

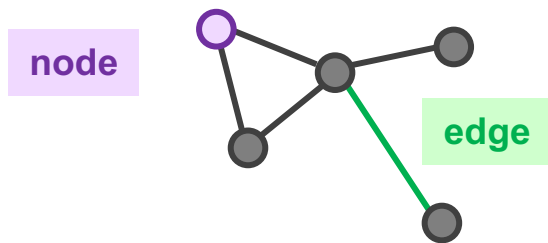
**Documentation:** Documentation is a structured way of describing what code does. It helps computer scientists stay organized and communicate with each other about new pieces of code. In this documentation table, you can find the name of each function in the telegraph network notebook, a description of what it does, and an example of how it works.

Function name	Description	Example input	Example output
<b>draw</b>	Draws a picture of a network	<code>draw(tele1846)</code>	picture
<b>drawAndLabel</b>	Draws a picture of a network and labels each of the nodes	<code>drawAndLabel(tele1846)</code>	picture
<b>countLines</b>	Counts the number of telegraph lines going in and out of a city	<code>countLines(tele1846, "Boston")</code>	the number of telegraph lines going in and out of Boston is: 2
<b>listCities</b>	Lists the number of cities with a given number of telegraph lines	<code>listCities(tele1846, 2)</code>	the list of cities with 2 telegraph lines is ['Racine', 'Chicago', ...
<b>findPaths</b>	Lists all the paths between two cities along the telegraph lines	<code>Boston2Detroit = findPaths(tele1846, "Boston", "Detroit")</code>	path number 1 has 13 nodes: ['Boston', ... path number 2 has 13 nodes: ['Boston', ...
<b>colorSet</b>	Draws a network and colors a given list of nodes a new color	<code>colorSet(tele1846, ["Atlanta", "New York"], 'blue')</code>	picture
<b>listNeighbors</b>	Lists the adjacent nodes (the neighbors) of a city in the network	<code>listNeighbors(tele1846, "New Orleans")</code>	the neighboring nodes of New Orleans are: ['Mobile']
<b>removeCity</b>	Makes a new network that is the same as another one, but is missing some nodes and the edges they connect to	<code>no_boston = removeCity(tele1846, ["Boston"])</code>	Made a new network that doesn't have: ['Boston']

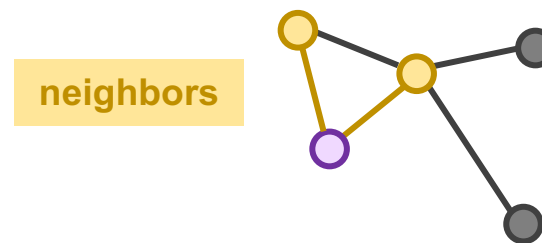
**Graph Glossary:** A graph is a network structure made out of nodes and edges. The purpose of a graph is to describe relationships between things. This can mean any kind of relationship. You've probably thought about graphs before if you've studied a food web or an ecosystem.

*Graph* and *Network* are interchangeable words. You might also use the word *graph* to mean a plot or a chart, but that is a different meaning of the word graph. There isn't a hidden connection between these ideas, it's just that mathematicians are sometimes terrible at choosing new words for things.

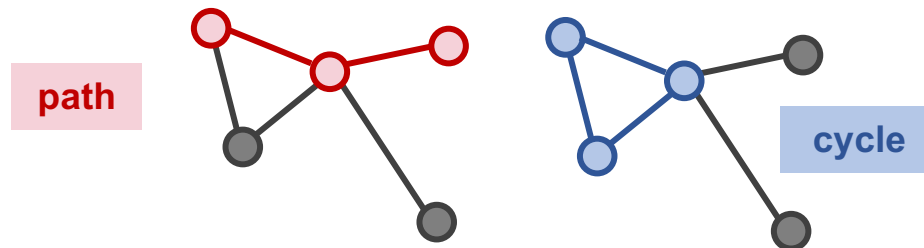
A network is made of **nodes** and **edges**.



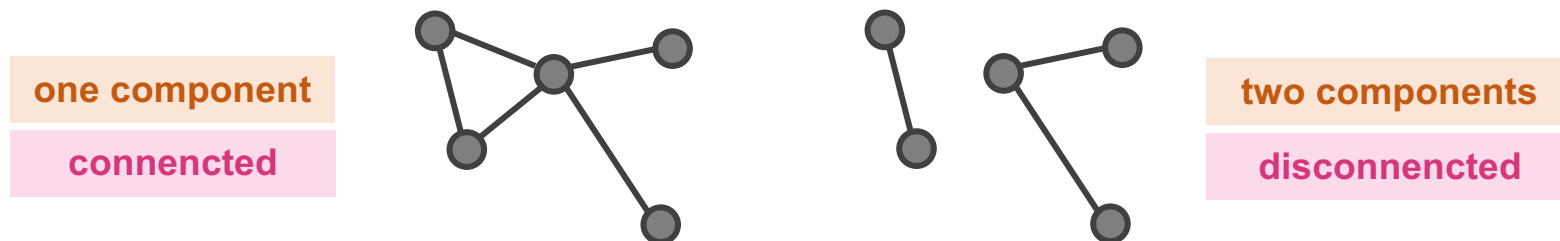
A node is **adjacent** to its **neighbor nodes**.



A sequence of connected nodes is a **path**. If it connects to itself then it is called a **cycle**.



All the nodes that have paths from one to another are called a **component**. A graph with only one component is **connected**.



**About Dictionaries:** A dictionary is a kind of data structure. This means that it is a way of organizing information such that a computer can understand it and a programmer can write code more easily.

A dictionary data structure might remind you of a real dictionary you would use to look up words.

A **dictionary** has two parts: **keys** and **values**

Here is an example dictionary that someone might use to store information about animals

```
animal_dictionary = {  
    "cat"      :  mammal  
    "snake"    :  reptile  
    "sheep"    :  mammal  
    "hawk"     :  bird }
```

keys

values