Assignment Due Feb 16

- Implement ANA* and test on a grid search problem

ANA*()

15: $G \leftarrow \infty$; $E \leftarrow \infty$; $OPEN \leftarrow \emptyset$; $\forall s : g(s) \leftarrow \infty$; $g(s_{\text{start}}) \leftarrow 0$
16: Insert s_{start} into $OPEN$ with key $e(s_{\text{start}})$
17: **while** $OPEN \neq \emptyset$ **do**
18: IMPROVESOLUTION()
19: Report current E-suboptimal solution
20: Update keys $e(s)$ in $OPEN$ and prune if $g(s)+h(s) \geq G$

IMPROVESOLUTION()

1: **while** $OPEN \neq \emptyset$ **do**
2: $s \leftarrow \arg\max_{s \in OPEN}\{e(s)\}$
3: $OPEN \leftarrow OPEN \setminus \{s\}$
4: **if** $e(s) < E$ **then**
5: $E \leftarrow e(s)$
6: **if** ISGOAL(s) **then**
7: $G \leftarrow g(s)$
8: **return**
9: **for each** successor s' of s **do**
10: **if** $g(s)+c(s,s') < g(s')$ **then**
11: $g(s') \leftarrow g(s)+c(s,s')$
12: $\text{pred}(s') \leftarrow s$
13: **if** $g(s')+h(s') < G$ **then**
14: Insert or update s' in $OPEN$ with key $e(s')$