# Common Algorithms

**The real advantage a `vector`, as opposed to using individual discrete** variables, is that it allows you to apply the **same processing** to **all of the elements** by using a loop. We can divide this processing into several kinds:

- Algorithms that **need only read** the values contained in the **`vector`**. These algorithms solve many counting and calculating problems.
- Algorithms that **may modify** the elements of the **`vector`** as it is processed. This includes initialization, sorting, and otherwise rearranging items.
- Algorithms where the **position** of the elements in the **`vector`** is significant or must be noted.
- Algorithms which need to process multiple **`vector`**s, using the same index, or algorithms which need to process only some of the elements.

We'll use the **range-based *`for`*** loop whenever possible. While you always **can** use the counter-controlled ***`for`*** loop if you like, it's just more work.