Introducing Recursion

Performing a task repeatedly is iteration. Selecting different alternatives is selection. Most of us learn to use the control statements `for`, `while`, and `if` easily, because they are familiar. In this lesson, you'll look at a different, more abstract problem-solving strategy called **recursion**.

Recursion is a technique where large problems are solved by reducing them to **smaller problems of the same form**. This is similar to functional decomposition, yet different as well. In functional decomposition, the smaller problems have a **different structure**. In recursion, the sub-problems **have the same form** as the original.

To most of us, this does not make much sense when we first hear it. Since it is unfamiliar, **learning how to use recursion can be difficult**. As a problem-solving tool, recursion is so powerful that it at times seems almost magical.

Recursion makes it possible to write complex programs in **simple and elegant** ways.