

# Usare Python

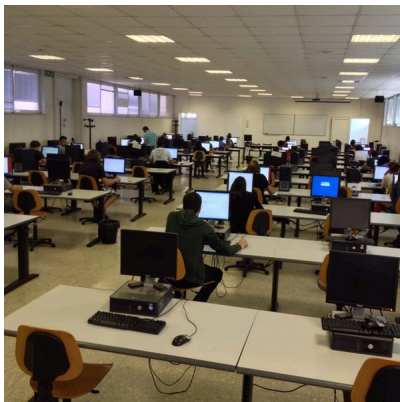
Informatica@DSS 2020/2021

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<https://massimolauria.net/informatica2020/>

# 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
- ▶ Sintassi colorata

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

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

The code is color-coded: `x` is green, `7` is blue, `print` is purple, and the string literals are orange. On the left, a sidebar shows a 'Simboli' (Symbols) pane with a list of variables, including `x [2]`. Below the editor, a 'Terminale' (Terminal) pane is open, showing the command `python3 primoprogramma.py` being executed. The output of the program is displayed in the terminal:

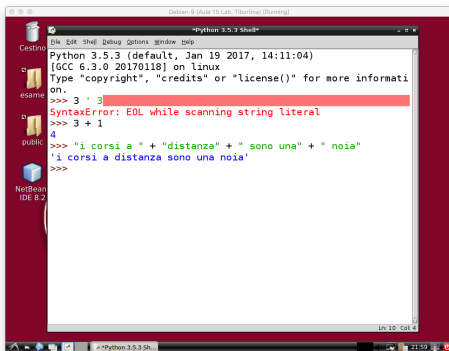
```
studente@debian9:~$ python3 primoprogramma.py
0
Ciao a tutti!
studente@debian9:~$
```

The terminal window also shows the command prompt `studente@debian9:~$` and the output `0` and `Ciao a tutti!`.

# IDLE: Ambiente integrato Python

(Dal menù *Programmazione* → *IDLE (Using Python-3.5)*)

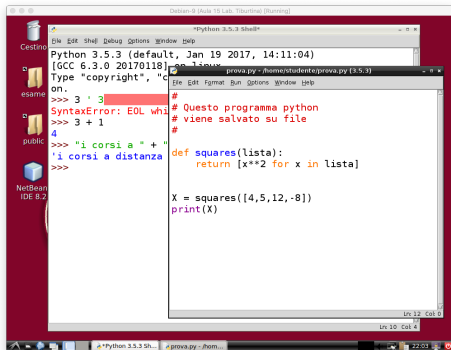
- ▶ Ambiente interattivo python
- ▶ Editor di testo
- ▶ Integrazione tra i due



# IDLE: accedere all'editor di testo

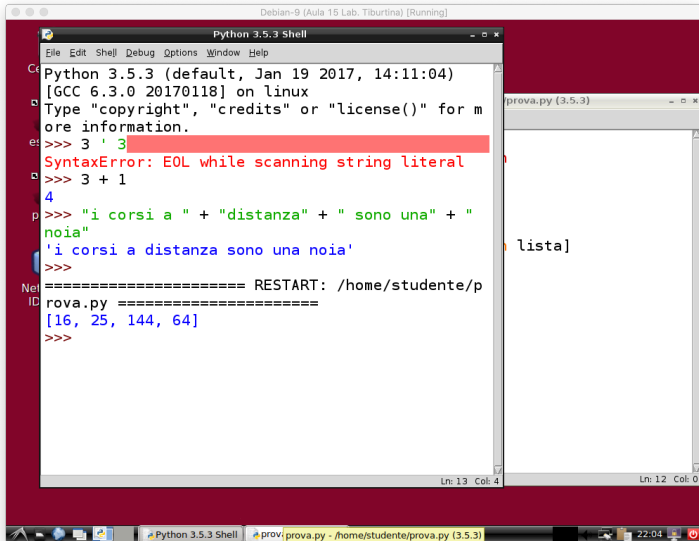
(Dal menù) *File* → *New File*

- ▶ Scrivere programmi
- ▶ Sintassi colorata
- ▶ In lab e a casa



# IDLE: integrazione

Eseguire i propri programmi premendo F5.



The screenshot shows the IDLE Python 3.5.3 Shell window. The title bar indicates it is running on Debian-9 (Aula 15 Lab. Tiburtina). The menu bar includes File, Edit, Shell, Debug, Options, Window, and Help. The shell displays the following text:

```
Python 3.5.3 (default, Jan 19 2017, 14:11:04)
[GCC 6.3.0 20170118] on linux
Type "copyright", "credits" or "license()" for more information.
>>> 3 '3
SyntaxError: EOL while scanning string literal
>>> 3 + 1
4
>>> "i corsi a " + "distanza" + " sono una" + "
noia"
'i corsi a distanza sono una noia'
>>>
===== RESTART: /home/studente/p
rova.py =====
[16, 25, 144, 64]
>>>
```

On the right, a portion of a file named `prova.py (3.5.3)` is visible, showing the text `lista]`. The status bar at the bottom of the shell window shows `Ln: 13 Col: 4`. The taskbar at the very bottom shows the active window as `prova.py - /home/studente/prova.py (3.5.3)` and the system clock as `22:04`.



# Lavorare a casa



# Impostare un ambiente di lavoro

Dovete impostarvi un ambiente di programmazione **il prima possibile**

- ▶ Un qualunque PC, anche non recente, va benissimo
- ▶ Dovete essere in grado di **scrivere** ed **eseguire** programmi python

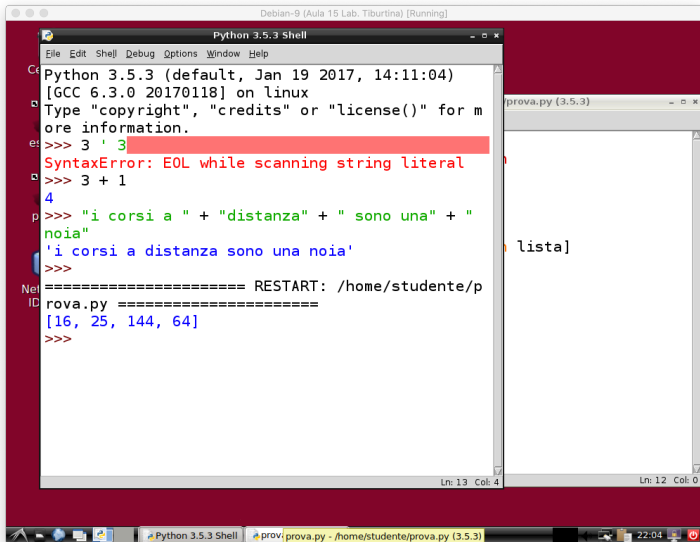
# Installazione locale di Python

- ▶ Probabilmente già installato su Mac e Linux
- ▶ Video tutorial per Windows 10 ([link](#))

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

# IDLE

Se avete installato python, probabilmente avete già IDLE.



The screenshot shows the IDLE Python 3.5.3 Shell window. The title bar indicates it is running on Debian-9 (Aula 16 Lab. Tiburtina). The menu bar includes File, Edit, Shell, Debug, Options, Window, and Help. The shell displays the following text:

```
Python 3.5.3 (default, Jan 19 2017, 14:11:04)
[GCC 6.3.0 20170118] on linux
Type "copyright", "credits" or "license()" for more information.
>>> 3 '3
SyntaxError: EOL while scanning string literal
>>> 3 + 1
4
>>> "i corsi a " + "distanza" + " sono una" + "
noia"
'i corsi a distanza sono una noia'
>>>
===== RESTART: /home/studente/p
rova.py =====
[16, 25, 144, 64]
>>>
```

The error message "SyntaxError: EOL while scanning string literal" is highlighted in red. The successful execution of the string concatenation and list creation is shown in green and blue. The status bar at the bottom indicates the current line and column: Ln: 13 Col: 4.

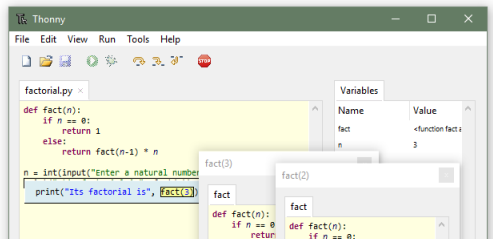
# Thonny — <https://thonny.org>

- ▶ 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](#)



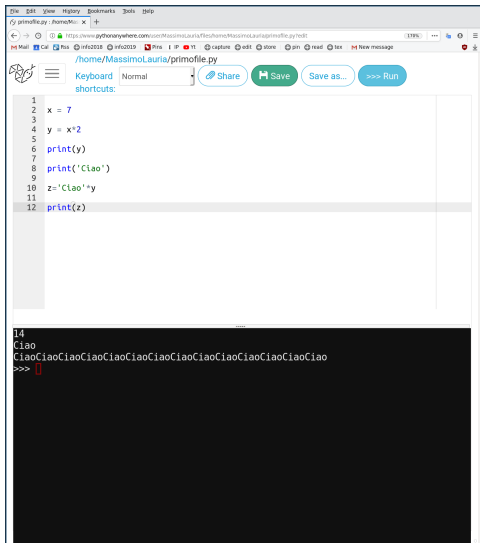
# Soluzione temporanea: Python anywhere

*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

## Soluzione temporanea: Python anywhere (II)



## Modalità interattiva

- ▶ esattamente come Python da terminale

## Modalità scrittura file

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

Descritto nel tutorial

**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)

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)

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

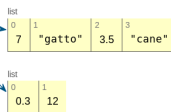
Forward >

Last >>

Frames

Objects

Global frame  
A  
B  
y 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](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

- ▶ IDLE: <https://www.python.org/>
- ▶ Thonny: <https://thonny.org/>
- ▶ Python Anywhere: <https://www.pythonanywhere.com/>

## Altre risorse

- ▶ Python Tutor: <http://pythontutor.com/>
- ▶ Tutorial uso del terminale: [https://tutorial.djangogirls.org/it/intro\\_to\\_command\\_line/](https://tutorial.djangogirls.org/it/intro_to_command_line/)