# Exception Handling

Guttag Chapter 9

# Goals

Learn Terminology related to Exception Handling in Guttag Chapter 9

See Examples of Exceptions in Code

Practice Exception Handling

# Exception Handling Terminology

# Terms: Program Termination

Definition

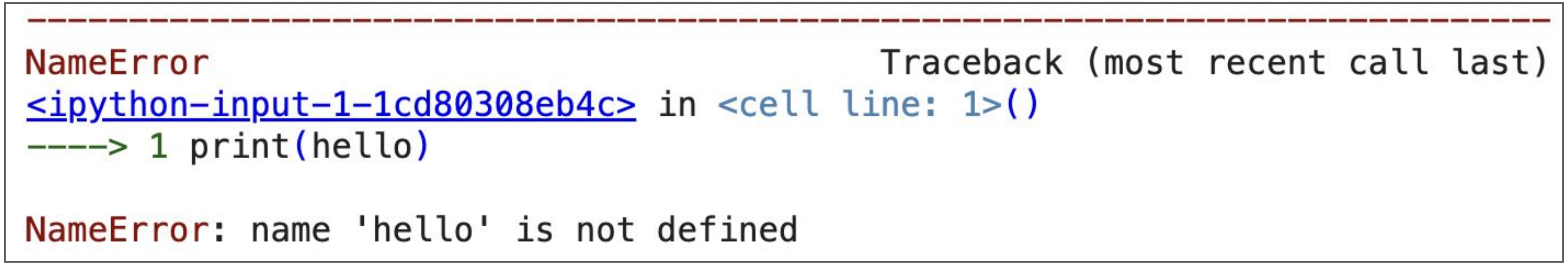
- Fancy name for the moment a program stops running
- Could be caused by an unknown bug (CRASH)
- Could be caused by just being finished with the code

# Terms: Exceptions

Definition

- Fancy name for the specific type of error that the python interpreter reports when a program terminates unexpectedly

Example

- print(hello)
- 

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
<ipython-input-1-1cd80308eb4c> in <cell line: 1>()
----> 1 print(hello)

NameError: name 'hello' is not defined
```

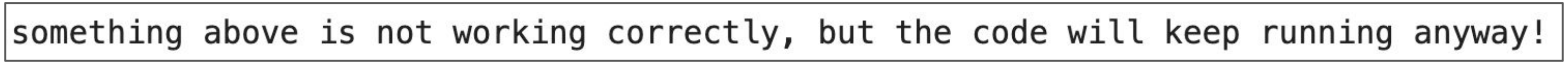
# Terms: Exception Handling

Definition

- special python syntax that can prevent a crash when an exception occurs

Example

- try:
  - print(hello)
- except NameError:
  - print("something above is not working correctly, but the code will keep running anyway!")



```
something above is not working correctly, but the code will keep running anyway!
```

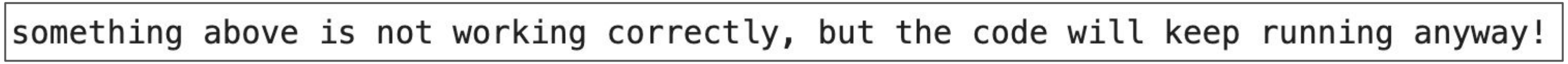
# Terms: Try-Except Block

Definition

- special python syntax that can prevent a crash when an exception occurs

Example

- try:
  - print(hello)
- except NameError:
  - print("something above is not working correctly, but the code will keep running anyway!")



```
something above is not working correctly, but the code will keep running anyway!
```

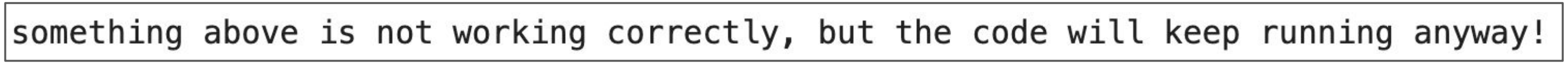
# Terms: Catching an Error

Definition

- preventing a crash

Example

- try:
  - print(hello)
- except NameError:
  - print("something above is not working correctly, but the code will keep running anyway!")



```
something above is not working correctly, but the code will keep running anyway!
```

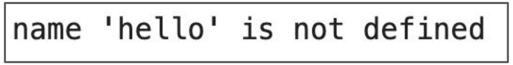
# Terms: Default Message

## Definition

- catching a default error message that is provided by the python interpreter

## Example

- try:
    - print(hello)
- except NameError as msg:
    - print(msg)



```
name 'hello' is not defined
```

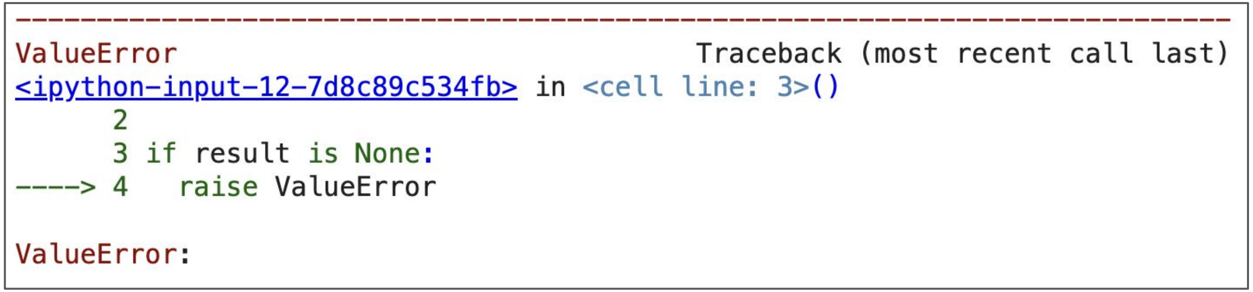
# Terms: Raising an Error

Definition

- Intentionally causing the python interpreter to throw a specific kind of error

Example

- result = None
- if result is None:
    - raise ValueError



```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
<ipython-input-12-7d8c89c534fb> in <cell line: 3>()
      2 
      3 if result is None:
----> 4   raise ValueError

ValueError: 
```

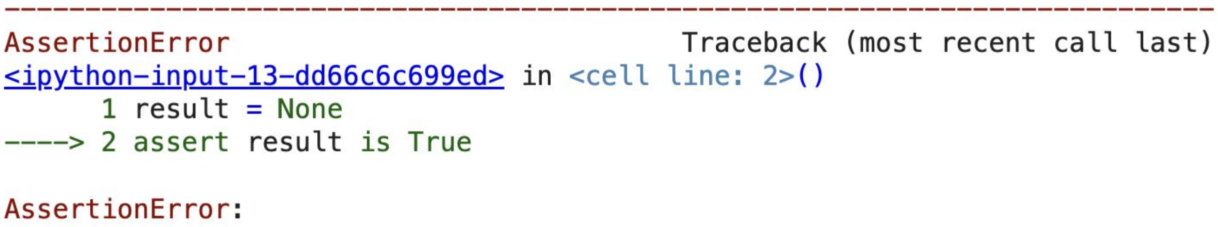
# Terms: Assert

Definition

- Cause program termination if something is wrong
- Intentionally causing the python interpreter to throw an AssertionError

Example

- result = None
- assert result is True



```
---------------------------------------------------------------------------
AssertionError                            Traceback (most recent call last)
<ipython-input-13-dd66c6c699ed> in <cell line: 2>()
      1 result = None
----> 2 assert result is True

AssertionError:
```

# See Exception Examples

# Examples

- ZeroDivisionError
- TypeError
- ValueError
- IndexError
- NameError
- UnboundLocalError
- https://docs.python.org/3/library/exceptions.html

# Practice Exception Handling

# Summary

- Exceptions can sometimes be expected in code
- there are ways to keep the code running, even if there is an error

Announcement

- Midterm 2 is in two weeks, Nov 8th in class