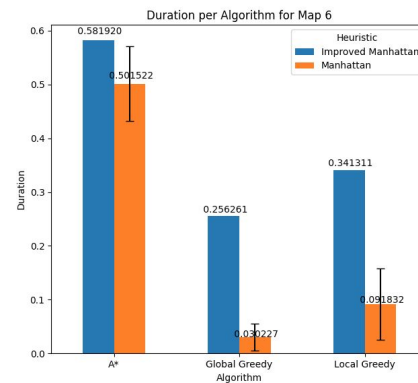
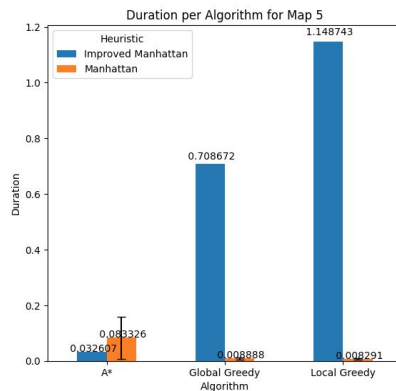
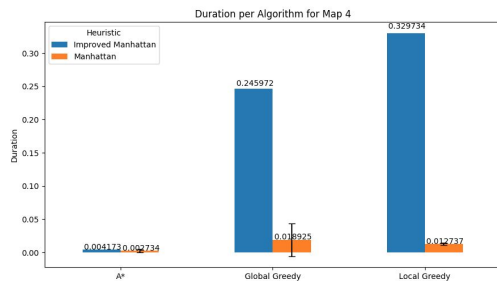
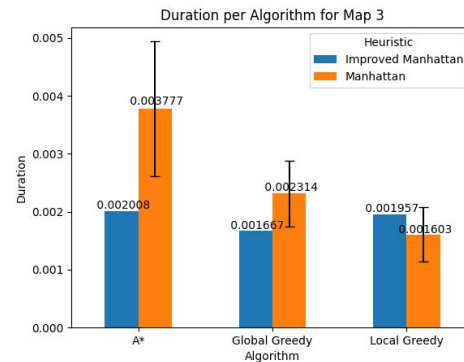
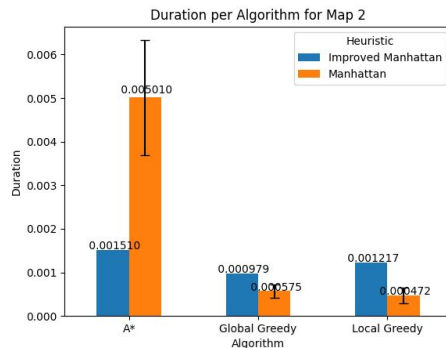
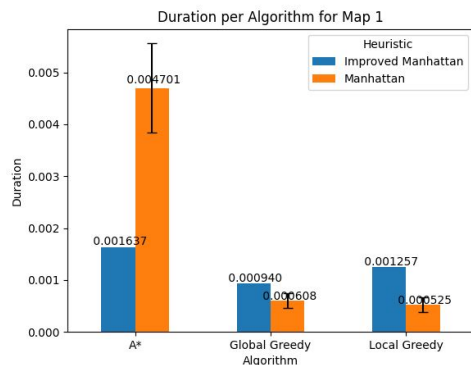
Métodos de búsqueda

- DFS
- BFS
- LocalGreedy
- GlobalGreedy
- A*
- IDDFS

Mapas

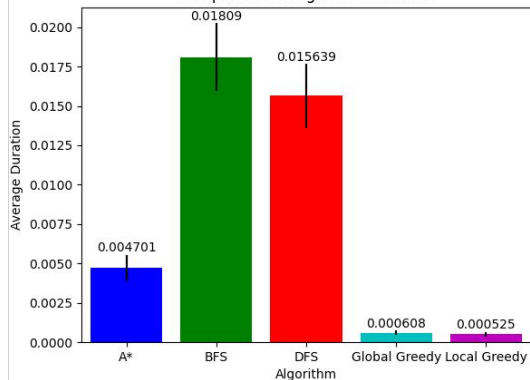


Datos - Duración

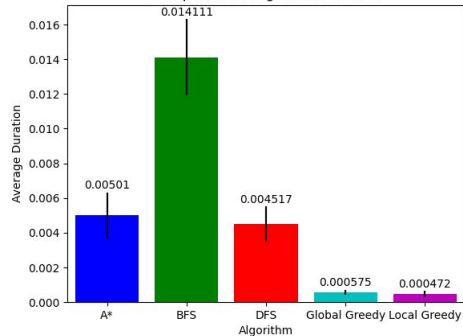


Duración comparación

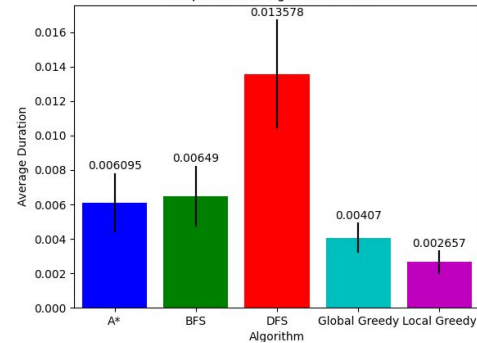
Comparison of Algorithm Duration



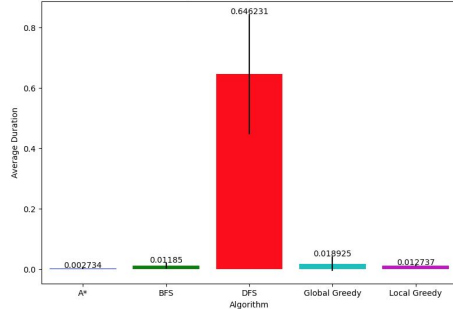
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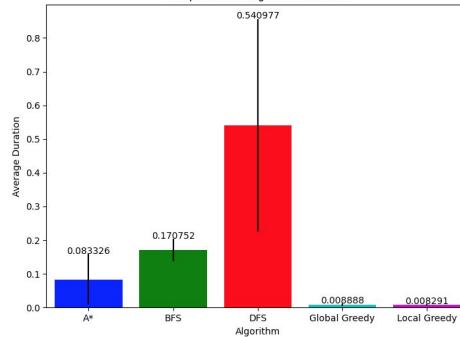
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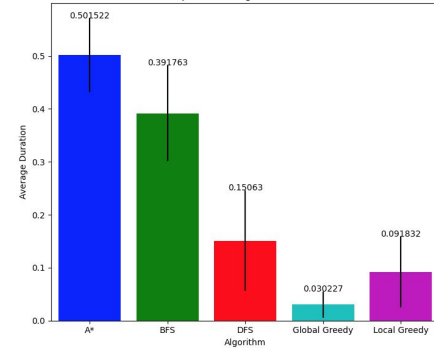
Comparison of Algorithm Duration



Comparison of Algorithm Duration

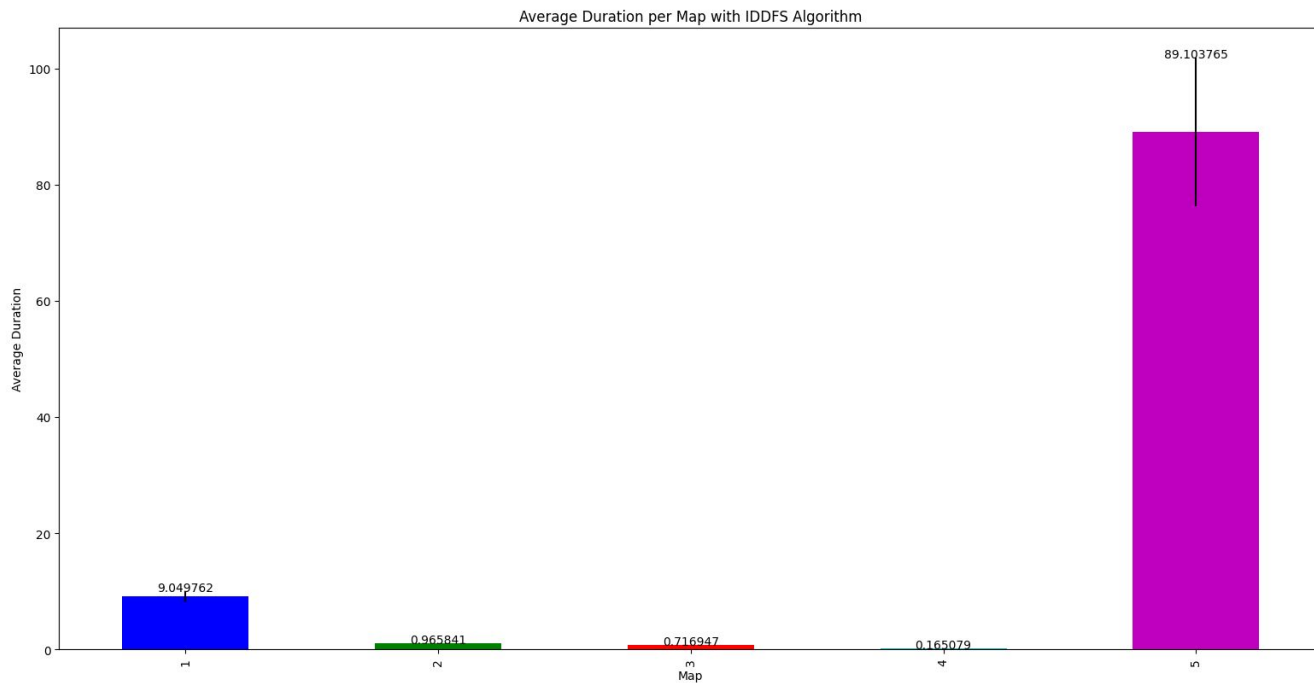


Comparison of Algorithm Duration

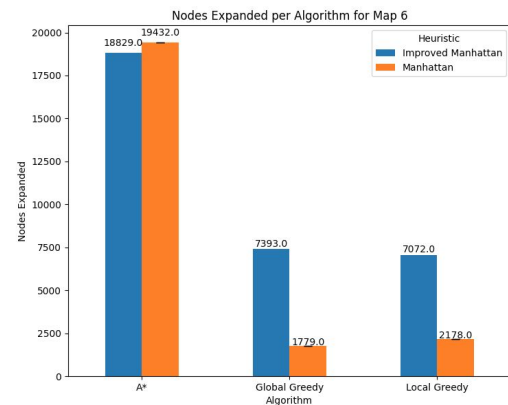
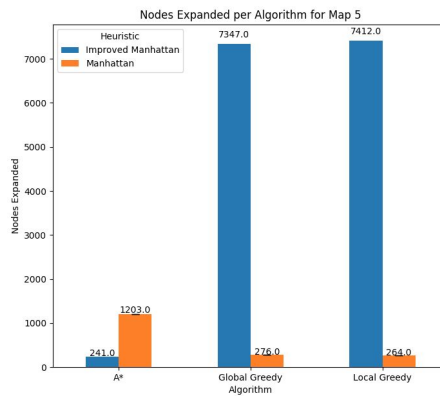
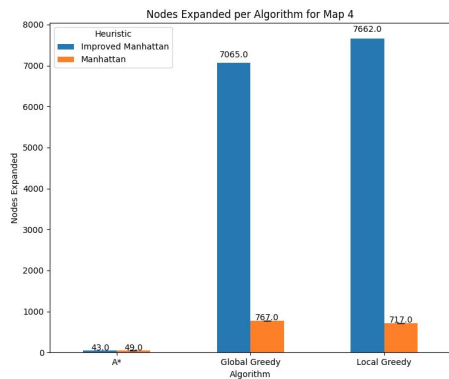
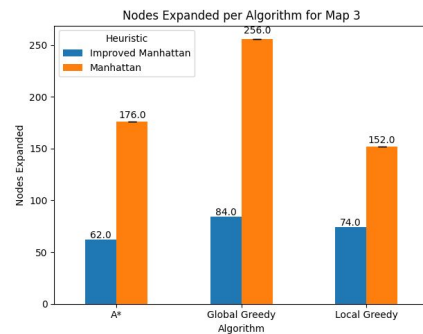
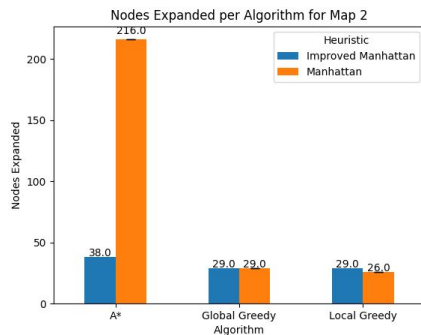
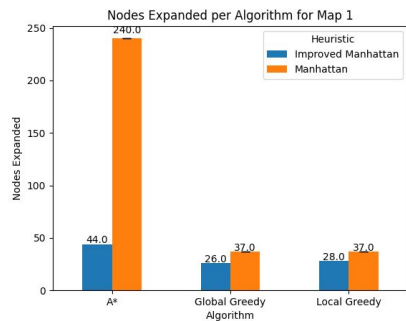




Duración IDDFS

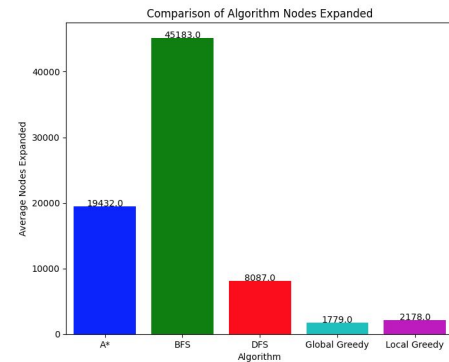
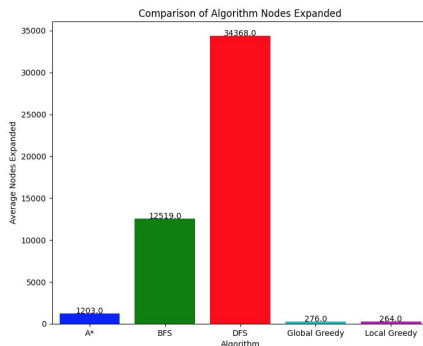
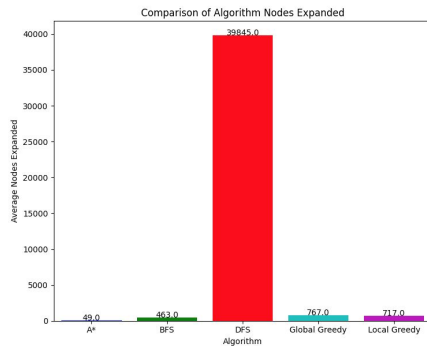
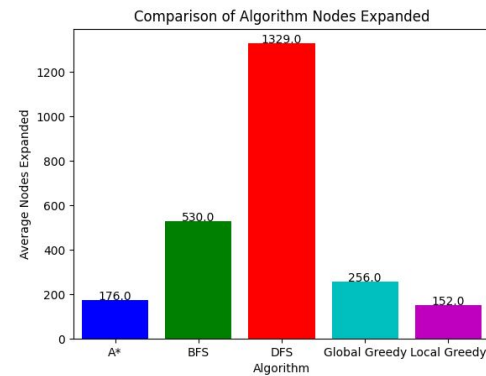
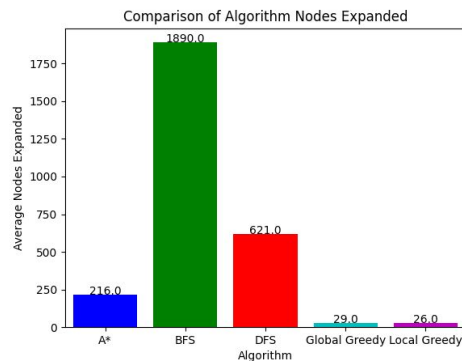
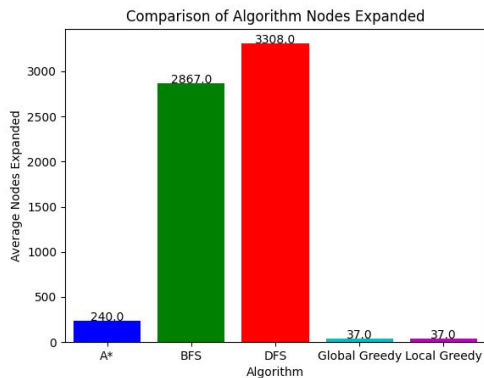


Datos - Nodos expandidos

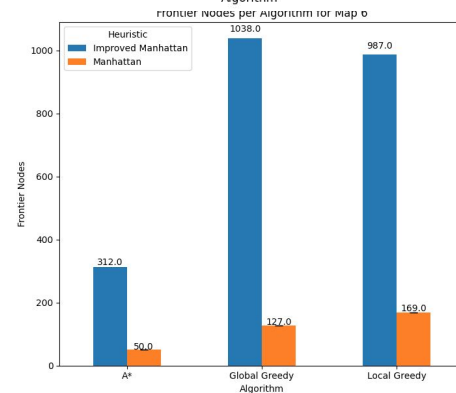
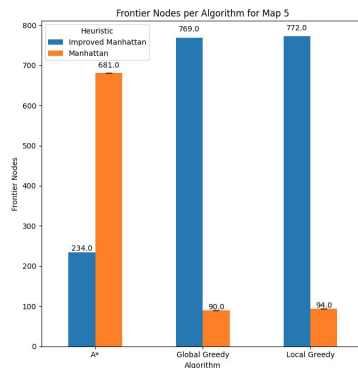
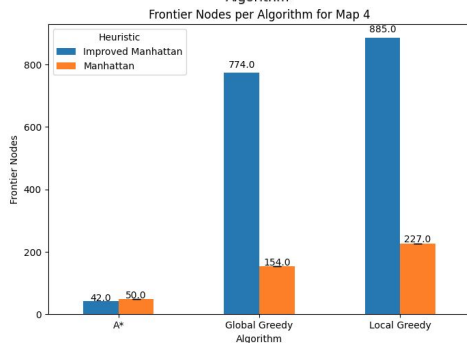
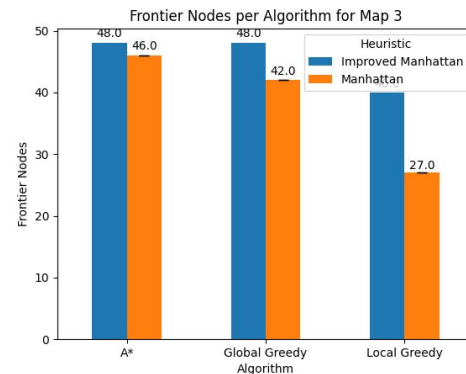
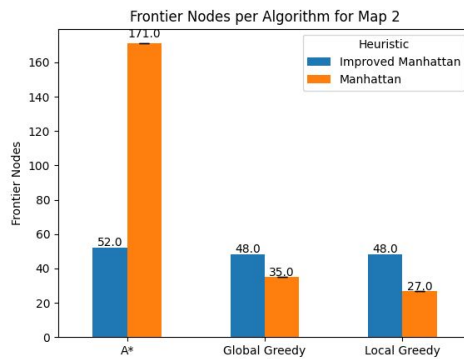
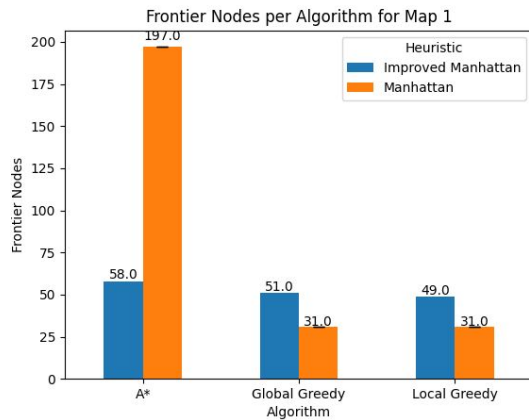




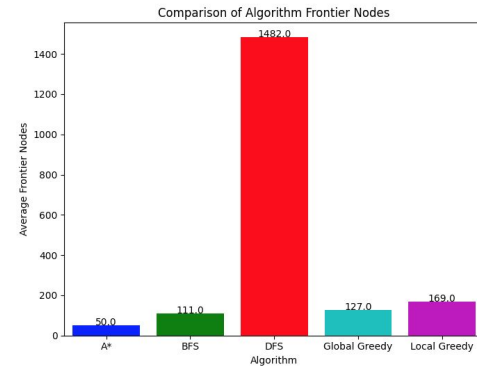
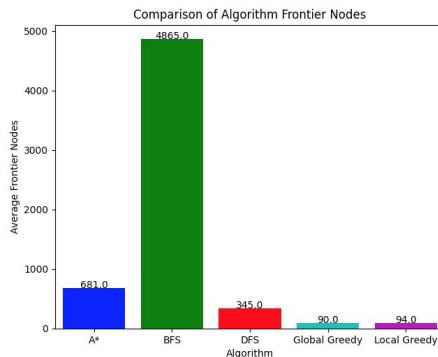
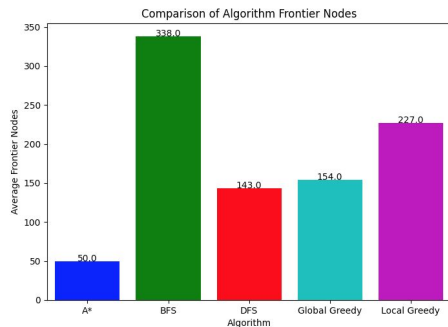
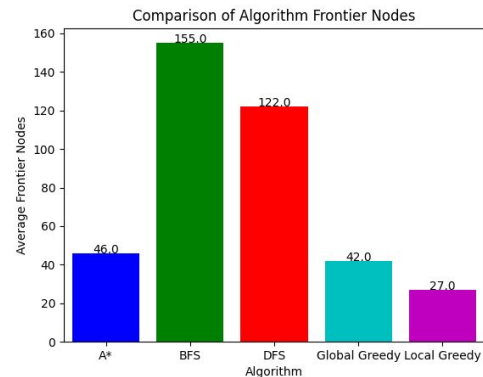
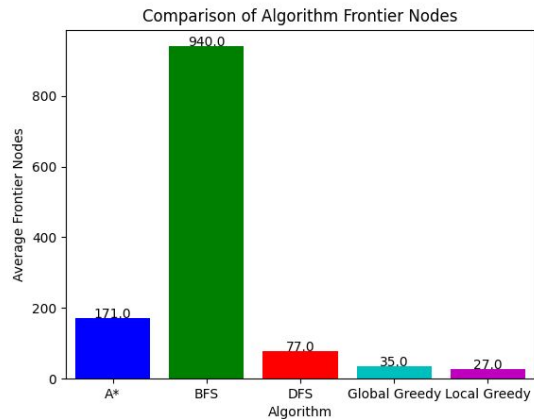
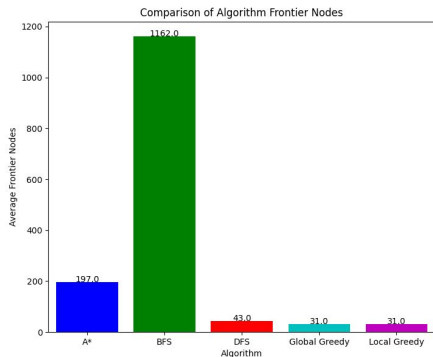
Nodos expandidos comparación



Datos - Nodos frontera



Nodos frontera comparación



Gracias!