Definition 8.6. [2F6]*Any set X can be endowed with many different topologies. Here are two simple examples:*

- *When a set X is endowed with the **discrete topology**, then all sets are open, and therefore closed. Equivalently, the discrete topology is caracterized by: every singleton is an open set.*

- *When a set X is endowed with the **indiscrete topology**, then the only open (and, closed) sets are $X, \emptyset$.*