Lambda functions and error-handling

Lambda functions

Lambda functions

```
raise_to_power = lambda x, y: x ** y
raise_to_power(2, 3)
->8
```

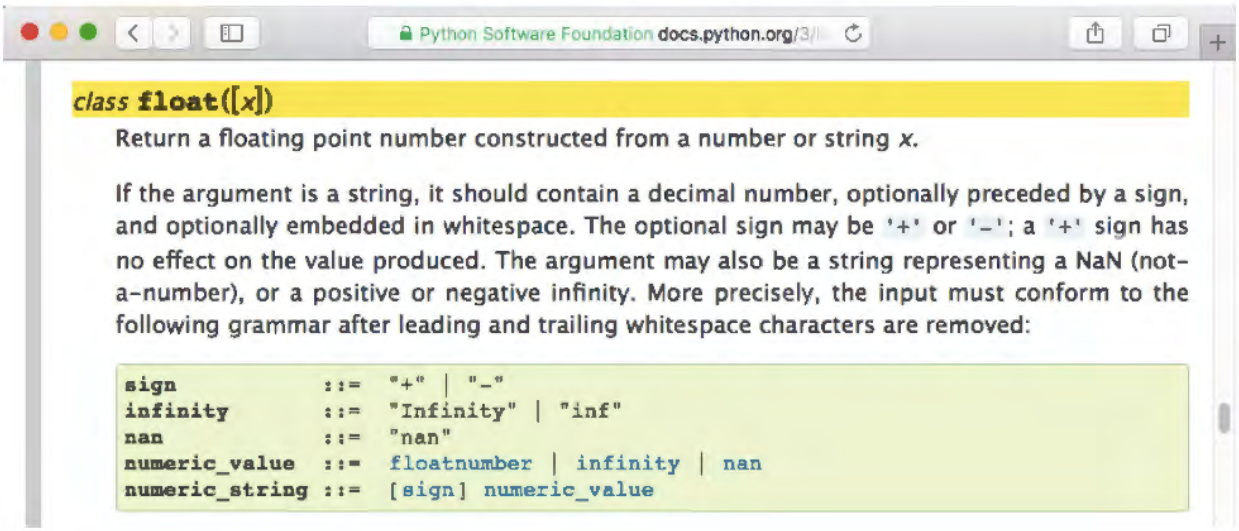
Anonymous functions

- Function `map` takes two arguments: `map(func, seq)`
- `map()` applies the function to ALL elements in the sequence

```
nums = [48, 6, 9, 21, 1]
square_all = map(lambda num: num ** 2, nums)
print(square_all)
-><map object at 0x103e065c0>
print(list(square_all))
->[2304, 36, 81, 441, 1]
```

Introduction to error handling

The float() function



Passing an incorrect argument

```
float(2)
->2.0
float('2.3')
->2.3
float('hello')
-><hr />---------------------------------------------------------------
  ValueError Traceback (most recent call last)
  <ipython-input-3-d0ce8bccc8b2> in <module>()
  <hr />-> 1 float('hi')
  ValueError: could not convert string to float: 'hello'
```

Passing valid arguments

```
def sqrt(x):
  """Returns the square root of a number."""
  return x ** (0.5)
sqrt(4)
->2.0
```

```
sqrt(10)
->3.1622776601683795
```

Passing invalid arguments

```
sqrt('hello')
->---------------------------------------------------------------------
  TypeError Traceback (most recent call last)
  <ipython-input-4-cfb99c64761f> in <module>()
  ----> 1 sqrt('hello')
  <ipython-input-1-939b1a60b413> in sqrt(x)
  1 def sqrt(x):
  ----> 2 return x**(0.5)
  TypeError: unsupported operand type(s) for ** or pow(): 'str' and 'float'
```

Errors and exceptions

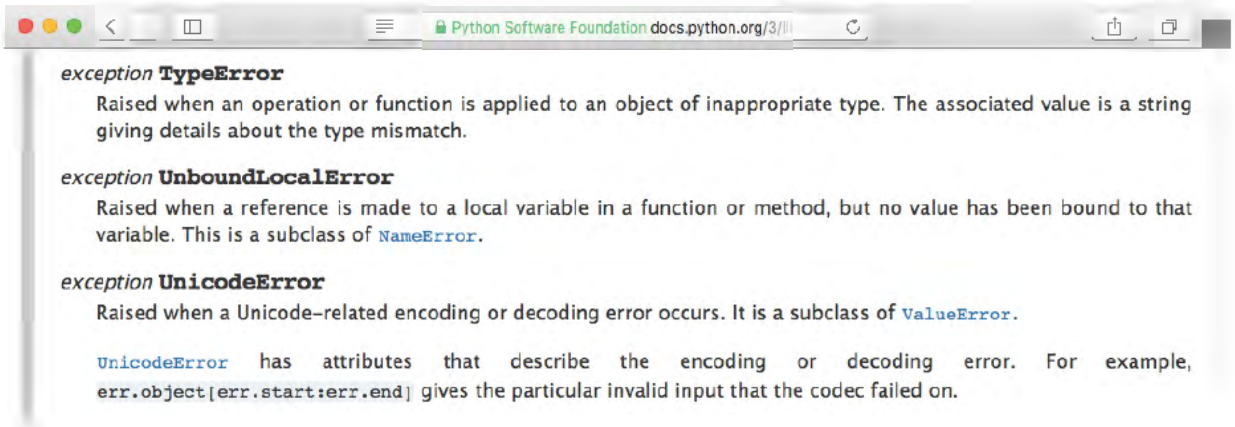
- Exceptions - caught during execution
- Catch exceptions with try-except clause
  a)Runs the code following try
  b)If there’s an exception, run the code following except

Errors and exceptions

```
def sqrt(x):
  """Returns the square root of a number."""
  try:
    return x ** 0.5
  except:
    print('x must be an int or float')
sqrt(4)
->2.0
sqrt(10.0)
->3.1622776601683795
sqrt('hi')
->x must be an int or float
```

Errors and exceptions

```
def sqrt(x):
  """Returns the square root of a number."""
  try:
    return x ** 0.5
  except TypeError:
    print('x must be an int or float')
```



Errors and exceptions

```
sqrt(-9)
->(1.8369701987210297e-16+3j)
def sqrt(x):
  """Returns the square root of a number."""
  if x < 0:
    raise ValueError('x must be non-negative')
  try:
    return x ** 0.5
  except TypeError:
    print('x must be an int or float')

sqrt(-2)
->---------------------------------------------------------------
  ValueError Traceback (most recent call last)
  <ipython-input-2-4cf32322fa95> in <module>()
  ----> 1 sqrt(-2)
  <ipython-input-1-a7b8126942e3> in sqrt(x)
  1 def sqrt(x):
  2 if x < 0:
  ----> 3 raise ValueError('x must be non-negative')
  4 try:
  5 return x**(0.5)
  ValueError: x must be non-negative
```