

Usare Python

Informatica@DSS 2022/2023

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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

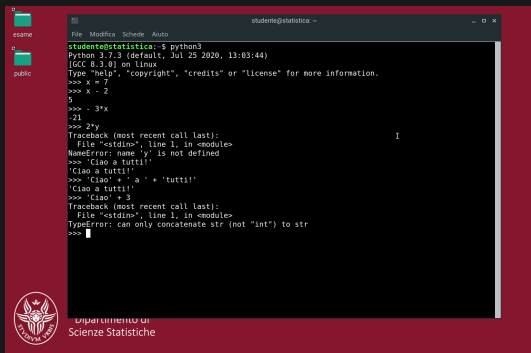
Lavorare in laboratorio



Sessione interattiva: terminale

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

Piccoli esperimenti
iniziali



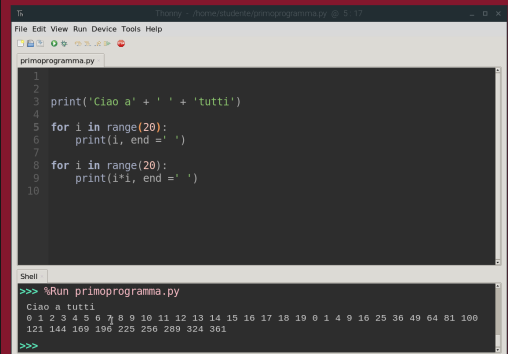
```
studente@statistica ~  
File Modifica Schede Aiuto  
studente@statistica:~$ python3  
Python 3.7.3 (default, Jul 25 2020, 13:03:44)  
[GCC 8.3.0] on Linux  
Type "help", "copyright", "credits" or "license" for more information.  
>>> x = 7  
>>> x - 2  
5  
>>> - 3*x  
-21  
>>> 2*y  
Traceback (most 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  
>>>
```

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Thonny: ambiente integrato Python

(Dal menù) *Programmazione* → *Thonny*

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



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

```
1
2
3 print('Ciao a' + ' ' + 'tutti')
4
5 for i in range(20):
6     print(i, end=' ')
7
8 for i in range(20):
9     print(i*i, end=' ')
10
```

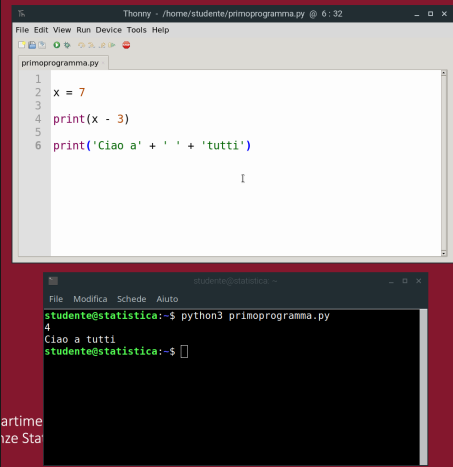
Below the editor is a 'Shell' window showing the execution of the script:

```
>>> %Run primoprogramma.py
Ciao a tutti
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 0 1 4 9 16 25 36 49 64 81 100
121 144 169 196 225 256 289 324 361
>>>
```

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Scrittura di programmi: terminale + editor

- ▶ Usare i programmi fuori da Thonny
- ▶ Usare i file di test del laboratorio



The image shows two windows from a Linux environment. The top window is the Thonny IDE, titled 'Thonny - /home/studente/primoprogramma.py @ 6:32'. It displays a Python script named 'primoprogramma.py' with the following code:

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

The bottom window is a terminal titled 'studente@statistica ~'. It shows the execution of the program:

```
File Modifica Schede Aiuto
studente@statistica:~$ python3 primoprogramma.py
4
Ciao a tutti
studente@statistica:~$
```

artime
ize Sta

Lavorare a casa



Impostare un ambiente di lavoro

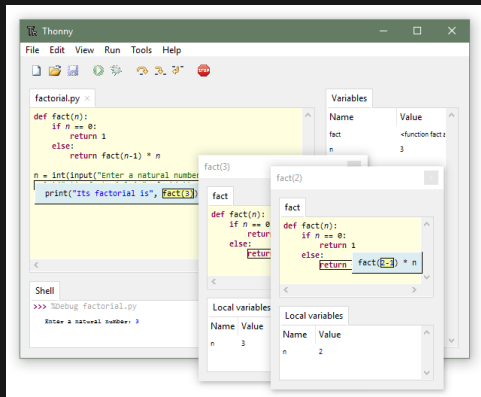
Dovete impostarvi un ambiente di programmazione **il prima possibile**

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

Scrittura/Debug/Interazione: Thonny

Lo strumento principale del corso.

Potete usare altri strumenti, ma è garantito che Thonny sia installato sui PC d'esame.



<http://thonny.org>

Perché Thonny?

- ▶ 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](#)

```
factorial.py x
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))
```

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

fact(3)

fact

```
def fact(n):
    if n == 0:
        return 1
    else:
        return fact(n-1) * n
```

fact(2)

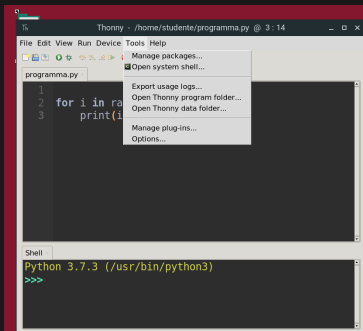
fact

```
def fact(n):
    if n == 0:
        return 1
    else:
        return fact(n-1) * n
```

Python su terminale

Se avete Thonny installato, potete lanciare un terminale con un python già configurato, dal suo menù

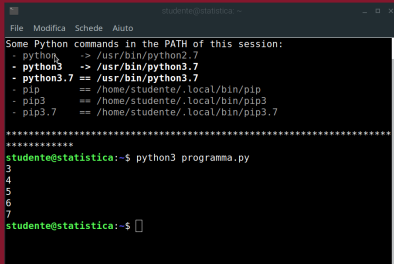
Tools → *Open System Shell*



The screenshot shows the Thonny IDE interface. The menu bar includes File, Edit, View, Run, Device, and Tools. The 'Tools' menu is open, showing options like 'Manage packages...', 'Open system shell...', 'Export usage logs...', 'Open Thonny program folder...', 'Open Thonny data folder...', 'Manage plug-ins...', and 'Options...'. The 'Open system shell...' option is highlighted. In the background, a Python script named 'programma.py' is visible with the following code:

```
1  
2 for i in range(10):  
3     print(i)
```

Below the editor, the 'Shell' pane shows the prompt 'Python 3.7.3 (/usr/bin/python3)' and the input '>>>'.



The screenshot shows a terminal window with the following content:

```
Some Python commands in the PATH of this session:  
- python -> /usr/bin/python2.7  
- python3 -> /usr/bin/python3.7  
- python3.7 == /usr/bin/python3.7  
- pip == /home/studente/.local/bin/pip  
- pip3 == /home/studente/.local/bin/pip3  
- pip3.7 == /home/studente/.local/bin/pip3.7  
*****  
studente@statistica:~$ python3 programma.py  
3  
4  
5  
6  
7  
studente@statistica:~$
```



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 = ['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

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/>

Thonny: <https://thonny.org/>

Altre risorse

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