How do we solve problems recursively?

A common programming task is searching a data structure for a specific element. If you have no information about the data in the list, then your algorithm will be some variation of:

1. Loop through the entire list, compare each element to your search ***key***.
2. If you found ***key***, return the index.
3. If you got to the end of the list, ***key*** is not there, return -1.

This algorithm is known as a *sequential search*, because you have to go through the entire sequence of values to look for the ***key***.

There is no better way to do this.

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