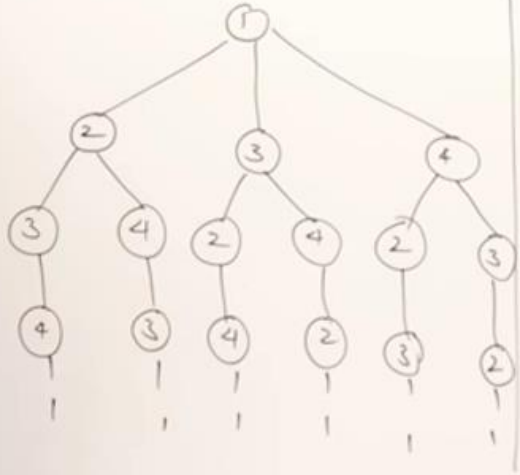
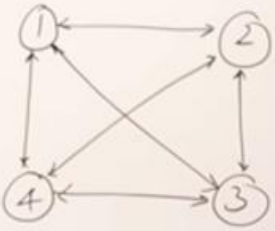
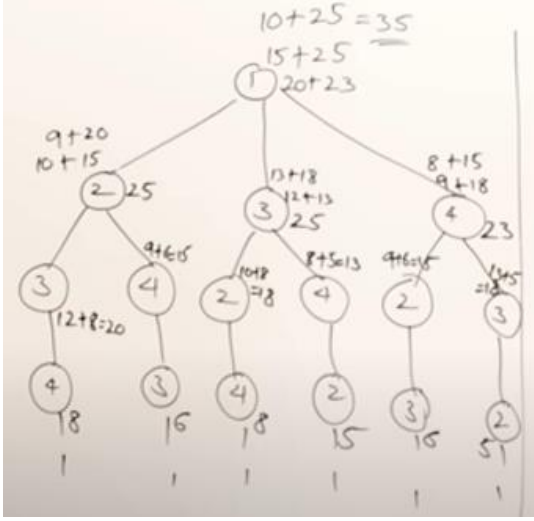
Traveling Salesperson Problem



$$A = \begin{array}{c} \\ 1 \\ 2 \\ 3 \\ 4 \end{array} \begin{array}{c} \begin{array}{cccc} 1 & 2 & 3 & 4 \end{array} \\ \begin{bmatrix} 0 & 10 & 15 & 20 \\ 5 & 0 & 9 & 10 \\ 6 & 13 & 0 & 12 \\ 8 & 8 & 9 & 0 \end{bmatrix} \end{array}$$



Traveling Salesperson Problem



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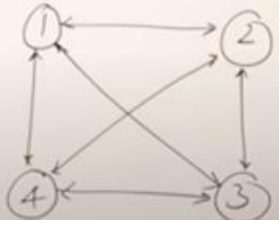


Traveling Salesperson Problem

$$g(1,\{2,3,4\}) = \min_{k\in\{2,3,4\}} \{c_{1k} + g(k, \{2,3,4\} - \{k\})\}$$

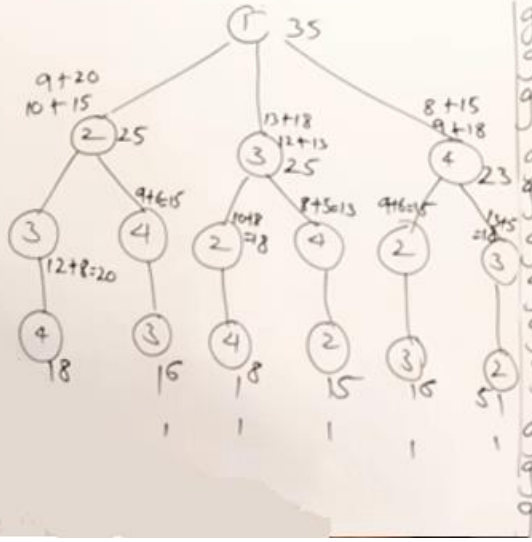
$$\boxed{g(i,S) = \min_{k\in S} \{c_{ik} + g(k, S-\{k\})\}}$$

Traveling Salesperson Problem

$g(1,\{2,3,4\}) = \min\{c_{12} + g(2,\{3,4\}),\ c_{13} + g(3,\{2,4\}),\ c_{14} + g(4,\{2,3\})\}$

$= 35 \qquad \underline{10+25}, \quad \underline{15+25}, \quad \underline{20+25}$

35



c_{ij}

$g(2,\phi) = 5$
$g(3,\phi) = 6$
$g(4,\phi) = 8$

$g(2,\{3\}) = 15$
$g(2,\{4\}) = 8$
$g(3,\{2\}) = 5$
$g(3,\{4\}) = 8$
$g(4,\{2\}) = 5$
$g(4,\{3\}) = 6$

$g(2,\{3,4\}) = 25$
$g(3,\{2,4\}) = 25$
$g(4,\{2,3\}) = 23$

$$A = \begin{array}{c} \\ 1 \\ 2 \\ 3 \\ 4 \end{array} \begin{array}{c} \begin{array}{cccc} 1 & 2 & 3 & 4 \end{array} \\ \begin{bmatrix} 0 & 10 & 15 & 20 \\ 5 & 0 & 9 & 10 \\ 6 & 13 & 0 & 12 \\ 8 & 8 & 9 & 0 \end{bmatrix} \end{array}$$