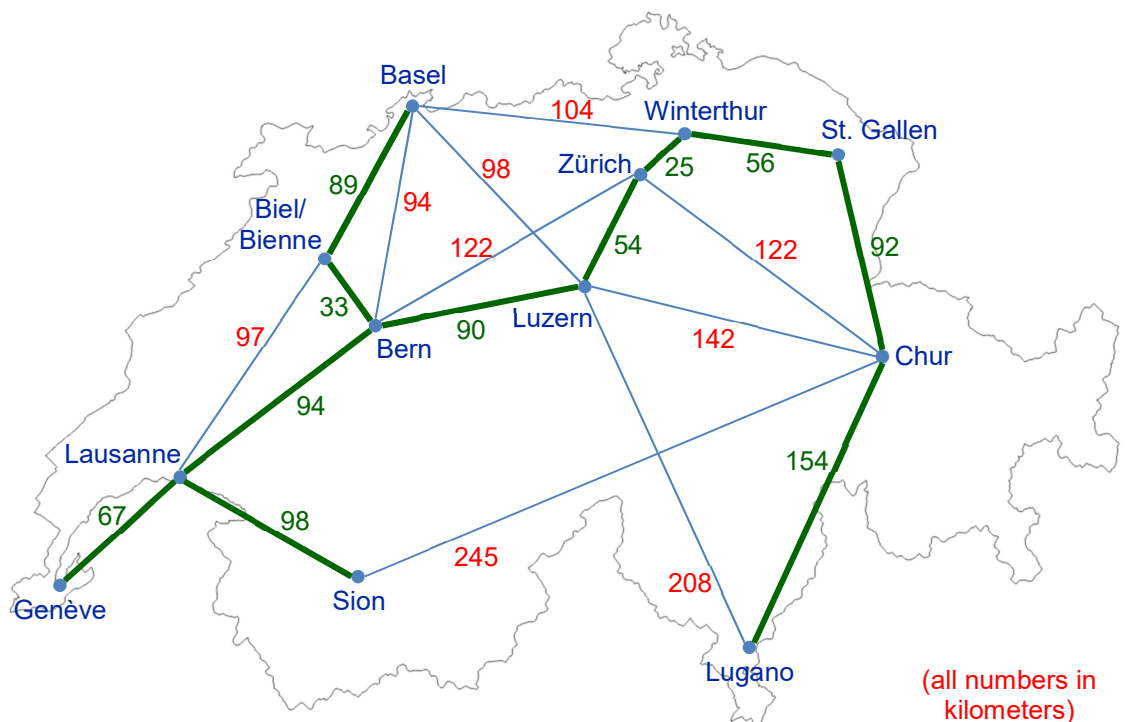# Example Minimum Spanning Tree
(Prim-Jarník Algorithm)

Consider the following distance map of Switzerland. The information in this map can be represented in a graph.

(all numbers in kilometers)

0. (optional) Draw the adjacency list representation and / or the adjacency matrix representation of the graph corresponding to the above map. Is it a directed or an undirected graph?

1. Apply the Prim-Jarník algorithm to obtain a minimum spanning tree from the graph corresponding to the above map.
What could be a possible use case for a minimum spanning tree like the one created in this task?
Will the resulting minimum spanning tree always be the same, independent on which node is used as start node (not only for this graph, but for arbitrary graphs)?

The total edge weight of the 11 edges comprising the minimum spanning tree is 852 km. The edges / nodes are selected / retrieved from the priority queue in the following order when starting in Zürich:

1) Winterthur – Zürich (25 km)
2) Bern – Biel/Bienne (33 km)
3) Winterthur – St. Gallen (56 km)
4) Genève – Lausanne (67 km)
5) Basel – Biel/Bienne (89 km)
6) Bern – Luzern (90 km)
7) St. Gallen – Chur (92 km)
8) Bern – Lausanne (94 km)
9) Lausanne – Sion (98 km)
10) Chur – Lugano (154 km)

Potential use cases: Making a journey as short as possible through Switzerland, visiting all of the given cities exactly once; building a pipeline / railway network / cable network connecting all cities with as little material as possible.