Univerzitet u Beogradu – Elektrotehnički fakultet
Katedra za signale i sisteme
Metode analize elektrofizioloških signala (13E054MAS)

MAS vežba: Python u analizi biosignala

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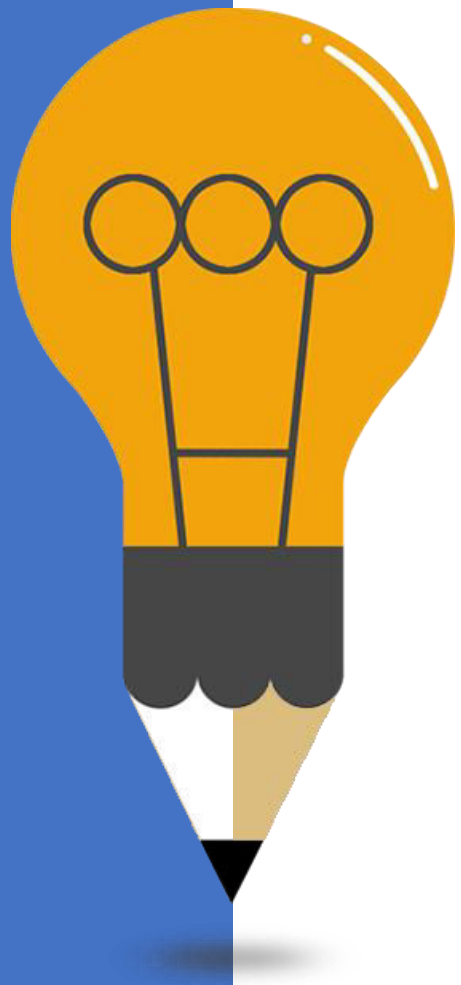
Zašto Python?

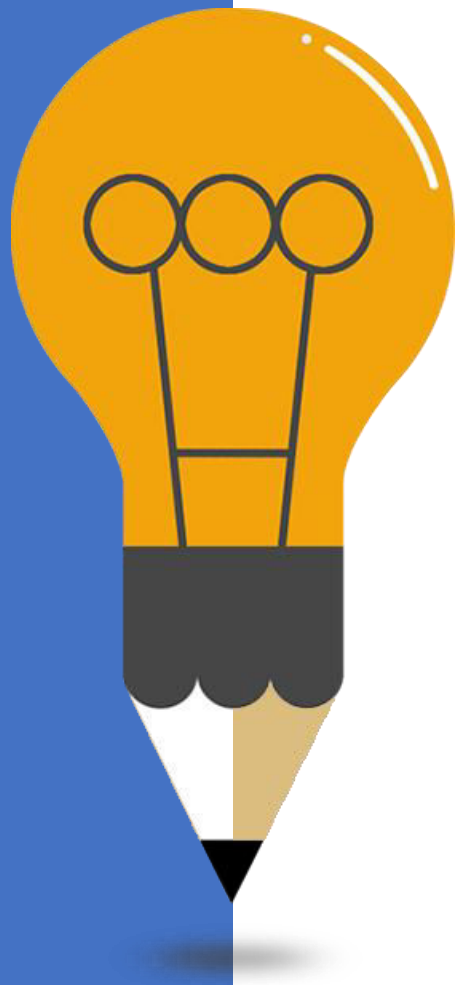


01 Open source

02 Ogromna zajednica

03 Različite biblioteke za sve potrebe

04 Kompatibilan sa mnogo platformi i sistema



ANACONDA®

Anaconda | The World's Most Popular Data Science Platform

Conda - distribucija za Python i R programske jezike – olakšava rad

IDE?

- Spyder - Spyder IDE (spyder-ide.org)
- VS code - Visual Studio Code
- Jupyter Notebook - Project Jupyter | Home

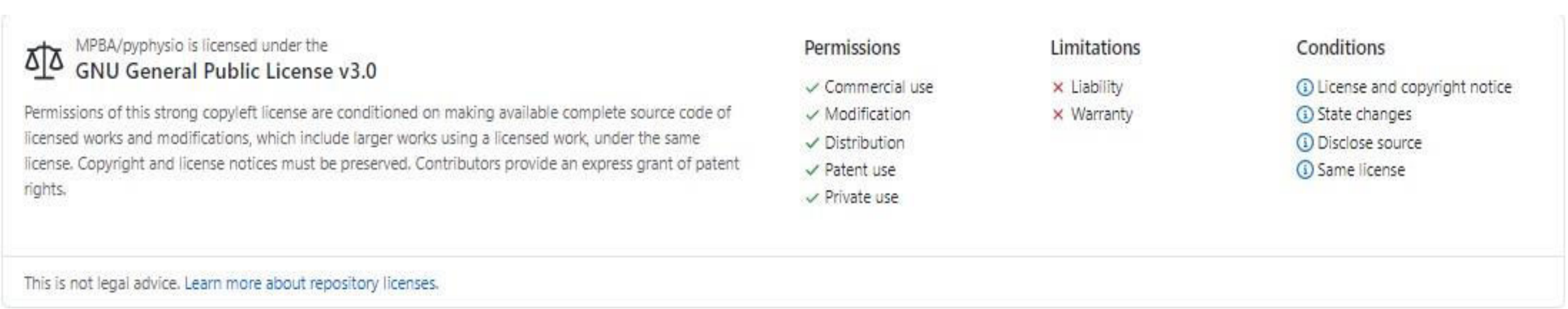
- Sva tri okruženja su uključena u Anaconda distribuciju
- Lako instaliranje biblioteka pomoću Conda prompt-a
- Uključuje najbitnije biblioteke za analizu biosignala – numpy, scipy, matplotlib, pandas

pyphysio biblioteka

MPBA/pyphysio (github.com)

> pyphysio is a library of state of art algorithms for the analysis of physiological signals. It contains the implementations of the most important algorithms for the analysis of physiological data like ECG, BVP, EDA and inertial. The algorithms are implemented on top of a framework that provides caching to optimize feature extraction pipelines.

pip install pyphysio



www.github.com

„responsibilities to respect the freedom of others “

- Glavne bazne klase u biblioteci jesu klase Signal i Algorithm

In [2]:
```
# create a Filter
import pyphysio.filters.Filters as flt

lowpass_50 = flt.IIRFilter(fp=50, fs=75, ftype='ellip')
```

In [3]:
```
# help inline
#?flt.IIRFilter
```

In [4]:
```
# check parameters
print(lowpass_50)
# OR
print(lowpass_50.get())
```

```
IIRFilter{'fp': 50, 'fs': 75, 'loss': 0.1, 'att': 40, 'ftype': 'ellip'}
{'fp': 50, 'fs': 75, 'loss': 0.1, 'att': 40, 'ftype': 'ellip'}
```

In [5]:
```
# apply a Filter
ecg_filtered = lowpass_50(ecg)
```

In [6]:
```
#plot
ecg.plot()
ecg_filtered.plot()
```

Preuzeto sa: [pyphysio/2-algorithms.ipynb at master · MPBA/pyphysio (github.com)]