Day 46

Time Module in Python:

What is the time Module?

The time module in Python provides functions to:

- Work with time
- Get current time
- Measure execution time
- Pause program execution (delay)
- Convert time formats

It deals mostly with system time (seconds since epoch).

What is Epoch Time?

Epoch is a fixed starting point in time.

- In Python: January 1, 1970, 00:00:00 (UTC)
- Time is measured in seconds since epoch

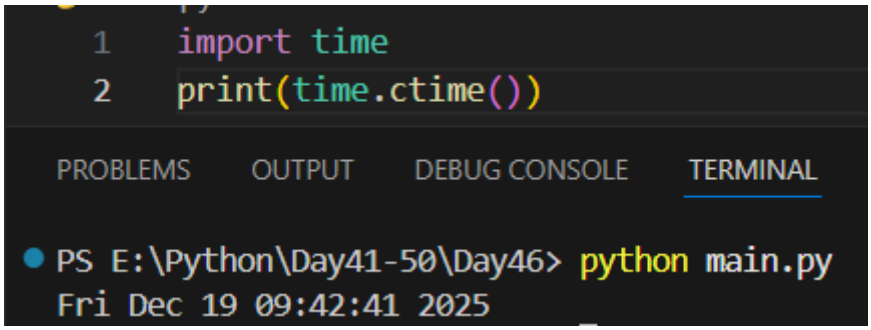
Importing the time module:

Import time

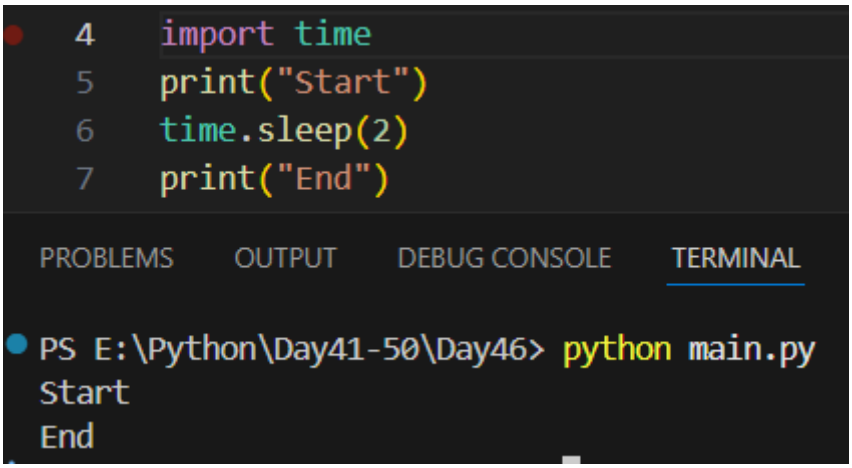
Example: time.time() – Current Time in Seconds. Returns the current time in seconds since epoch.

```
1   import time
2   current_time = time.time()
3   print(current_time)

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

PS E:\Python\Day41-50\Day46> python main.py
1766117509.418889
```

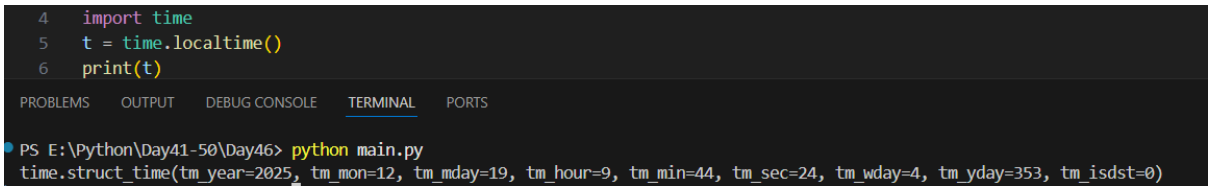
Example: time.ctime() – Readable Current Time. Converts seconds into a human-readable format.



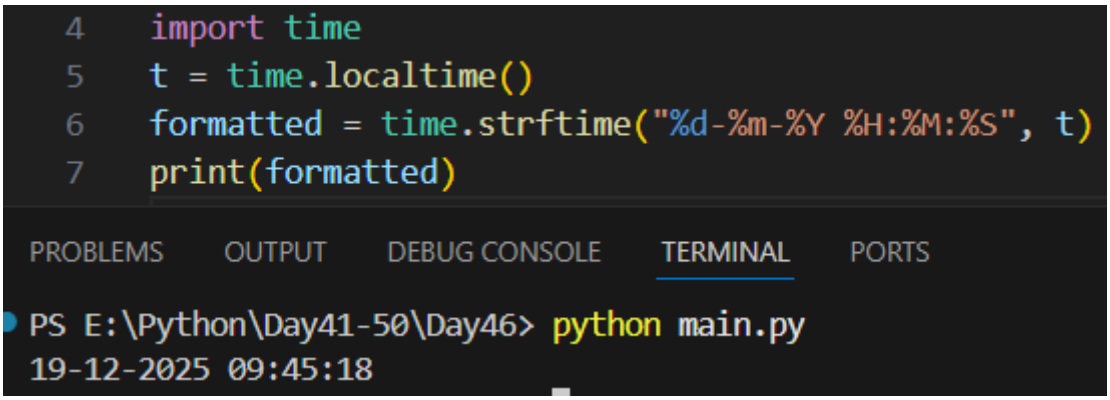
Example: time.sleep() – Pause Execution. Pauses the program for a given number of seconds.



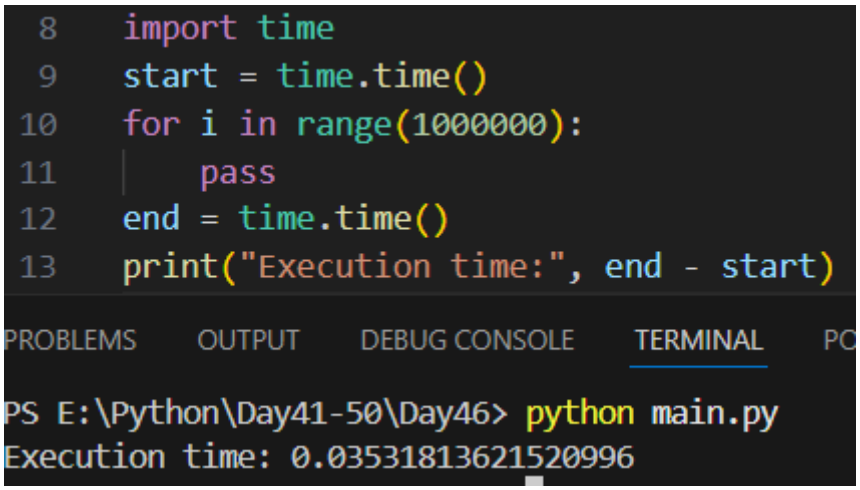
Example: time.localtime() – Local Time Structure. Returns current local time as a struct_time object.



Example: time.strftime() – Formatting Time. Formats time into a readable string.



Example: measuring execution time.



Summary

✓ time.time() → current timestamp
✓ time.sleep() → delay execution
✓ time.ctime() → readable time
✓ strftime() → formatting
✓ strptime() → parsing
✓ perf_counter() → benchmarking

Creating command line utility in python :

What is a Command-Line Utility?

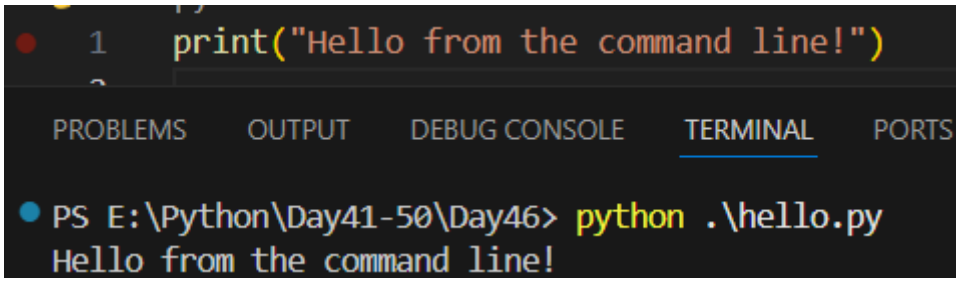
A command-line utility is a Python program you run from a terminal, for example:

python greet.py Alice

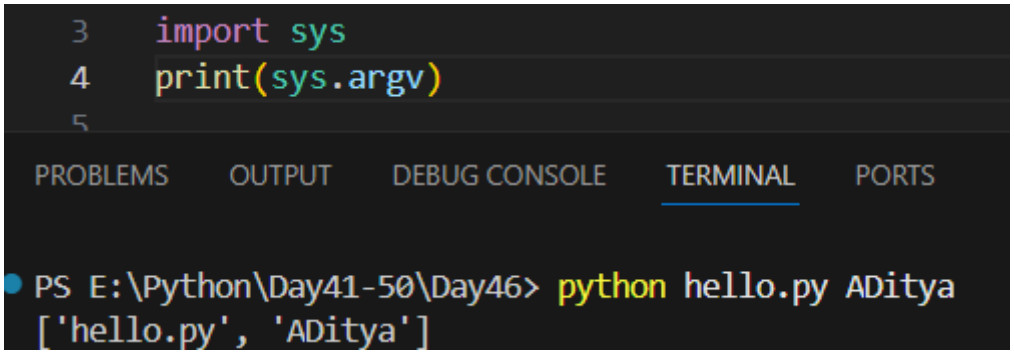
or later, more professionally:

greet Alice --uppercase

First CLI Program (Very Basic):

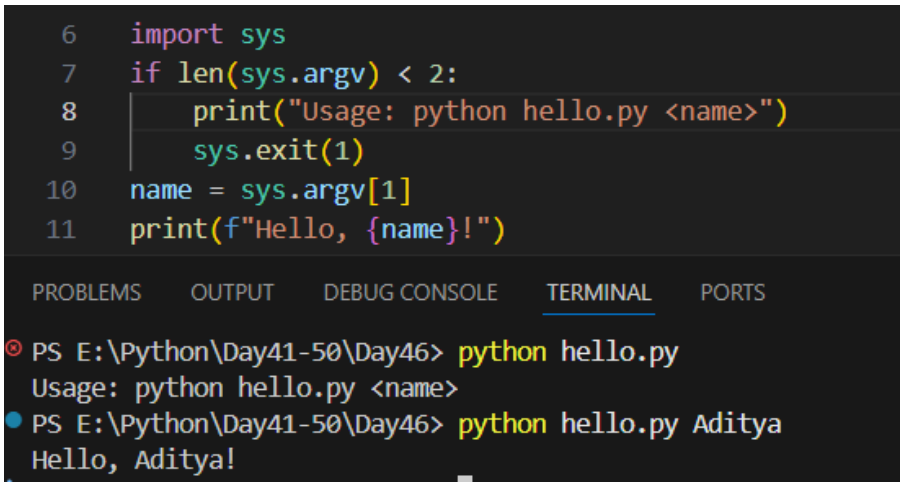


Reading Command-Line Arguments (sys.argv): Python stores command-line arguments in sys.argv.



- sys.argv[0] → script name
- sys.argv[1] → first argument

Example: Simple CLI with arguments.

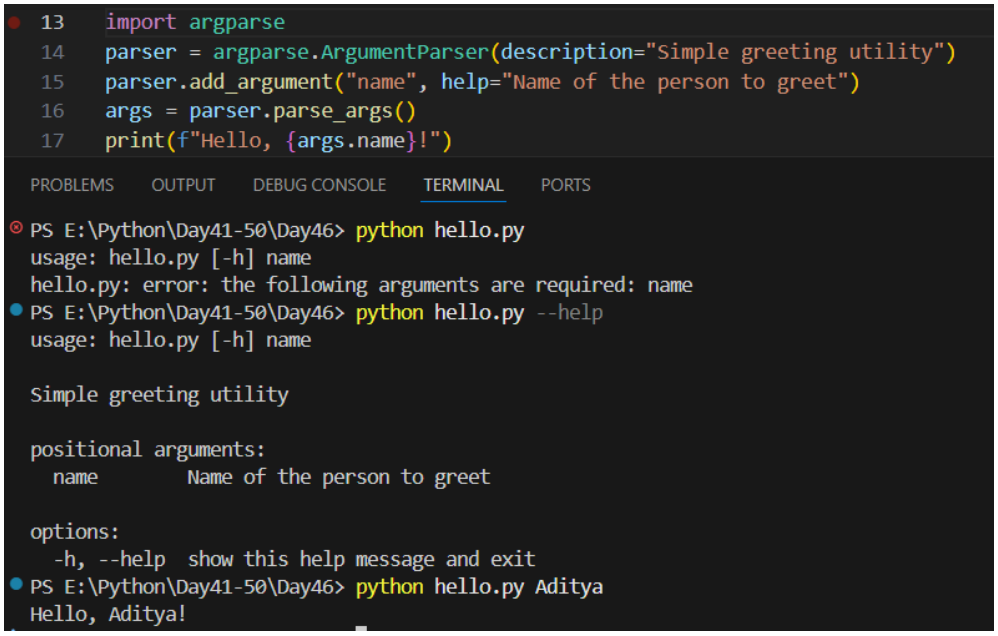


Why argparse?

Manually handling sys.argv gets messy. Python provides argparse, which gives:

- --help
- error messages
- named options
- type checking

Example: argparse CLI



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