Concurrency/Parallelism Options in Python 3

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Src: realpython.com
Background

- Global Interpreter Lock (GIL)
- Pickle
- Concurrency and Parallelism in python.
- Where CPU is related especially mathematical operations. Go for parallelism. CPU Bound i.e. Multiple Process
- I/O related operations such as network, connections, files etc. Go for concurrency. IO Bound. i.e threads or asyncio
Modules Available

- `_thread` and `threading`
- `multiprocessing`
- `concurrent.futures`: python3 only
- `asyncio`: python3.4 and above
Concurrent.futures

- `from concurrent.futures import Executor`
- Executor Class: Abstract Interface
  - map for ordered execution
  - submit for execution
- ThreadPoolExecutor: based on threading
- ProcessPoolExecutor: based on multiprocessing
- Future Object: Results
- as_completed and wait
``asyncio`` module
- introduced in python 3.4
  - still progressing
• Asynchronous Programming
• Event Loop
• Task
• Future Object
• `async/await`
Utilities

- Asgi
- https://github.com/aio-libs
- Some sample implementations
Finally

- Use Python3. Python2 will be EOL from 2020
- Use Black
- Use pytest
- Use flake8 or pylint.
- Use venv [virtualenv] and poetry [pipenv]
- Not sure of structure use cookiecutter.

Github: sagarchalise