Algorithms and Data Structures 2020/21
Week 9 tutorial sheet

Below are a list of *suggested* exercises. You should also see the tutorial as a resource to get answers to questions you have, don't feel compelled to stick to the sheet.

1. Draw an example of a weighted graph which has 2 MSTs.
2. Let $\mathsf{G}, \mathcal{W}$ be a weighted graph in which all edge weights are distinct.

   Prove that the MST of $\mathsf{G}, \mathcal{W}$ is unique.
3. In line 3 of Prim's algorithm, there may be more than one fringe edge of minimum weight. Suppose we add all these minimum edges in one step. Does the algorithm still compute a MST?
4. Kruskal's algorithm can return different spanning trees for the same input graph G, depending on how ties are broken when the edges are initially sorted. Show that for *every* MST T of G, there is *some* way to sort the edges of G in Kruskal's algorithm so that T will be the MST that is returned.