

Addressing Common Errors in Python

SyntaxError

- Missing a colon at the end of an if, class, def, etc.
- Use = instead of ==
- Using a Python keyword as a variable name
- Forgetting parentheses
- EOL while scanning string literal
 - Missing a quotation mark

```
PS C:\Users\meredith.dodd\Documents\lms-curriculum> & "C:/Program Files (x86)/Python37-32/python.exe" c:/Users/meredith.dodd/Documents/Workshops/DS0109/CodingWithClass.py
File "c:/Users/meredith.dodd/Documents/Workshops/DS0109/CodingWithClass.py", line 5
    class Barbarian
          ^
SyntaxError: invalid syntax
PS C:\Users\meredith.dodd\Documents\lms-curriculum>
```

IndentationError

- Must indent after colon

```
PS C:\Users\meredith.dodd\Documents\lms-curriculum> & "C:/Program Files (x86)/Python37-32/python.exe" c:/Users/meredith.dodd/Documents/Workshops/DS0109/CodingWithClass.py
File "c:/Users/meredith.dodd/Documents/Workshops/DS0109/CodingWithClass.py", line 8
    self.name = name
    ^
IndentationError: expected an indented block
```

TypeError

- Have the wrong data type
- Trying to do something with the data the type won't allow
 - Ex. Doing math with strings
- Using a function without the right number of arguments
 - Don't forget self!

```
AttributeError: 'Conan' object has no attribute 'enemies_vanquished'
PS C:\Users\meredith.dodd\Documents\lms-curriculum> & "C:/Program Files (x86)/Python37-32/python.exe" c:/Users/meredith.dodd/Documents/Workshops/DS0109/CodingWithClass.py
Traceback (most recent call last):
  File "c:/Users/meredith.dodd/Documents/Workshops/DS0109/CodingWithClass.py", line 27, in <module>
    Conan.Victory()
  File "c:/Users/meredith.dodd/Documents/Workshops/DS0109/CodingWithClass.py", line 14, in Victory
    print(self.name + " the barbarian has had victory over " + self.enemies_vanquished + " enemies with a " + self.weapon + "!")
TypeError: can only concatenate str (not "int") to str
```

IndexError

- Trying to reference an index that doesn't exist in your list or dictionary

```
Traceback (most recent call last):  
  File "c:/Users/meredith.dodd/Documents/Workshops/DS0109/CommonErrorsPython.py", line 34, in <module>  
    print(myFirstList[4])  
IndexError: list index out of range
```

NameError

- When you've forgotten to import a package
- When you've missed typed a variable or function name
- When the variable or function doesn't exist

```
-----  
NameError                                Traceback (most recent call last)  
<ipython-input-1-9e6f9a6e24ff> in <module>()  
----> 1 flowers = pd.read_csv("flowers.csv")  
      2 flowers.head()  
  
NameError: name 'pd' is not defined
```

ModuleNotFoundError

- You're trying to import a package that doesn't exist
- For example, spelling issues!

```
-----  
ModuleNotFoundError                                Traceback (most recent call last)  
<ipython-input-2-e36559ac667c> in <module>()  
----> 1 import pandas as pd  
      2 import seaborn as sns  
      3 import matplotlib.mlab as mlab  
      4 import matplotlib.pyplot as plt  
  
ModuleNotFoundError: No module named 'pandas'
```

FileNotFoundError

- Can't bring in your data
- Check the path
- Check the spelling of your file
- Check the data type

```
FileNotFoundError: File b'flows.csv' does not exist
```


KeyError

- Can't find the column
- Check spelling and that it exists in the data frame

```
KeyError: 'date'
```

ValueError

- Data is the wrong shape (machine learning)
- Data has missing values when the function doesn't allow it

Where to Find Errors

Jupyter Notebook

- Look at the very bottom!

```
~\Anaconda3\lib\site-packages\pandas\core\frame.py in _getitem__(self, key)
2683     return self._getitem_multilevel(key)
2684     else:
-> 2685         return self._getitem_column(key)
2686
2687     def _getitem_column(self, key):
~\Anaconda3\lib\site-packages\pandas\core\frame.py in _getitem_column(self, key)
2690     # get column
2691     if self.columns.is_unique:
-> 2692         return self._get_item_cache(key)
2693
2694     # duplicate columns & possible reduce dimensionality
~\Anaconda3\lib\site-packages\pandas\core\generic.py in _get_item_cache(self, item)
2484     res = cache.get(item)
2485     if res is None:
-> 2486         values = self._data.get(item)
2487         res = self._box_item_values(item, values)
2488         cache[item] = res
~\Anaconda3\lib\site-packages\pandas\core\internals.py in get(self, item, fastpath)
4113
4114     if not isna(item):
-> 4115         loc = self.items.get_loc(item)
4116     else:
4117         indexer = np.arange(len(self.items))[isna(self.items)]
~\Anaconda3\lib\site-packages\pandas\core\indexes\base.py in get_loc(self, key, method, tolerance)
3063     return self._engine.get_loc(key)
3064     except KeyError:
-> 3065         return self._engine.get_loc(self._maybe_cast_indexer(key))
3066
3067     indexer = self.get_indexer([key], method=method, tolerance=tolerance)
pandas\_libs\index.pyx in pandas._libs.index.IndexEngine.get_loc()
pandas\_libs\index.pyx in pandas._libs.index.IndexEngine.get_loc()
pandas\_libs\hashtable_class_helper.pxi in pandas._libs.hashtable.PyObjectHashTable.get_item()
pandas\_libs\hashtable_class_helper.pxi in pandas._libs.hashtable.PyObjectHashTable.get_item()
KeyError: 'date'
```

Visual Studio Code

- Look at the terminal at the bottom!

```
PS C:\Users\meredith.dodd\Documents\lms-curriculum> & "C:/Program Files (x86)/Python37-32/python.
File "c:/Users/meredith.dodd/Documents/Workshops/DS0109/CodingWithClass.py", line 5
    class Barbarian
        ^
SyntaxError: invalid syntax
PS C:\Users\meredith.dodd\Documents\lms-curriculum>
```

Errors, Errors, Everywhere!

- Fix one to see the next
- An error early on might not show right away – so if the line number it specifies looks good, then you may need to look higher up for issues too
- Don't panic! Troubleshooting is part of being a data scientist