

Python basics:statement and syntax

Some rules and certain symbols are used with regard to statements in Python:

- Hash mark (#) indicates Python comments
- NEWLINE (\n) is the standard line separator (one statement per line)
- Backslash (\) continues a line
- Semicolon (;) joins two statements on a line
- Colon (:) separates a header line from its suite
- Statements (code blocks) grouped as suites
- Suites delimited via indentation
- Python files organized as modules

Comments (#)

Like many of its Unix scripting brethren, Python comment statements begin with the pound sign or hash symbol (#). A comment can begin anywhere on a line. All characters following the # to the end of the line are ignored by the interpreter.

Continuation (\)

Python statements are, in general, delimited by NEWLINES, meaning one statement per line. Single statements can be broken up into multiple lines by use of the backslash. The backslash symbol (\) can be placed before a NEWLINE to continue the current statement onto the next line.

```
# check conditions
if (weather_is_hot == 1) and \
    (shark_warnings == 0):
    send_goto_beach_mesg_to_pager()
```

A single statement can take up more than one line when enclosing operators are used, i.e., parentheses, square brackets, or braces, and when NEWLINES are contained in strings enclosed in triple quotes.

Multiple Statement Groups as Suites (:)

Compound or complex statements, such as `if`, `while`, `def`, and `class`, are those that require a header line and a suite. Header lines begin the statement (with the keyword) and terminate with a colon (`:`) and are followed by one or more lines that make up the suite.

Suites Delimited via Indentation

Indentation requires exact indentation; in other words, all the lines of code in a suite must be indented at the exact same level (e.g., same number of spaces). Indented lines starting at different positions or column numbers are not allowed; each line would be considered part of another suite and would more than likely result in syntax errors.

Multiple Statements on a Single Line (;)

The semicolon (;) allows multiple statements on a single line given that neither statement starts a new code block. Here is a sample snip using the semicolon:

```
import sys; x = 'foo'; sys.stdout.write(x + '\n')
```

Modules

When a module gets large enough or has diverse enough functionality, it may make sense to move some of the code out to another module. Code that resides in modules may belong to an application (i.e., a script that is directly executed), or may be executable code in a library-type module that may be "imported" from another module for invocation. As we mentioned in the last chapter, modules can contain blocks of code to run, class declarations, function declarations, or any combination of all of those.