5 TSP with backtracking bound (Niveau II)

Describe a *backtracking* algorithm for solving the TSP problem. Can it find the optimal solution? Take a look at the lecture video describing the *backtracking* algorithm for color coding countries.

1. Compute MST and of fully connected Graph G

$$\sum_{e \in MST} w(e) = w\_MST$$

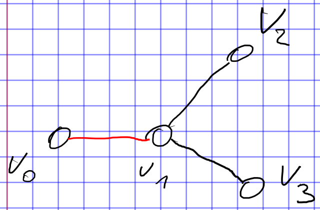
Start at any Node v_0 of G with sum = 0

Goto the first connected node v_1 and

$$sum \mathrel{+}= w(v_0, v_1)$$

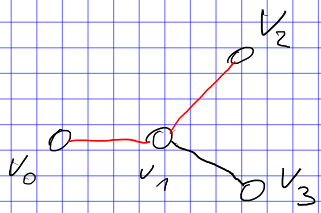
and remember the nodes visited

$[V_0, V_1]$



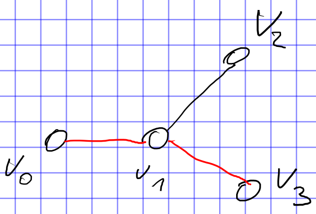
Go to the next connected node and add the weight to the sum

$[V_0, V_1, V_2]$



If sum ≥ w_MST remove the last element and its weight and go to the next node

$[V_0, V_1, V_3]$



The algorithm will find an optimal solution, but will have to calculate all possible Spanning trees.