

What's New in Python

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Slides: <https://github.com/micktwomey/neurosoc-lightning-talk-2022>

I ♥ Python

Python 3.10: Better Errors

<https://docs.python.org/3/whatsnew/3.10.html#better-error-messages>

```
File "example.py", line 1
    expected = {9: 1, 18: 2, 19: 2, 27: 3, 28: 3, 29: 3, 36: 4, 37: 4,
                ^
SyntaxError: '{' was never closed
```

(Thanks Elm!)

Python 3.10: Pattern Matching

<https://docs.python.org/3/whatsnew/3.10.html#pep-634-structural-pattern-matching>

```
class Point:
    x: int
    y: int

def location(point):
    match point:
        case Point(x=0, y=0):
            print("Origin is the point's location.")
        case Point(x=0, y=y):
            print(f"Y={y} and the point is on the y-axis.")
        case Point(x=x, y=0):
            print(f"X={x} and the point is on the x-axis.")
        case Point():
            print("The point is located somewhere else on the plane.")
        case _:
            print("Not a point")
```

(Thanks ML languages!)

I ♥ tools

VisiData: <https://www.visidata.org>

VISIDATA

Docs

Releases

Credits

Blog

GitHub

Install →

Data exploration at your fingertips.

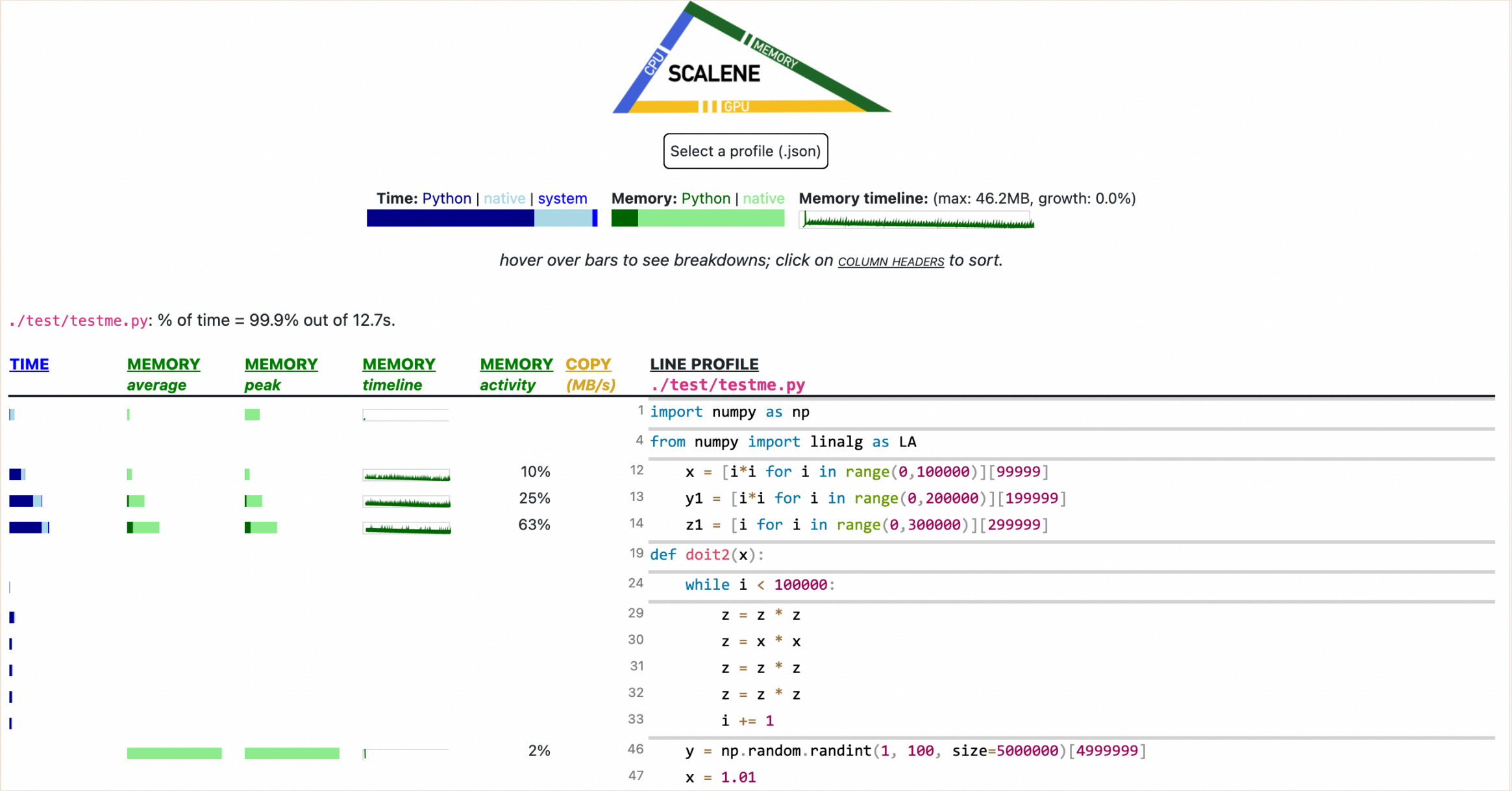
VisiData is an interactive multitool for tabular data. It combines the clarity of a spreadsheet, the efficiency of the terminal, and the power of Python, into a lightweight utility which can handle millions of rows with ease.

Install →

Tutorial

name	<county	job_title	grade	#	base_salary	\$	_aw>
ALVAREZ, JUAN M	FRESNO	GENERAL EDUCATION ...	12		68,809.00		750
BOYD, CLAUDE A	DISTRICT OF COLUMB...	OFC AUTOMATION CLE...	4		31,471.00		0
BRITT, ROBERT E	DISTRICT OF COLUMB...	MISCELLANEOUS CLER...	5		34,075.00		0
CASTRO, JESSICA	DISTRICT OF COLUMB...	ADMIN AND OFFICE S...	7		42,209.00		750
CHASTANG, LINDA EAR...	DISTRICT OF COLUMB...	MISCELLANEOUS ADMI...	14		136,771.00		0
CHAVEZ, CHRISTINE	DISTRICT OF COLUMB...	MISCELLANEOUS ADMI...	13		89,033.00		0
CLIFFORD, CAROL L	DISTRICT OF COLUMB...	MISCELLANEOUS ADMI...	0		129,394.00		0
CORTEZ, SANDRA A	DISTRICT OF COLUMB...	GENERAL EDUCATION ...	13		94,969.00		0
DE LA GARZA, RUBY S	HIDALGO	GENERAL EDUCATION ...	12		68,809.00		750
DIAZ, VLADIMIR A	MIAMI-DADE	GENERAL EDUCATION ...	12		80,085.00		11...
DOUGLAS, WALTER W	LEXINGTON	MISCELLANEOUS ADMI...	14		125,695.00		0
FLORES, MARILOU	DISTRICT OF COLUMB...	MISCELLANEOUS ADMI...	12		87,350.00		0
GARDNER, KURT J	MADISON	MISCELLANEOUS ADMI...	13		97,015.00		0
GOLDBERG, MARIA	DISTRICT OF COLUMB...	MISCELLANEOUS ADMI...	15		152,635.00		20...
GONZALEZ, ROBERTO JR	IMPERIAL	GENERAL EDUCATION ...	12		82,570.00		11...
GUY, DWIGHT N	LOGAN	MISCELLANEOUS ADMI...	13		95,459.00		750
HARTSFIELD, LARRY D	GUILFORD	MISCELLANEOUS ADMI...	13		92,732.00		12...
HODGE, HORACE D	WALLER	MISCELLANEOUS ADMI...	12			0	750
JAMES, KRISTEN	DISTRICT OF COLUMB...	MISCELLANEOUS CLER...	4		30,456.00		0
JOHNSON, ALLISON C	EAST BATON ROUGE	MISCELLANEOUS ADMI...	13		87,278.00		750
KOZISKI, STEPHANIE ...	DISTRICT OF COLUMB...	MANAGEMENT AND PRO...	13		109,807.00		14...
MARTIN, KARLA A	DISTRICT OF COLUMB...	MISCELLANEOUS ADMI...	14		105,211.00		21...
MC LAREN, ANTONIO A	PETERSBURG	MISCELLANEOUS ADMI...	13		91,826.00		12...
MILLER, PIA M	DISTRICT OF COLUMB...	GENERAL BUSINESS A...	12		87,350.00		0
FederalEmployeeSalaries-2012					# 1350593 rows		

Scalene: <https://github.com/plasma-umass/scalene>



I ♥ libraries

tqdm: <https://tqdm.github.io>

Not new but I just discovered it plugs into Jupyter

```
[*]: mini_df["minutes"] = mini_df.progress_apply(lambda row: pandas.date_range(sta  
mini_df
```

89%  924819/1041108 [03:33<00:24, 4666.76it/s]

(Works in Visual Studio Code notebook editor too!)

FastAPI & pydantic: <https://fastapi.tiangolo.com> & <https://pydantic-docs.helpmanual.io>

```
from typing import Optional

from fastapi import FastAPI
from pydantic import BaseModel

app = FastAPI()

class Item(BaseModel):
    name: str
    price: float
    is_offer: Optional[bool] = None

@app.get("/")
def read_root():
    return {"Hello": "World"}

@app.get("/items/{item_id}")
def read_item(item_id: int, q: Optional[str] = None):
    return {"item_id": item_id, "q": q}

@app.put("/items/{item_id}")
def update_item(item_id: int, item: Item):
    return {"item_name": item.name, "item_id": item_id}
```

<https://bit.ly/3vFnQYj> - <https://github.com/micktwomey/neurosoc-lightning-talk-2022>

The screenshot shows the Fast API Swagger UI interface. At the top, the title "Fast API" is displayed with version "0.1.0" and "OAS3" badge. Below the title, the "default" section is visible. The interface lists several endpoints:

- GET /** Read Root Get
- GET /items/{item_id}** Read Item Get
- PUT /items/{item_id}** Save Item Put (selected)

The selected endpoint, **PUT /items/{item_id}**, is expanded to show details:

- Parameters:** A table with columns "Name" and "Description". It lists **item_id** as a required integer (path).
- Request body:** Required, with a dropdown menu set to "application/json".
- Example Value:** A JSON object:

```
{  "name": "string",  "price": 0,  "is_offer": true}
```
- Responses:** A table with columns "Code", "Description", and "Links". It shows a response with code "200" and description "Successful Response".

Sources of Info

How do I keep up?

Email Newsletters

- <https://www.pythonweekly.com>
- <https://tldr.tech/>

News Sites

- <https://lobste.rs>
- <https://hckrnews.com>
- AKA <https://news.ycombinator.com>

Python Info

- <https://realpython.com>
- <https://pythonspeed.com/>
- <https://docs.python.org/3/whatsnew/index.html>

Slides: <https://bit.ly/3vFnQYj>

<https://github.com/micktwomey/neurosoc-lightning-talk-2022>

