Basic Algorithms and Programming - Upgrading

In brief

Course langage: English

Presentation

Learning objectives

To work on Machine Learning (and Deep Learning) projects, developers need a language that is stable, flexible and, above all, adapted to a wide range of tools (libraries, frameworks). With its clear, concise and intuitive syntax, Python is the obvious choice for this field of application.

With a large community working to create and maintain numerous tools, Python is now the most widely used language in the fields of Machine Learning and Deep Learning.

The aim of this teaching unit is to help learners discover, or rediscover, this essential language.

Description of the programme

- **Python:**

Discovering / Rediscovering the basics of the language, installing and configuring the work environment, using libraries (Matplotlib, Numpy, ...).

- **Programming:**

Discovery / Rediscovery of the basic concepts of programming, in particular Object Oriented Programming.

- **Algorithms:**

Solving problems using Python, trees, graphs,...

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Generic central skills and knowledge targeted in the discipline

- Install and configure a Python environment
- Install and use Python libraries
- Understand and solve problems using algorithms written in Python

How knowledge is tested

Throughout the teaching unit, learners will have to create several programs, such as a text analyser. This program will analyse a large text and compute statistics (occurrences of each letter, position of letters in words, word size, etc.). Other applications will involve traversing trees and graphs, in particular Dijkstra's algorithm, which calculates the path of least cost in a graph.

Bibliography

https://www.python.org/about/

https://docs.python.org/fr/3/

https://matplotlib.org/

https://python.doctor/page-apprendre-programmation-orientee-objet-poo-classes-python-cours-debutants

https://python.doctor/page-database-data-base-donnees-query-sql-mysql-postgre-sqlite

Total des heures **0h**

Useful info

Name responsible for EU

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