

COS20007 - Object Oriented Programming

11.1P - Clock in Another Language with Practical Benchmarks

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clock_main.py

```
1 import tracemalloc
2
3 class Counter:
4     def __init__(self, name, count):
5         # Constructor like C#
6         self.name = name
7         self.count = count
8
9     def tick(self):
10        self.count += 1
11        return self.count
12
13    def reset(self):
14        self.count = 0
15        return self.count
16
17 class Clock:
18    def __init__(self):
19        # doesn't need to pass in the class name
20        self.second = Counter("second", 0)
21        self.minute = Counter("minute", 0)
22        self.hour = Counter("hour", 0)
23
24    def time(self, i):
25        for _ in range(i):
26            if self.second.tick() == 60:
27                self.second.reset()
28                if self.minute.tick() == 60:
29                    self.minute.reset()
30                    if self.hour.tick() == 24:
31                        print("THE END OF THE DAY!")
32
33    def reset(self):
34        self.second.reset()
35        self.minute.reset()
36        self.hour.reset()
37
38    def show(self):
39        print(f"{self.hour.count:02}:{self.minute.count:02}:{self.second.count:02}")
40
41
42 tracemalloc.start()
43
44 clock = Clock()
45
46 clock.time(60) #1 min
47 clock.show()
48 clock.reset()
```

```
49
50 clock.time(3600) #1 hour
51 clock.show()
52 clock.reset()
53
54 clock.time(43200) #12 hours
55 clock.show()
56 clock.reset()
57
58 clock.time(86400) #full day
59 clock.show()
60 clock.reset()
61
62 current, peak = tracemalloc.get_traced_memory()
63 print(f"Current memory: {current / 1024:.2f} KB")
64 print(f"Peak memory: {peak / 1024:.2f} KB")
65 tracemalloc.stop()
66
```

EXPLORER

...

PROBLEMS


OUTPUT

DEBUG CONSOLE

TERMINAL

PORTS

✓ WEEK 11

 clock_main.py

00:01:00

01:00:00

12:00:00

THE END OF THE DAY!

24:00:00

Current memory: 1.26 KB

Peak memory: 1.74 KB

PS C:\Users\Bill\Desktop\COS20007\Week 11> |

PROBLEMS

OUTPUT

DEBUG C



Microsoft Visual Studio Debug



00:01:00

01:00:00

12:00:00

THE END OF THE DAY!

24:00:00

Current memory: 1.26 KB

Peak memory: 1.74 KB

PS C:\Users\Bill\Desktop\c

00:01:00

01:00:00

12:00:00

23:59:59

Memory Usage: 9592 KB

C:\Users\Bill\Downloads\ClockV

To automatically close the console when debugging stops.

Press any key to close this window