In class activity #10 (worth +2 bonus points on homework 4)

Learning objective: Explore recent HPC topics in Matlab or Python. This is an optional lab to introduce parallelization concepts in a scripting language. To collect your 2 bonus points, you must show me your results. I won't be checking bitbucket for optional labs.

Lets try some parallel programming in Python, Matlab, or any other scripting language. Python is assumed below

- Impliment the following code, which evaluates a function $f(x)$ at multiple values of x

```
from multiprocessing import Pool
import os

def f(x):
    # use the os (=operating system) package to report the process id
    print("parent ID: ", os.getppid())
    print("process id:", os.getpid())

    # compute the value of some function f(x) = x*x
    f = x*x

    return f

# create a team of 5 processes (its better to view these as threads)
p = Pool(5)

# tell each thread to compute f(x) where x is one of 1, 2, 3
input_list = [1, 2, 3]
result = p.map(f, input_list )


print(result)
```

- Run this code on your machine.
- Modify for $f(x)$ to be something more complicated.
- Modify the input list as that you pass millions of values to the map (instead of just 3 values).
- Time your code using 1, 2, 4 and 8 threads. What speedups do you find?

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