

Part2

Wednesday, 13 January 2021

9:55 am

Act2:

Best-first search

Expand nodes with lowest cost function $f()$ first

$\left\{ \begin{array}{l} \text{BFS: } f(n) = \text{depth from root} \\ \text{DFS: } f(n) = \text{depth from root} \\ \text{UCS: } f(n) = \text{sum of cost from root the node } n. \quad g(n) \\ \text{A* : } f(n) = h(n) + g(n) \end{array} \right.$

Arad \rightarrow Bucharest 明哲保身

Act3:

$f(n) = (2-w)g(n) + wh(n)$
 ① reduced to UCS when $w=0$
 A^* when $w=1$
 Greedy when $w=2$

② optimal when $0 \leq w \leq 1$ because when $w=1$,
 A^*
 when $w > 1$, not guaranteed to be optimal.

Arad: $0 + 366$

Sibiu: $140 + 253 = 393$

Timisoara: $118 + 329 = 447$

Zerind: $75 + 375 = 450$

Seen

Arad

Sibiu: 140

Oradea: $140 + 15 + 380$

Fagaras: $140 + 99 + 178 = 239 + 178 = 417$

Rimnicu Vilcea: $140 + 80 + 193 = 220 + 193 = 413$

Seen

Arad

Sibiu

Bucharest