

Programming essentials to
survive university

Where's it help?

Working with data

Č.M.	Metóda A		Metóda B	
	U[V]	I[mA]	U[V]	I[mA]
1	3.570	41.610	3.650	38.260
2	4.860	48.567	5.180	49.290
3	6.310	56.680	6.150	54.890
4	8.470	66.341	5.591	50.830
5	9.137	68.540	7.060	59.710
6	9.560	71.560	8.110	63.380
7	12.080	81.670	13.730	87.291
8	13.770	87.720	16.490	97.570
9	16.250	96.780	18.910	105.389
10	19.380	107.450	19.390	107.270

Tabulka 6: Vybrané klasické cefeidy dle Krafta (1961).

Hvězda	$\log P$	M [mag]	Hvězda	$\log P$	M [mag]
SU Cas	0.29	-1.7	U Sgr	0.83	-3.5
EV Sct	0.49	-2.4	η Aql	0.86	-3.5
SS Sct	0.56	-2.4	RX Cam	0.90	-3.7
SU Cyg	0.58	-2.8	DL Cas	0.90	-3.7
Y Lac	0.64	-2.8	S Nor	0.99	-3.7
FF Aql	0.65	-3.1	Z Lac	1.04	-4.1
CF Cas	0.69	-3.4	RW Cas	1.17	-4.5
V350 Sgr	0.71	-3.0	Y Oph	1.23	-5.3
CV Mon	0.73	-3.0	T Mon	1.34	-5.6
RR Lac	0.81	-3.4	SV Vul	1.65	-6.4

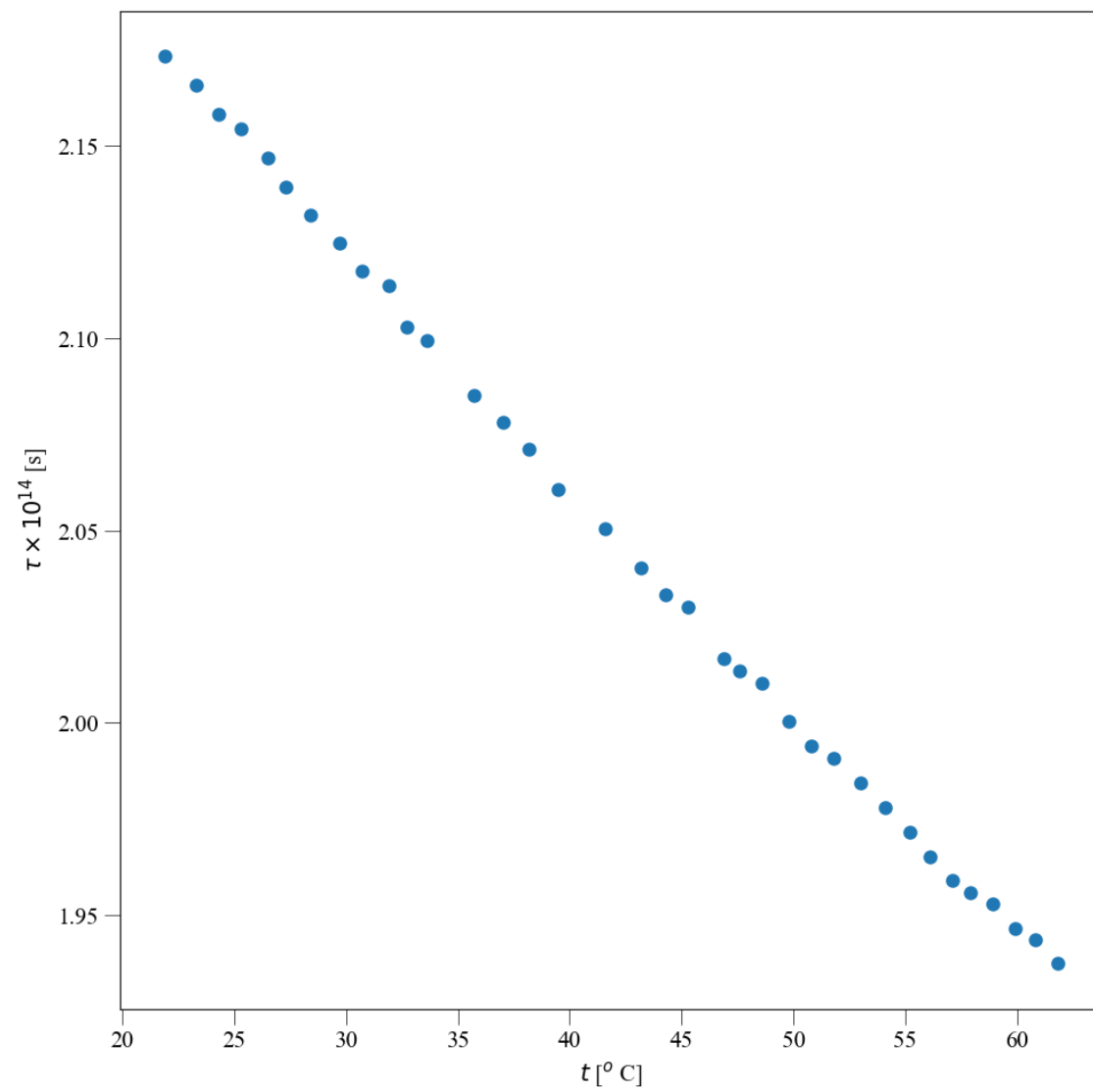
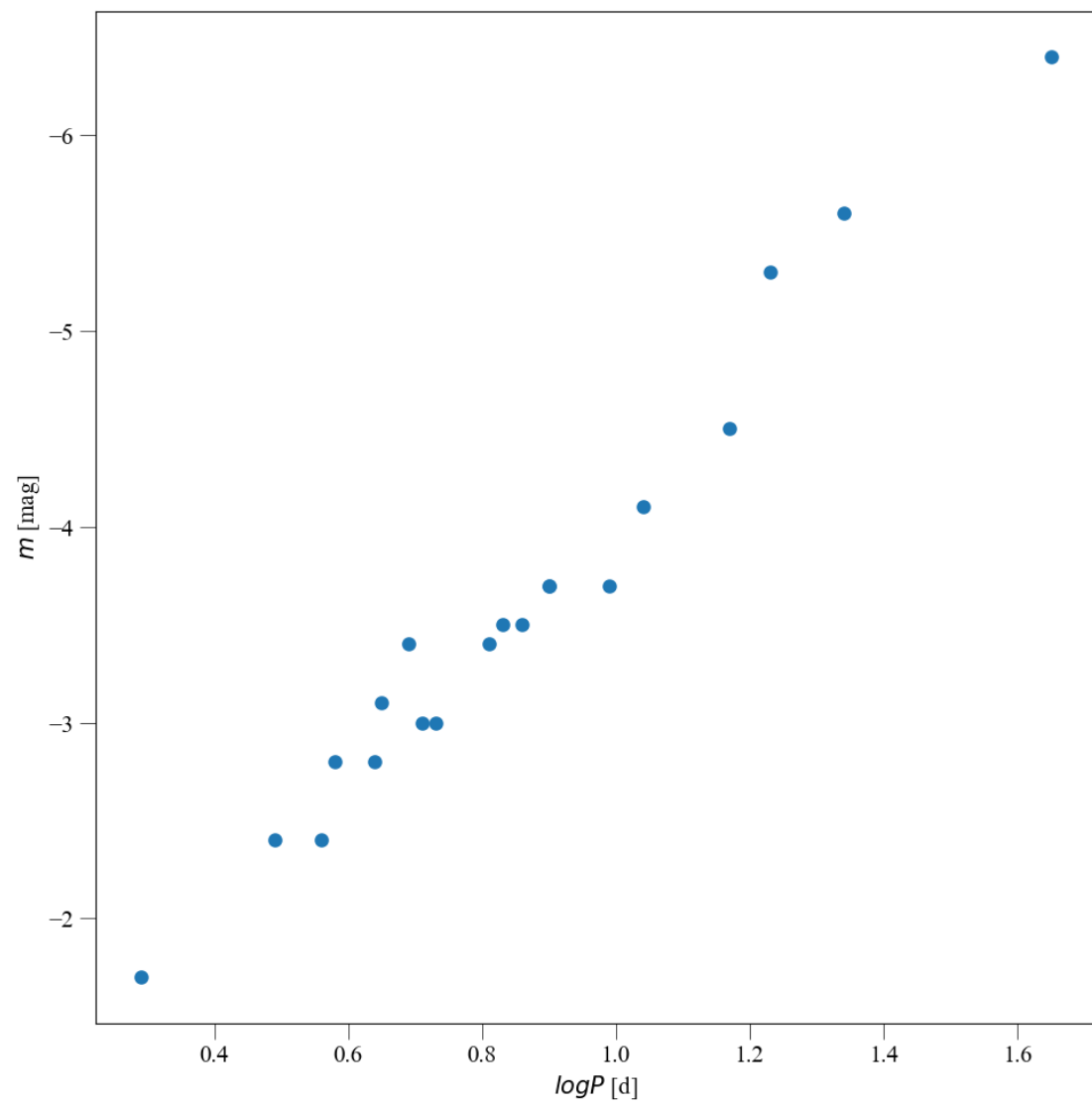
Analysing data

Sorting

Reduction

Transformation

Visualise data



What do you need for that?

☐ Code editor

☐ Some useful stuff

Links

VS Code Insiders : code.visualstudio.com/insiders

Python: python.org/downloads

Notepad++: notepad-plus-plus.org/downloads

Extensions

GitHub Copilot

GitHub Copilot chat

Jupyter

Python

Libraries

matplotlib

numpy

`pip` install

pandas

scipy

uncertainties

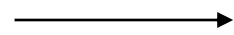
Hands-on

□ FP □ □

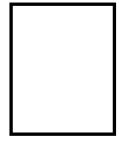
$$\mu = \frac{L}{e_0 n R S}$$

← mobility of charge carriers

mean electron
collision times



$$\tau = \frac{e_0 \mu}{m_e}$$



Astronomy 

Copilot

More links

Github: github.com

Github education: education.github.com

Git: git-scm.com/downloads

What next?

Recommended subjects

F1400 Programování

F4500 Python pro fyziky

F5611 Machine learning in Python

Artem Gorodilov

poruchik_rzhevsky@physics.muni.cz

github.com/PoruchikRzhevsky

Thx!