Exception Chaining



Austin Bingham
COFOUNDER - SIXTY NORTH
@austin_bingham



Robert Smallshire
COFOUNDER - SIXTY NORTH
@robsmallshire

Overview



Explicit exception chaining
Implicit exception chaining
How chaining works under the hood
Using chaining for diagnostics



Chaining associates one exception with another

The second exception may be incidental to the first

Or the second may be deliberately raised in response to the first

Chaining avoids duplication and can improve diagnostics

Implicit chaining

Occurs when an exception is raised incidentally during processing of another

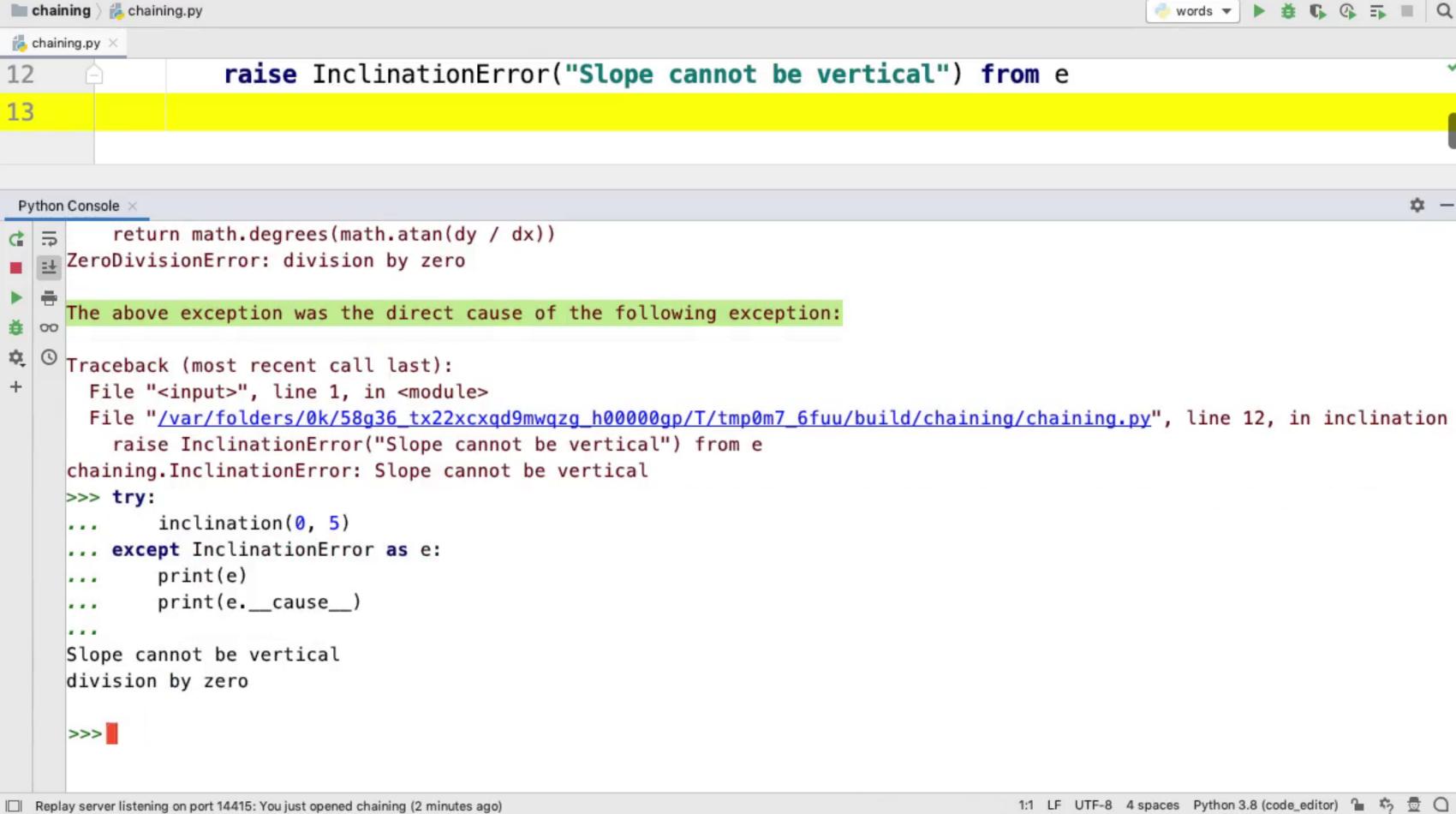
The original exception is stored on the __context__ attribute of the second

```
heron ) & heron.py
                                                                                                        🥏 words ▼ 🕨 🍎 🕟 😘 🔳 🔾
theron.py X
35
                   a = triangle_area(3, 4, 10)
                   print(a)
36
              except TriangleError as e:
38
                   try:
                         print(e, file=sys.stdin)
39
                   except io.UnsupportedOperation as f:
40
                         print(e)
41
                         print(f)
42
                         print(f.__context__ is e)
43
                                                                                                                               $ -
 Python Console >
     import sys; print('Python %s on %s' % (sys.version, sys.platform))
                                                                                            Special Variables
   sys.path.extend(['/var/folders/0k/58g36_tx22xcxqd9mwqzg_h00000gp/T/tmph5qpceuc/bu
     Python Console
     >>> from heron import *
     >>> main()
     'Illegal triangle' for sides (3, 4, 10)
     not writable
     True
     >>>
                                                                                           1:1 LF UTF-8 4 spaces Python 3.8 (code_editor) 1 5
Replay server listening on port 14415: You just opened heron (2 minutes ago)
```

Explicit chaining

Deliberately associate an exception with a new exception at the point of raising the latter.

This is done to translate one exception to another.



Explicit Exception Chaining

```
except <original exception type> as e:
    raise <new exception> from e
    explicit chaining
```

Associates new exception with original exception through the __cause__ attribute

Summary



Python supports explicit and implicit exception chaining

Explicit chaining occurs when you use raise ... from

Explicit chaining stores the original exception on __cause__

Implicit chaining happens any other time an exception is raised during handling of another

Implicit chaining stores the original exception on __context__