

Usare Python

Informatica@DSS 2019/2020 — Il canale

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Contenuto di queste slide

- ▶ descrizione dell'ambiente di lavoro in laboratorio
- ▶ suggerimenti per l'ambiente di lavoro a casa
- ▶ puntatori a risorse e strumenti aggiuntivi

Lavorare in laboratorio



Sessione interattiva: terminale

(Dal menù) *Strumenti di sistema* → *LXTerminal*

Piccoli esperimenti
iniziali

```
massimo@lauriabox:~$ python3
Python 3.7.3 (default, Jun 17 2019, 12:55:33)
[GCC 7.4.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> x = 7
>>> x - 2
5
>>> - 3*x
-21
>>> 2*y
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
NameError: name 'y' is not defined
>>> 'Ciao a tutti!'
'Ciao a tutti!'
>>> 'Ciao a' + ' ' + 'tutti!'
'Ciao a tutti!'
>>> 'Ciao' + 3
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
TypeError: can only concatenate str (not "int") to str
>>> █
```

Scrittura di programmi: terminale + editor

(Dal menù) *Programmazione* → *Geany*

- ▶ Scrittura di programmi
- ▶ Esecuzione da terminale
- ▶ Geany ha un terminale integrato
- ▶ Sintassi colorata

The screenshot displays the Geany IDE interface. The main editor window shows a Python script named 'primoprogramma.py' with the following code:

```
1
2 x = 7
3
4 print(x - 7)
5
6 print('Ciao a' + ' ' + 'tutti!')
7
8
```

Below the editor, the integrated terminal shows the execution of the script:

```
studente@debian9:~$ python3 primoprogramma.py
0
Ciao a tutti!
studente@debian9:~$
```

The terminal output matches the code's logic, showing the result of the subtraction and the concatenated string.

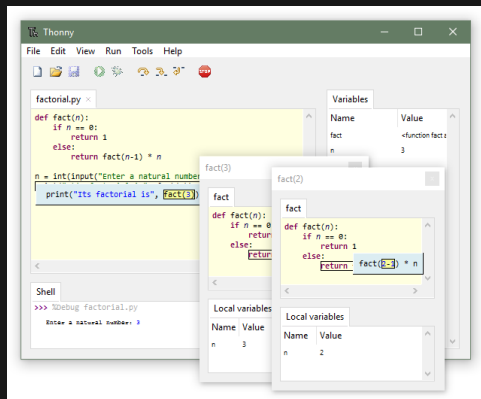
Scrittura/Debug/Interazione: Thonny

```
$ pip3 install thonny
```

(Installazione per utente)

```
$ python3 -m thonny
```

(Esecuzione)



<http://thonny.org>

Lavorare a casa



Impostare un ambiente di lavoro

Allen B. Downey, autore del libro di testo *Pensare in Python* ha un tutorial che aiuta ad iniziare a lavorare autonomamente.

<link al tutorial>

Purtroppo il tutorial è in inglese, ma un inglese molto semplice.

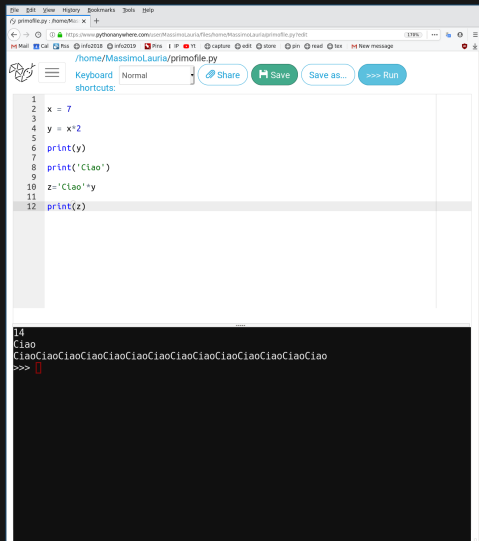
Lavorare online: Python anywhere

Python Anywhere è un ambiente python **online** che permette di lavorare in python **nel browser**, senza installare nulla sul proprio computer.

`https://www.pythonanywhere.com/`

- Serve solo il browser web
- Necessario creare un account
- Account gratuito più che sufficiente

Lavorare online: Python anywhere (II)



The screenshot shows a web browser window with the URL `https://www.pythonanywhere.com/home/MassimoLauria/primofile.py/edit`. The page title is `/home/MassimoLauria/primofile.py`. The interface includes a toolbar with buttons for `Share`, `Save`, `Save as...`, and `Run`. The main area contains a Python script with the following code:

```
1 x = 7
2
3
4 y = x*2
5
6 print(y)
7
8 print('Ciao')
9
10 z='Ciao'+y
11
12 print(z)
```

Below the code editor, the execution output is displayed in a terminal window:

```
14
Ciao
CiaoCiaoCiaoCiaoCiaoCiaoCiaoCiaoCiaoCiaoCiaoCiaoCiao
>>>
```

Modalità interattiva

- ▶ esattamente come Python da terminale

Modalità scrittura file

- ▶ editor di testo **nel browser**
- ▶ gestione file

Descritto nel tutorial

Installazione locale di Python

- ▶ Differenti procedure per Mac/Win/Linux
- ▶ Differenti installazioni/distribuzioni
- ▶ Differenti editor di testo

Aiutatevi tra voi, magari in gruppi di 4-5.

Thonny — <https://thonny.org>

- ▶ semplice da usare
- ▶ non richiede di installare Python3 a parte
- ▶ lo usiamo a lezione

Thonny
Python IDE for beginners

Download version [3.2.1](#) for [Windows](#) • [Mac](#) • [Linux](#)

The screenshot displays the Thonny IDE window with a menu bar (File, Edit, View, Run, Tools, Help) and a toolbar. The main editor shows a Python script named 'factorial.py' with the following code:

```
def fact(n):  
    if n == 0:  
        return 1  
    else:  
        return fact(n-1) * n  
  
n = int(input("Enter a natural number"))  
print("Its factorial is", fact(3))
```

On the right side, there is a 'Variables' panel with a table:

Name	Value
fact	<function fact : ...
n	3

Below the code editor, there are several call stack windows showing recursive calls to the 'fact' function. The top window is for 'fact(3)', which is calling 'fact(2)'. The 'fact(2)' window is also visible, showing the function definition and the start of its execution. The 'fact' window shows the function definition and the start of its execution.

Anaconda — <https://www.anaconda.com/>

- ▶ contiene funzionalità aggiuntive (troppe?)
- ▶ professionale
- ▶ istruzioni nel tutorial indicato precedentemente

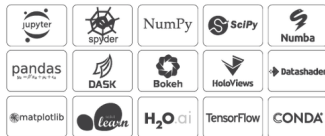
Anaconda Distribution

The World's Most Popular Python/R Data Science Platform

Download

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 15 million users worldwide, it is the industry standard for developing, testing, and training on a single machine, enabling *individual data scientists* to:

- Quickly download 1,500+ Python/R data science packages
- Manage libraries, dependencies, and environments with [Conda](#)
- Develop and train machine learning and deep learning models with [scikit-learn](#), [TensorFlow](#), and [Theano](#)
- Analyze data with scalability and performance with [Dask](#), [NumPy](#), [pandas](#), and [Numba](#)
- Visualize results with [Matplotlib](#), [Bokeh](#), [Datashader](#), and [Holoviews](#)



Altro materiale utile

Python tutor — <http://pythontutor.com/>

- ▶ evoluzione delle variabili
- ▶ osservare i singoli passi di esecuzione
- ▶ andare avanti e indietro

Get live help!

Start private chat

(warning: chat service may crash at any time)

Python 3.6

```
1
2 A = [7,'gatto',3.5,'cane',12,0.3]
3 B = []
4 while len(A)>0:
5     y=A.pop()
6     B.append(y)
```

[Edit this code](#)

→ line that has just executed
→ next line to execute

Click a line of code to set a breakpoint; use the Back and Forward buttons to jump there.

<< First < Back Step 10 of 21 Forward > Last >>

These Python Tutor users are asking for help right now. Please volunteer to help!

user_c9d from Petaling Jaya, Malaysia needs help with Python3 - 3 people chatting - [click to help](#) (active a minute ago, requested an hour ago)

user_91f from Singapore, Singapore needs help with Python3 - [click to help](#) (active a few seconds ago, requested a few seconds ago)

user_016 from Tallinn, Estonia needs help with Python3 - [click to help](#) (IDLE: last active 11 minutes ago, requested 11 minutes ago)

Frames

Global frame

A

B

y 12

Objects

list

0	1	2	3
7	"gatto"	3.5	"cane"

list

0	1
0.3	12

Documentazione standard

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

- ▶ molto ricca e dettagliata
- ▶ richiede un po' di esperienza
- ▶ in inglese

Bibliografia web

Libro di testo: https://github.com/AllenDowney/ThinkPythonItalian/raw/master/thinkpython_italian.pdf

Il linguaggio Python

- ▶ Pagina principale: <https://www.python.org/>
- ▶ Documentazione ufficiale Python: <https://docs.python.org/3/>

Ambienti di lavoro

- ▶ Tutorial: <http://www.allendowney.com/wp/books/think-python-2e/>
- ▶ Python Anywhere: <https://www.pythonanywhere.com/>
- ▶ Thonny: <https://thonny.org/>
- ▶ Anaconda: <https://www.anaconda.com/>

Altre risorse

- ▶ Python Tutor: <http://pythontutor.com/>
- ▶ Tutorial uso del terminale: https://tutorial.djangogirls.org/it/intro_to_command_line/