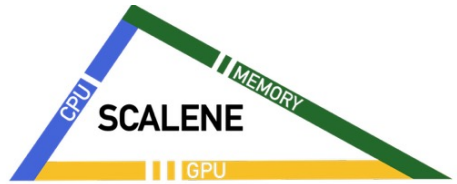
scalene matmult.py – line 27 takes the most time so optimise for speed here, or explore alternative methods rather than nested for loops



▶ AI optimization options

Time: Python | native | system **Memory:** Python | native **Memory timeline:** (max: 0.000 MB, growth: 0.0%)

hover over bars to see breakdowns; click on COLUMN HEADERS to sort.

show all | hide all | only display profiled lines ☑

▼/Users/jackwhite/Documents/Uppsala PhD/python-course/day2-bestpractices-1/matmult.py: % of time = 100.0% (1.995s) out of 1.995s.

TIME	MEMORY average	MEMORY peak	MEMORY timeline	MEMORY activity	COPY	LINE PROFILE (click to reset order) /Users/jackwhite/Documents/Uppsala PhD/python-course/day2-bestpractices-1/matmult.py
						14 Y.append([random.randint(0,100) for r in range(N+1)])
						22 for i in range(len(X)):
						24 for j in range(len(Y[0])):
						26 for k in range(len(Y)):
						27 result[i][j] += X[i][k] * Y[k][j]
						29 for r in result:
						30 print(r)

time (Python) 84.7%

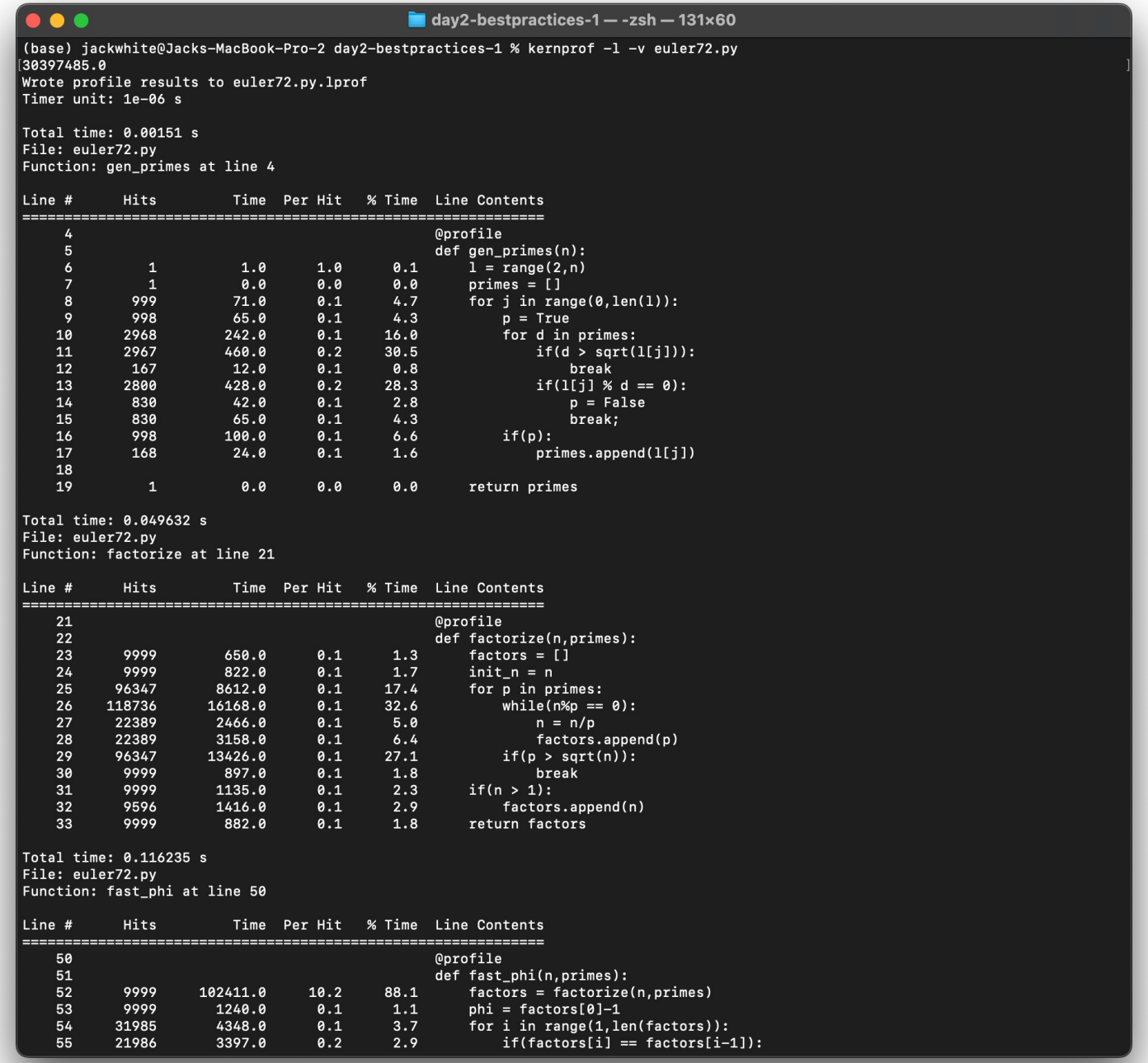
euler72.py using cProfile – it was too fast to use scalene

day2-bestpractices-1 — -zsh — 131×42

```
(base) jackwhite@Jacks-MacBook-Pro-2 day2-bestpractices-1 % python -m cProfile euler72.py
         226 function calls in 0.001 seconds

   Ordered by: cumulative time

   ncalls  tottime  percall  cumtime  percall filename:lineno(function)
        1    0.000    0.000    0.001    0.001 {built-in method builtins.exec}
        1    0.000    0.000    0.001    0.001 euler72.py:1(<module>)
        1    0.000    0.000    0.001    0.001 <frozen importlib._bootstrap>:1165(_find_and_load)
        1    0.000    0.000    0.001    0.001 <frozen importlib._bootstrap>:1120(_find_and_load_unlocked)
        1    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap>:666(_load_unlocked)
        1    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap>:566(module_from_spec)
        3    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap>:233(_call_with_frames_removed)
        1    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap_external>:1231(create_module)
        1    0.000    0.000    0.000    0.000 {built-in method _imp.create_dynamic}
        1    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap>:1054(_find_spec)
        1    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap_external>:1496(find_spec)
        1    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap_external>:1464(_get_spec)
        4    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap_external>:1604(find_spec)
       16    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap_external>:126(_path_join)
        5    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap_external>:1421(_path_importer_cache)
        5    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap_external>:140(_path_stat)
        5    0.000    0.000    0.000    0.000 {built-in method posix.stat}
        1    0.000    0.000    0.000    0.000 {built-in method posix.getcwd}
        1    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap>:169(__enter__)
        1    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap_external>:1599(_get_spec)
        1    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap>:493(_init_module_attrs)
        1    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap_external>:159(_path_isfile)
       16    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap_external>:128(<listcomp>)
        1    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap_external>:150(_path_is_mode_type)
        1    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap>:179(_get_module_lock)
        1    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap_external>:778(spec_from_file_location)
        1    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap>:920(find_spec)
        1    0.000    0.000    0.000    0.000 __init__.py:89(find_spec)
        1    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap>:173(__exit__)
       19    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap>:244(_verbose_message)
        7    0.000    0.000    0.000    0.000 {built-in method builtins.getattr}
        1    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap_external>:1239(exec_module)
        1    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap>:392(cached)
        1    0.000    0.000    0.000    0.000 <frozen importlib._bootstrap>:100(acquire)
        1    0.000    0.000    0.000    0.000 {built-in method _imp.find_frozen}
       32    0.000    0.000    0.000    0.000 {method 'rstrip' of 'str' objects}
```



euler72.py using line_profiler – line 52, i.e. calling the factorize function is time-costly.