CSE 1112

C BASICS (TILL NESTED IF)

Compiling a C Program

Creating an executable form of your C program consists of these three steps:

1. Creating your program

2. Compiling your program

3. Linking your program with whatever functions are needed from the library

Today, most compilers supply integrated programming environments that include an editor. Most also include stand-alone compilers. For stand-alone versions, you must have a separate editor to create your program. In either case, be careful: Compilers only accept standard text files for input. For example, your compiler will not accept files created by certain word processors because they contain control codes and nonprinting characters.

The exact method you use to compile your program will depend upon what compiler you are using. Also, how linking is accomplished will vary between compilers and environments; for example, it may be included as part of the compiler or as a stand-alone application. Consult your compiler's documentation for details.

BASIC DATA TYPES

Data types:

char

int

float

double

void

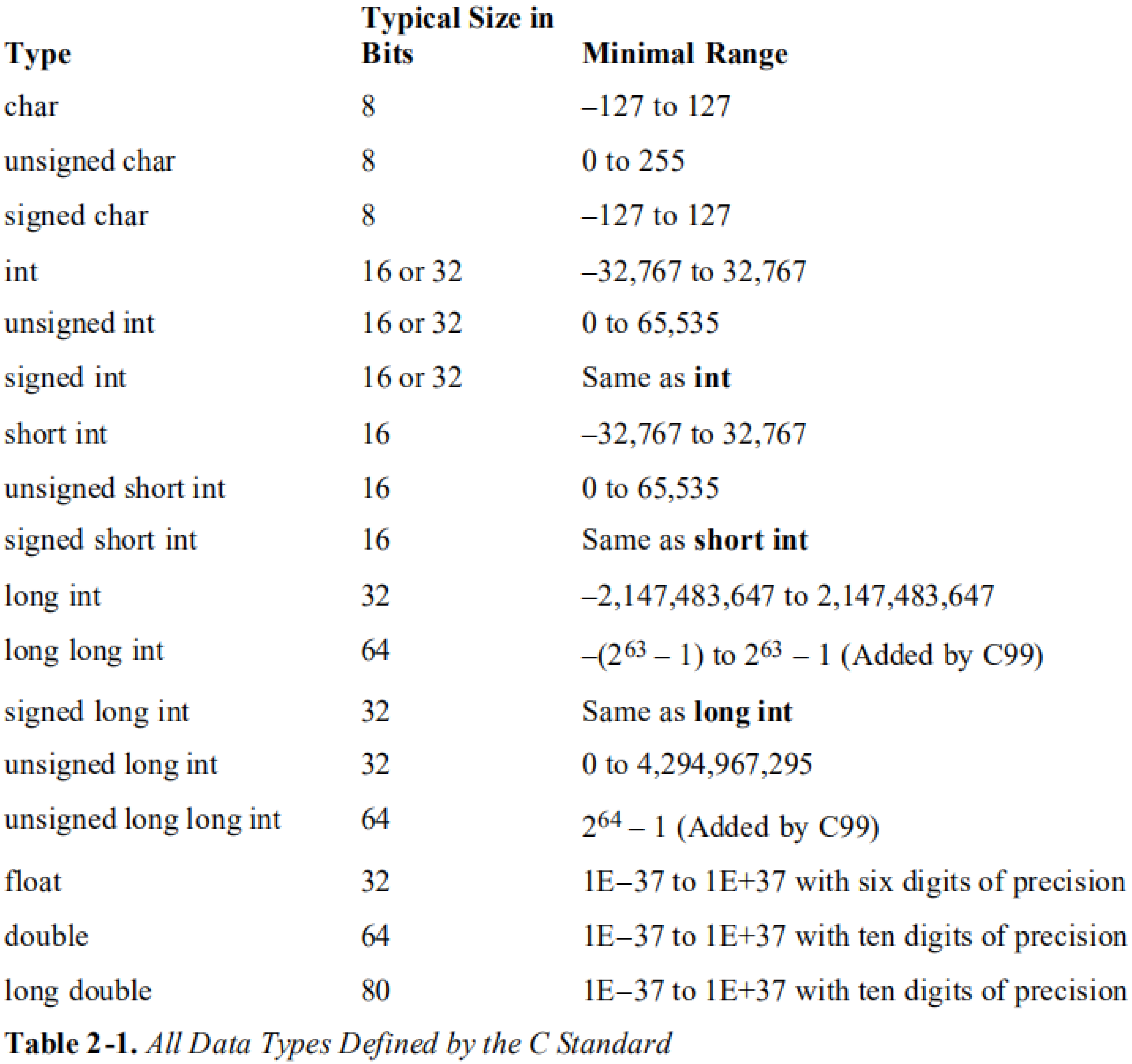
Modifier:

signed

unsigned

long

short



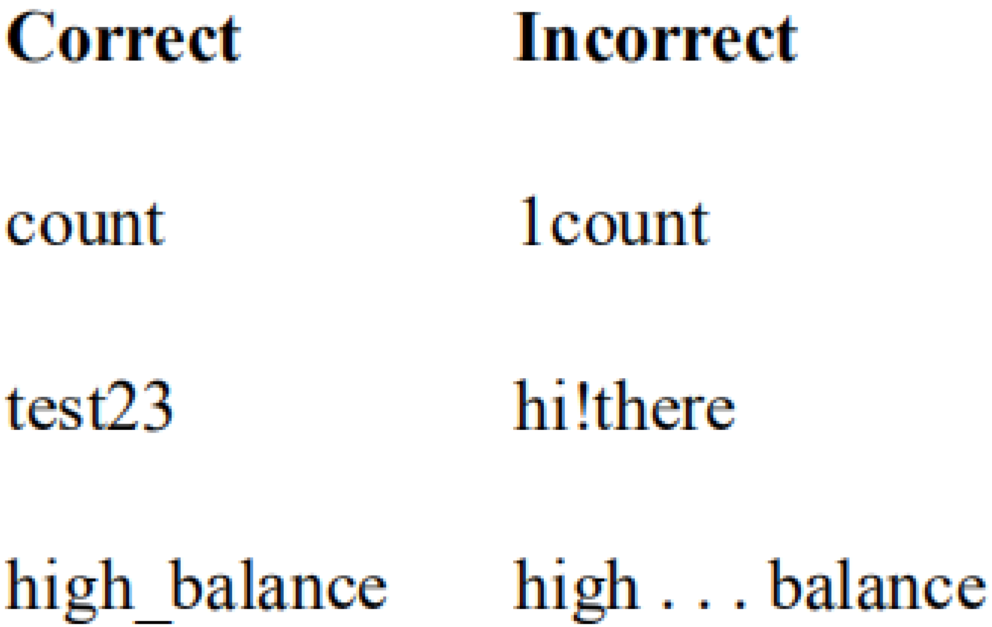
Type	Typical Size in Bits	Minimal Range
char	8	–127 to 127
unsigned char	8	0 to 255
signed char	8	–127 to 127
int	16 or 32	–32,767 to 32,767
unsigned int	16 or 32	0 to 65,535
signed int	16 or 32	Same as **int**
short int	16	–32,767 to 32,767
unsigned short int	16	0 to 65,535
signed short int	16	Same as **short int**
long int	32	–2,147,483,647 to 2,147,483,647
long long int	64	$-(2^{63} - 1)$ to $2^{63} - 1$ (Added by C99)
signed long int	32	Same as **long int**
unsigned long int	32	0 to 4,294,967,295
unsigned long long int	64	$2^{64} - 1$ (Added by C99)
float	32	1E–37 to 1E+37 with six digits of precision
double	64	1E–37 to 1E+37 with ten digits of precision
long double	80	1E–37 to 1E+37 with ten digits of precision

Table 2-1. *All Data Types Defined by the C Standard*

IDENTIFIER

- Length can vary from one to several characters.
- The first character must be a letter or an underscore, and subsequent characters must be either letters, digits, or underscores.
- Upper- and lowercase are treated as distinct. Hence, count, Count, and COUNT are three separate identifiers.
- An identifier cannot be the same as a C keyword and should not have the same name as functions that are in the C library.

IDENTIFIER



Correct	Incorrect
count	1count
test23	hi!there
high_balance	high . . . balance

PRINTF

Will be shown in code::blocks

FUNCTION

Will be shown in code::blocks

VARIABLES

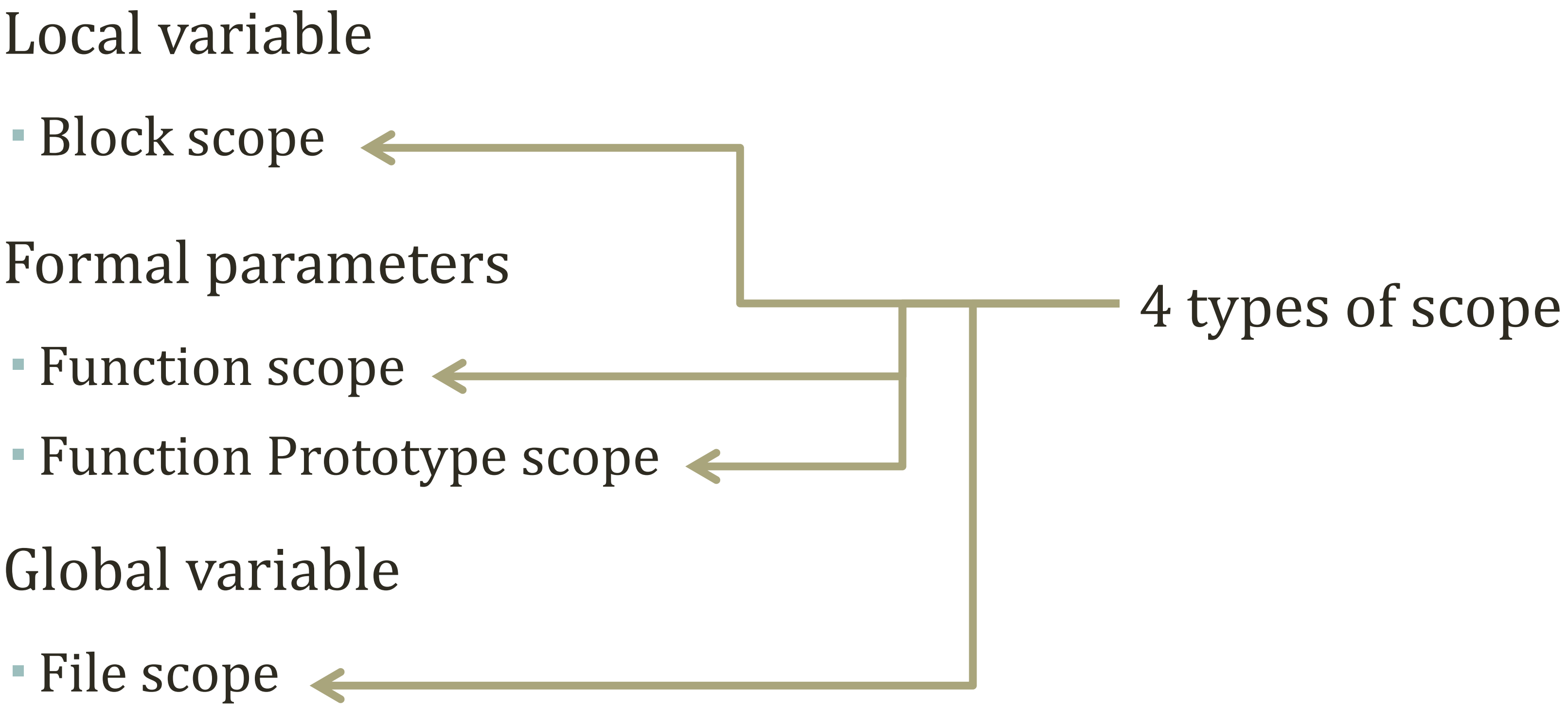
A variable is a named location in memory that is used to hold a value that can be modified by the program.

All variables must be declared before they can be used.

The general form of a declaration is

type variable_list;

SCOPE



Local variable

- Block scope

Formal parameters

- Function scope
- Function Prototype scope

Global variable

- File scope

4 types of scope

OPERATOR

Assingment

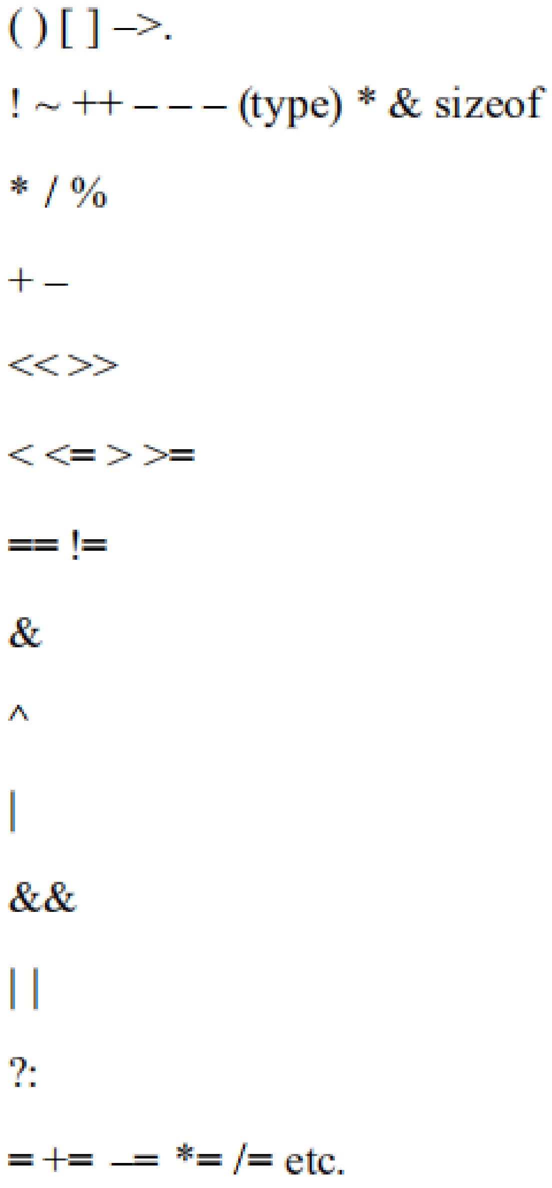
Arithmetic

Incremen Decrement

Relational & Logical

Ternary

sizeof



( ) [ ] –>.

! ~ ++ – – – (type) * & sizeof

* / %

+ –

<< >>

< <= > >=

== !=

&

^

|

&&

| |

?:

= += –= *= /= etc.

TYPE CONVERSION

- Auto
- Casting

IF, NESTED IF, TERTIARY

Will be shown in code::blocks

FOR, WHILE LOOP

Will be shown in code::blocks