Seminar 1: Python

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About Python…

- Python is a programming language that lets you work quickly and integrate systems more effectively.
- Python is a clear and powerful object-oriented programming language, comparable to Perl, Ruby, Scheme, or Java
- https://www.python.org

Some of Python's notable features

- Uses an elegant syntax, making the programs you write easier to read.
- Is an easy-to-use language that makes it simple to get your program working. This makes Python ideal for prototype development and other ad-hoc programming tasks, without compromising maintainability.
- Comes with a large standard library that supports many common programming tasks.
- Is easily extended by adding new modules implemented in a compiled language such as C or C++.
- Can also be embedded into an application to provide a programmable interface.
- Runs anywhere, including Mac OS X, Windows, Linux, and Unix, with unofficial builds also available for Android and iOS.
- Is free software in two senses. It doesn't cost anything to download or use Python, or to include it in your application. Python can also be freely modified and re-distributed, because while the language is copyrighted it's available under an open source license.

Some programming-language features of Python

- A variety of basic data types are available: numbers (floating point, complex, and unlimited-length long integers), strings (both ASCII and Unicode), lists, and dictionaries.
- Python supports object-oriented programming with classes and multiple inheritance.
- Code can be grouped into modules and packages.
- The language supports raising and catching exceptions, resulting in cleaner error handling.
- Data types are strongly and dynamically typed.
- Python contains advanced programming features such as generators and list comprehensions.
- Python's automatic memory management frees you from having to manually allocate and free memory in your code.

Anaconda

- The open-source Anaconda Distribution is the easiest way to perform Python/R data science and machine learning on Linux, Windows, and Mac OS X.
- With over 11 million users worldwide, it is the industry standard for developing, testing, and training on a single machine
- Anaconda Enterprise supports your organization no matter the size, easily scaling from a single user on one laptop to thousands of machines. No headaches, no IT nightmares.
- https://www.anaconda.com

Jupyter notebook

- The Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations and narrative text.
- Uses include: data cleaning and transformation, numerical simulation, statistical modeling, data visualization, machine learning, and much more.
- https://jupyter.org