```
void exit(int status);
void _Exit(int status);
char *getenv(const char *name);
int system(const char *string);
```

The functions in this group provide a simple interface to the operating system, allowing programs to (1) terminate, either normally or abnormally, and return a status code to the operating system, (2) fetch information from the user's environment, and (3) execute operating system commands. One of the functions, `_Exit`, is a C99 addition.

C99

exit

Performing the call `exit(n)` anywhere in a program is normally equivalent to executing the statement `return n;` in `main`: the program terminates, and *n* is returned to the operating system as a status code. `<stdlib.h>` defines the macros `EXIT_FAILURE` and `EXIT_SUCCESS`, which can be used as arguments to `exit`. The only other portable argument to `exit` is `0`, which has the same meaning as `EXIT_SUCCESS`. Returning status codes other than these is legal but not necessarily portable to all operating systems.

Q&A

atexit

When a program terminates, it usually performs a few final actions behind the scenes, including flushing output buffers that contain unwritten data, closing open streams, and deleting temporary files. We may have other "clean-up" actions that we'd like a program to perform at termination. The `atexit` function allows us to "register" a function to be called upon program termination. To register a function named `cleanup`, for example, we could call `atexit` as follows:

```
atexit(cleanup);
```

When we pass a function pointer to `atexit`, it stores the pointer away for future reference. If the program later terminates normally (via a call of `exit` or a `return` statement in the `main` function), any function registered with `atexit` will be called automatically. (If two or more functions have been registered, they're called in the reverse of the order in which they were registered.)

_Exit

The `_Exit` function is similar to `exit`. However, `_Exit` doesn't call functions that have been registered with `atexit`, nor does it call any signal handlers previously passed to the `signal` function. Also, `_Exit` doesn't necessarily flush output buffers, close open streams, or delete temporary files—whether these actions are performed is implementation-defined.

signal function ➤24.3

abort

`abort` is also similar to `exit`, but calling it causes abnormal program termination. Functions registered with `atexit` aren't called. Depending on the implementation, it may be the case that output buffers containing unwritten data aren't flushed, streams aren't closed, and temporary files aren't deleted. `abort` returns an implementation-defined status code indicating unsuccessful termination.

Q&A

getenv

Many operating systems provide an "environment": a set of strings that describe the user's characteristics. These strings typically include the path to be searched when the user runs a program, the type of the user's terminal (in the case of a multi-user system), and so on. For example, a UNIX search path might look