

18 Declarations

*Making something variable is easy.
Controlling duration of constancy is the trick.*

Declarations play a central role in C programming. By declaring variables and functions, we furnish vital information that the compiler will need in order to check a program for potential errors and translate it into object code.

Previous chapters have provided examples of declarations without going into full details; this chapter fills in the gaps. It explores the sophisticated options that can be used in declarations and reveals that variable declarations and function declarations have quite a bit in common. It also provides a firm grounding in the important concepts of storage duration, scope, and linkage.

Section 18.1 examines the syntax of declarations in their most general form, a topic that we've avoided up to this point. The next four sections focus on the items that appear in declarations: storage classes (Section 18.2), type qualifiers (Section 18.3), declarators (Section 18.4), and initializers (Section 18.5). Section 18.6 discusses the `inline` keyword, which can appear in C99 function declarations.

18.1 Declaration Syntax

Declarations furnish information to the compiler about the meaning of identifiers. When we write

```
int i;
```

we're informing the compiler that, in the current scope, the name `i` represents a variable of type `int`. The declaration

```
float f(float);
```