

4.3. Exceptions

Exceptions are a means of breaking out of the normal flow of control of a code block in order to handle errors or other exceptional conditions. An exception is *raised* at the point where the error is detected; it may be *handled* by the surrounding code block or by any code block that directly or indirectly invoked the code block where the error occurred.

The Python interpreter raises an exception when it detects a run-time error (such as division by zero). A Python program can also explicitly raise an exception with the `raise` statement. Exception handlers are specified with the `try ... except` statement. The `finally` clause of such a statement can be used to specify cleanup code which does not handle the exception, but is executed whether an exception occurred or not in the preceding code.

Python uses the “termination” model of error handling: an exception handler can find out what happened and continue execution at an outer level, but it cannot repair the cause of the error and retry the failing operation (except by re-entering the offending piece of code from the top).

When an exception is not handled at all, the interpreter terminates execution of the program, or returns to its interactive main loop. In either case, it prints a stack backtrace, except when the exception is `SystemExit`.

Exceptions are identified by class instances. The `except` clause is selected depending on the class of the instance: it must reference the class of the instance or a base class thereof. The instance can be received by the handler and can carry additional information about the exceptional condition.

Note Exception messages are not part of the Python API. Their contents may change from one version of Python to the next without warning and should not be relied on by code which will run under multiple versions of the interpreter.

See also the description of the `try` statement in section [The try statement](#) and `raise` statement in section [The raise statement](#).