BFS

time complexity

DFS

\[ O\left( b^d + b^d - 1 + b^{d-2} + \ldots + b^0 \right) \]

\[ O\left( b^d \right) \]

\[ O\left( b^d + 1 \right) \]

worst case time complexity
maximum number of nodes in frontier at any point during search.

\[ b^d_b \]

\[ \Pi \]

\[ b_{(d+1)} \]

\[ \text{idk} \]

\[ b^d \text{ or } b_{(d+1)} \]

\[ b_d - 1 \]
If a solution exists, will it be found?

**DFS**
- No for \( m = \infty \)
- Yes

**BFS**
- Yes

Can put a depth limit

**completeness**

**optimality**

Is the algorithm guaranteed to find the optimal (least cost) solution?

**DFS**
- No

**BFS**
- Yes
DFS

BFS

G

G'

G

G

m

2) suboptimal goal

<cost(G')

<depth(G')

<optimal goal