# File & Error Handling in Python


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# OOP in Python

- OOP approach is more useful when the code becomes more complex with more data and functions. Related data and functions can be grouped together in a logical manner
- Classes allow user defined data structures
- Everything in Python is an Object. Class is the blueprint for defining any Object
- Object is an instance of the Class with real data. Methods are functions defined inside the Class and they define the behaviour and actions that an Object can perform with its data
- *Classes provide a means of bundling data and functionality together. Creating a new class creates a new type of object, allowing new instances of that type to be made. Each class instance can have attributes attached to it for maintaining its state. Class instances can also have methods (defined by its class) for modifying its state.* https://docs.python.org/3/tutorial/index.html

# Error Handling in Python

- Three types of errors
  - Syntax errors
  - Runtime errors
  - Logic errors
- Syntax errors are easy to find and rectify
- Runtime errors create an exception, and the execution of the program stops
- Runtime errors can be rectified by reading error messages and looking at the traceback.
- Logic errors cause unexpected behaviours called bugs. Removing bugs is called debugging

```
#error in trying to call a function from math module
sqrt(16)
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
~\AppData\Local\Temp/ipykernel_7880/2843140530.py in <module>
      1 #error in trying to call a function from math module
----> 2 sqrt(16)

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

Thank you