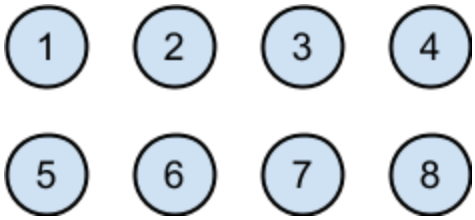
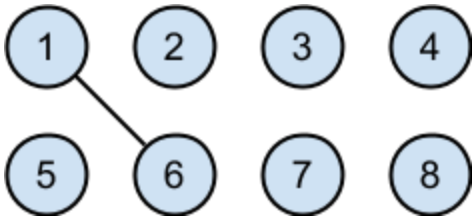
Consider the following problem

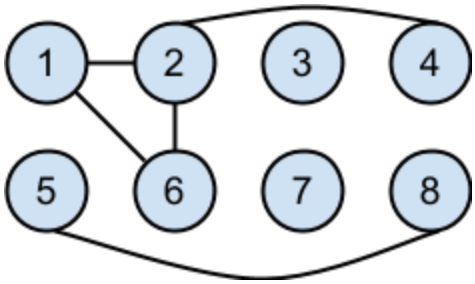
We have a set of elements. In this example I will use eight.



We can make a set of connections. For example we can connect 1 to 6.



We can make any number of connections and any two elements can be connected. Let's make the following connections: 1-2, 6-2, 2-4, 5-8



Now we need to be able to determine if two elements are connected, either directly or through a series of connections. 1 and 6 are connected, as are 6 and 4. But 7 and 4 are not connected, neither are 5 and 6. We do not care about the path, 1 and 2 are connected both directly and also through 6, but for this problem the fact that there are two paths is irrelevant.

Task

Write a class `Network`. The constructor should take a positive integer value indicating the number of elements in the set. Passing in an invalid value should throw an exception. The class should also provide two public methods, `connect` and `query`. The first method, `connect` will take two integers indicating the elements to connect. This method should throw exceptions as appropriate. The second method, `query` will also take two integers and should

also throw an exception as appropriate. It should return `true` if the elements are connected, directly or indirectly, and `false` if the elements are not connected. The class can have as many private or protected members as needed for a good implementation.