Training: Python Academy
Threads and Processes in Python

TRAINING GOALS:

Threads allow the simultaneous execution of several program paths. This opens new possibilities for program development. On the other hand, programs become more complex. Python uses the native thread implementation of the operating system and offers a unified API therefore offers platform-impendent threaded programming.

The training have modular form, it takes half a day and can be combined with other training offerings by Python Academy.

CONSPECT:

- THREAD BASICS - The possibilities for threads in Python are shown. An examples is used to demonstrate how the module threading works.
- GIL - Python has a so called General Interpreter Lock (GIL) that prevents several threads to run in real parallel on multi-CPU hardware. The implications of the GIL on programming are covered.
- THREAD SYNCHRONIZATION - Synchronization of threads is a important part of thread programming. Random manipulations of data has to be avoided when two threads access the same data at the same time. To achieve this data need to be locked by one thread providing exclusive access for this period of time.

  Examples are used to explain the principles of locking. Special focus is put on so called dead-lock situations where threads block each other from executing and bring the program to a halt.

- PROCESSES - Python provides several ways to launch and access external processes. These ways are introduced with examples.
- COMBINATION OF THREADS AND PROCESSES - The combination of threads and processes allows to run programs in parallel using the advantages of multi-processor machines possibly gaining speedups. An example is used to demonstrate the effect of such combinations.

Difficulty level

Compendium Centrum Edukacyjne Spółka z o.o.
ul. Tatarska 5, 30-103 Kraków, tel.: (12) 298 47 77
ul. Postępu 18B, 02-676 Warszawa, tel.: (22) 417 41 70
BNP Paribas Bank Polska S.A.
EUR: PL 79 1600 1462 1853 6451 3000 0006
USD: PL 52 1600 1462 1853 6451 3000 0007

CERTIFICATE:

The participants will obtain certificates signed by Python Academy.

TRAINER:

Authorized Python Academy Trainer.

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