

Programowanie w języku Python

– poziom podstawowy

Dostęp do Konsoli Pythona



Ministerstwo
Klimatu i Środowiska

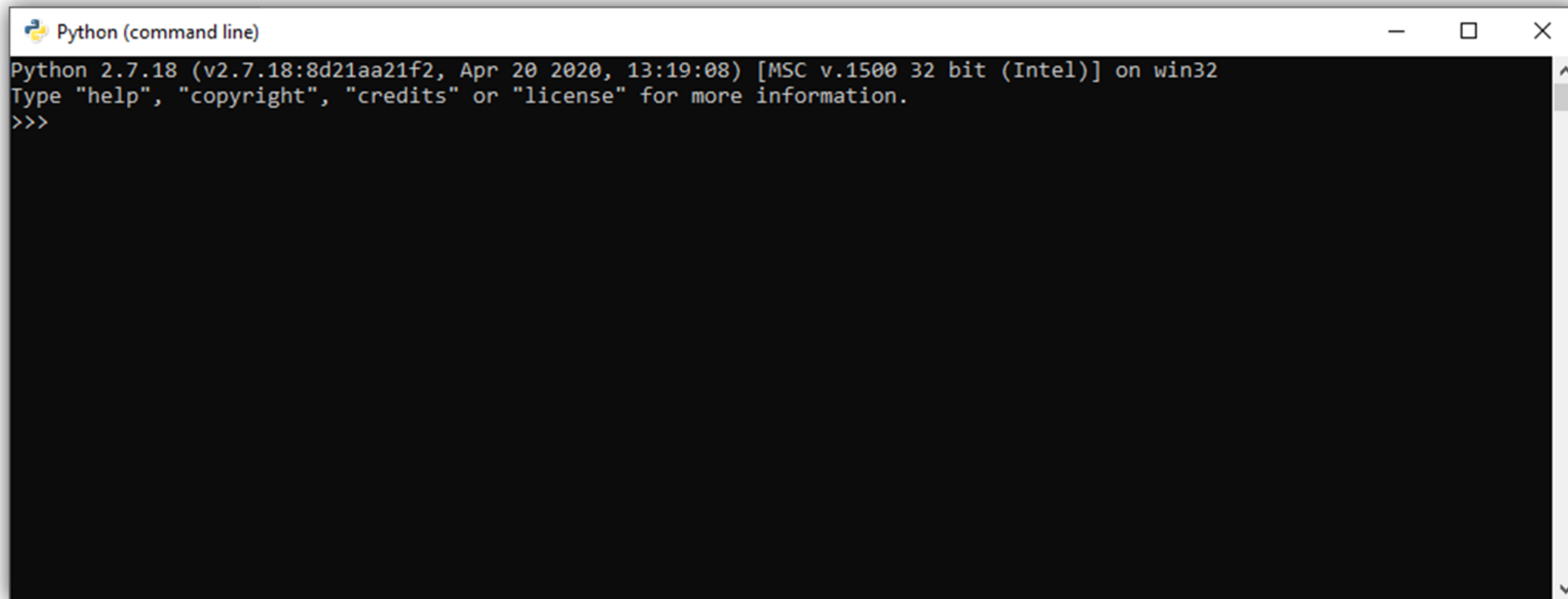


Sfinansowano ze środków
Narodowego Funduszu
Ochrony Środowiska
i Gospodarki Wodnej





Wiersz poleceń (command line)

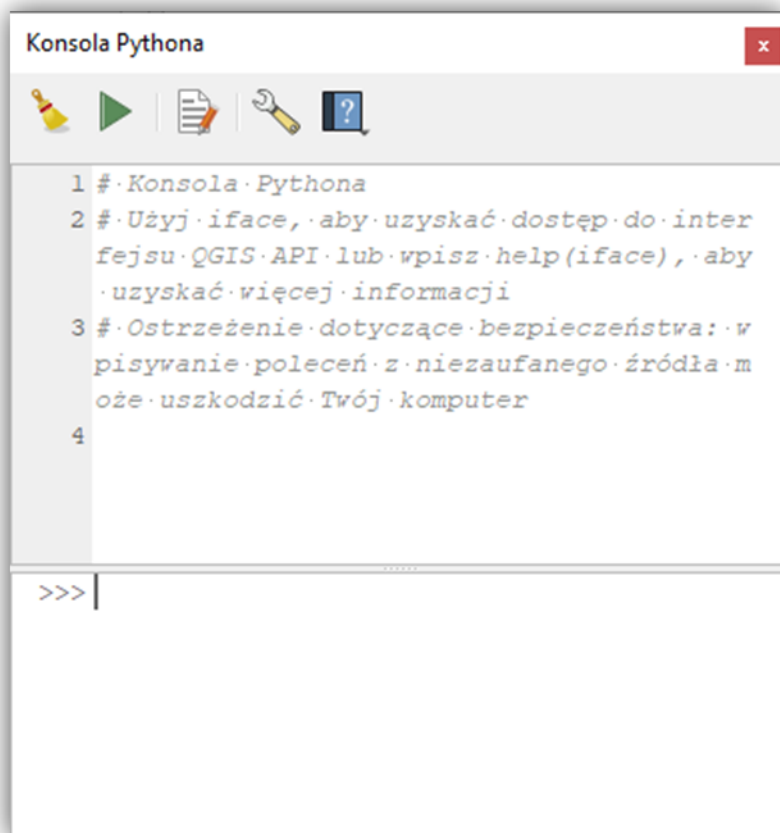


A screenshot of a Windows command prompt window titled "Python (command line)". The window has a black background and white text. The text inside the window reads: "Python 2.7.18 (v2.7.18:8d21aa21f2, Apr 20 2020, 13:19:08) [MSC v.1500 32 bit (Intel)] on win32", followed by "Type 'help', 'copyright', 'credits' or 'license' for more information.", and then three greater-than signs ">>>" on a new line. The window has standard Windows window controls (minimize, maximize, close) in the top right corner.

```
Python (command line)
Python 2.7.18 (v2.7.18:8d21aa21f2, Apr 20 2020, 13:19:08) [MSC v.1500 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

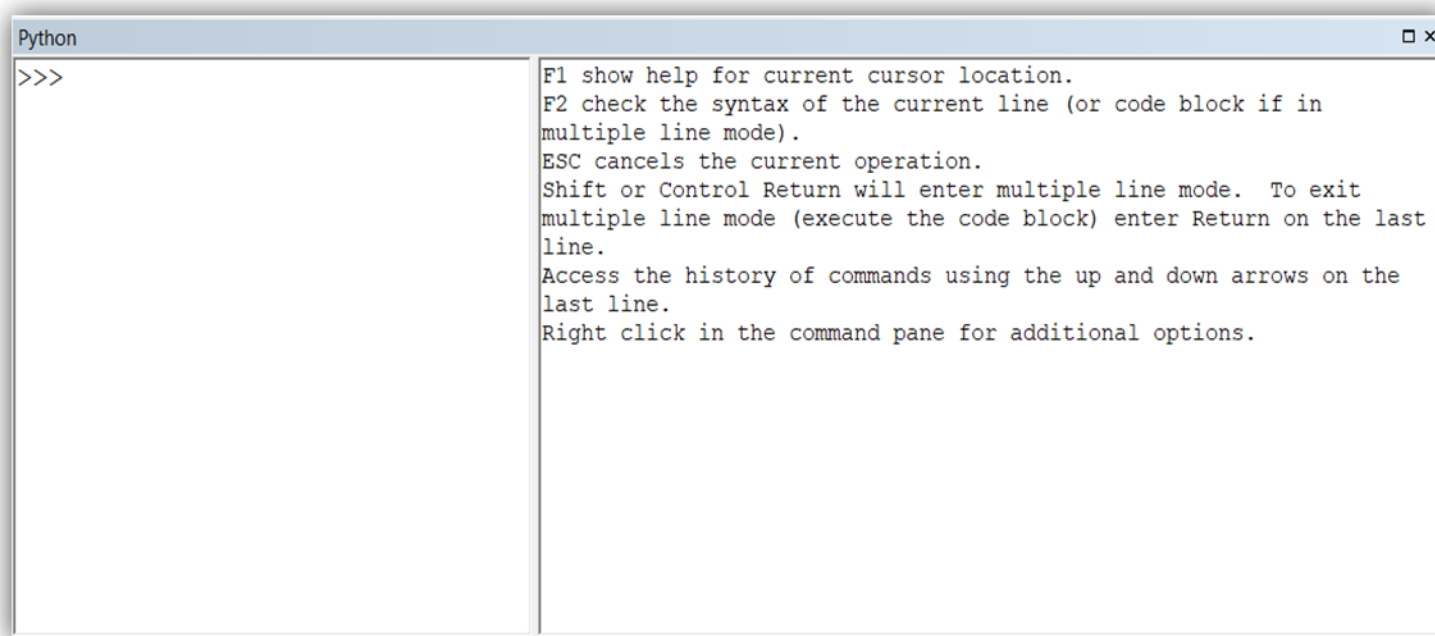


QGIS



```
1 # Konsola Pythona
2 # Użyj iface, aby uzyskać dostęp do interfejsu QGIS API lub wpisz help(iface), aby uzyskać więcej informacji
3 # Ostrzeżenie dotyczące bezpieczeństwa: w pisywanie poleceń z niezaufanego źródła może uszkodzić Twój komputer
4
>>> |
```

ArcMap



```
>>>
F1 show help for current cursor location.
F2 check the syntax of the current line (or code block if in multiple line mode).
ESC cancels the current operation.
Shift or Control Return will enter multiple line mode. To exit multiple line mode (execute the code block) enter Return on the last line.
Access the history of commands using the up and down arrows on the last line.
Right click in the command pane for additional options.
```



```
OSGeo4W Shell
run o-help for a list of available commands
C:\>py3_env

C:\>SET PYTHONPATH=

C:\>SET PYTHONHOME=C:\PROGRA~1\QGIS3~1.4\apps\Python37

C:\>PATH C:\PROGRA~1\QGIS3~1.4\apps\Python37;C:\PROGRA~1\QGIS3~1.4\apps\Python37\Scripts;C:\PROGRA~1\QGIS3~1.4\apps\Python37\Scripts;C:\PROGRA~1\QGIS3~1.4\bin;C:\WINDOWS\system32;C:\WINDOWS;C:\WINDOWS\system32\Wbem

C:\>_
```



The image displays two overlapping windows of Python shells. The top window, titled 'Python 2.7.18 Shell', shows the Python 2.7.18 startup message and a prompt. The bottom window, titled 'IDLE Shell 3.10.7', shows the Python 3.10.7 startup message and a prompt. Both windows have a menu bar with 'File', 'Edit', 'Shell', 'Debug', 'Options', 'Window', and 'Help'.

```
Python 2.7.18 Shell
File Edit Shell Debug Options Window Help
Python 2.7.18 (v2.7.18:8d21aa21f2, Apr 20 2020, 13:19:08) [MSC v.1500 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
```

```
IDLE Shell 3.10.7
File Edit Shell Debug Options Window Help
Python 3.10.7 (tags/v3.10.7:6cc6b13, Sep 5 2022, 14:08:36) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> |
```

Ln: 3 Col: 0



- ang. Untegrated developmnet environment –Zintegrowane środowisko programistyczne
 - PyCharm
 - Visual Studio Code
 - Jupyter Notebook (Anaconda)
 - Spyder (Anaconda)
 - Notepad ++

Dokumentacja i przykłady



<https://www.python.org/doc/>

<https://docs.python.org/2/>

Sprawdzenie wersji Pythona
`print sys.version_info`

The image displays two screenshots of the Python documentation website. The top screenshot shows the Python 2.7.18 documentation page, featuring a dark blue sidebar with links to 'Download', 'Other resources', and 'PEP Index'. The bottom screenshot shows the Python 3.10.7 documentation page, which has a light gray sidebar with similar links. Both pages include a top navigation bar with language and version selectors. The main content area of the bottom screenshot lists various documentation sections like 'What's new in Python 3.10?', 'Tutorial', 'Library Reference', etc.



```
1 # -*- coding: cp1250 -*-
2 """
3 Informacje o skrypcie
4 autor: AP
5 data:08.01.2018
6 """
7 a="Zaczynam uczyć się Pythona!" #komentarz
8 #komentarz
9 print a
```

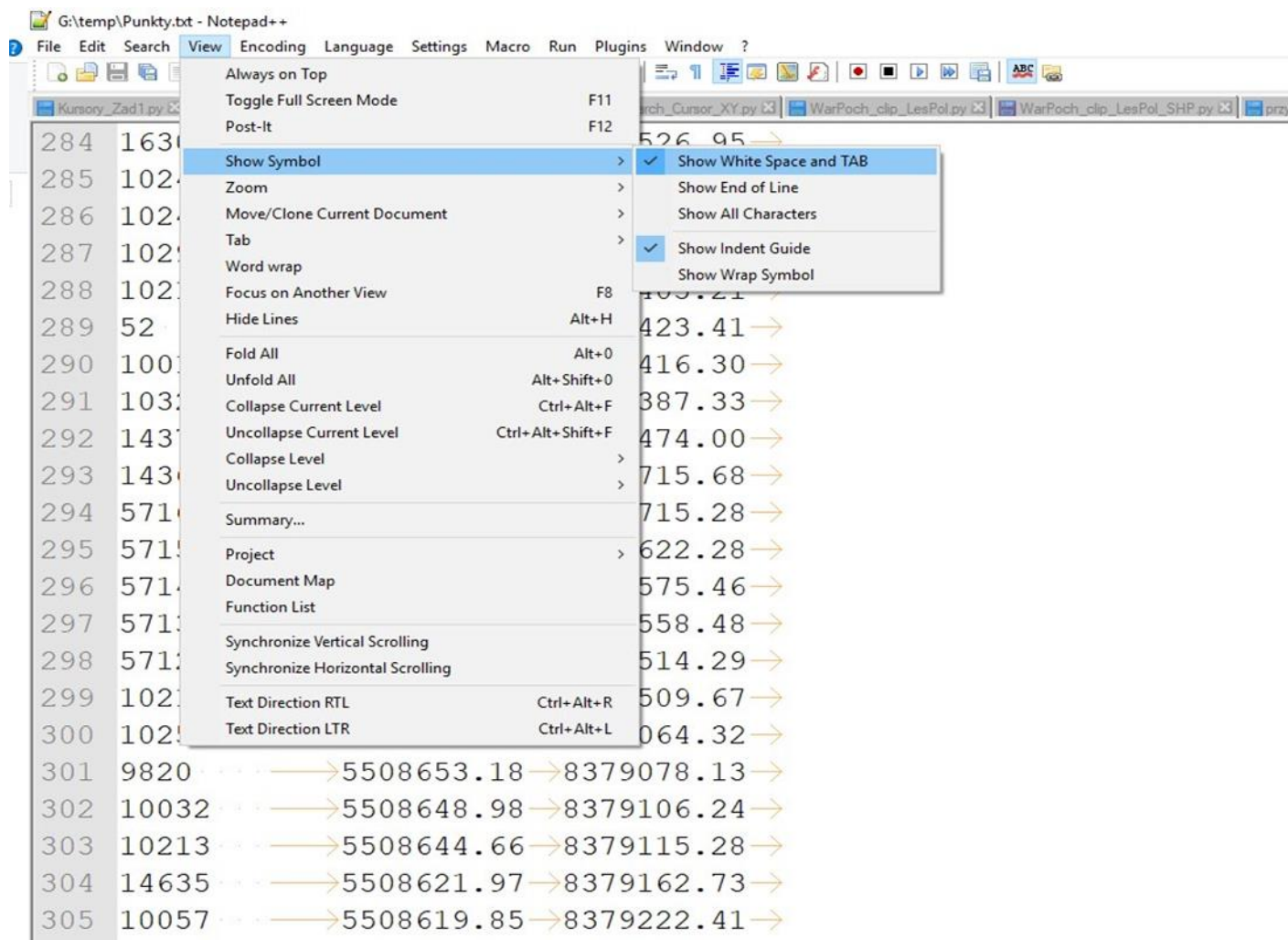
Zapisany jako plik tekstowy z rozszerzeniem *.py
np. przykladowy.py

Wynik:

```
>>> execfile(r'G:\przykladowy.py')
Zaczynam uczyć się Pythona!
```



Wyświetlanie znaku TAB i spacji w Notepad++





```
# -*- coding: cp1250 -*-
```

```
# -*- coding: utf-8 -*-
```

Zadania dodatkowe



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```
x = '*'  
while len(x)<20:  
    print x.center(20,' '  
    x =x+'*'
```



Choinka z bombkami



```
import random
x = '|'
while len(x)<20:
    l_x=list(x)
    l_x[(random.randint(0,len(l_x))-1)]=
    x = ''.join(l_x)
    print x.center(20,' ')
    x=x.replace('o','*')
    x =x+'*'
```

[illegible]

```
import random
x = '*'
while len(x)<20:
    while len(x)<10:
        l_x=list(x)
        l_x[(random.randint(0,len(l_x))-1)]='o'
        x = ''.join(l_x)
        print x.center(20,' ')
        x=x.replace('o','*')
        x =x+'*'
    l_x=list(x)
    l_x[(random.randint(0,len(l_x))-1)]='o'
    l_x[(random.randint(0,len(l_x))-1)]='o'
    x = ''.join(l_x)
    print x.center(20,' ')
    x=x.replace('o','*')
    x =x+'*'

```

Uruchamianie skryptów

```
Wiersz polecenia - python string_zad_3.py
Microsoft Windows [Version 10.0.19044.2006]
(c) Microsoft Corporation. Wszelkie prawa zastrzeżone.

C:\Users\r...>cd C:\Users\r... \Desktop\

C:\Users\r... \Desktop>python string_zad_3.py
('D\xeaby, buki, \x9cwierki i sosny/n \nPrzem\x13wcie gromkim g\xb3osem/n \nBy nikt si\xea nie odwa\xbfy\xb3/n \nU\x9cmi
erci\xe6 was topora ciosem.', '\n')
Podaj drzewa zamiast 'Dřby': -
```

string_zad_3.py - Z:\01_PROJEKTY\SZKOLENIE_PYTHON\SKRYPTY\CWICZENIE_9\string_zad_3....

File Edit Format Run Options Window Help

Run Module F5 uruchomienie skryptu

Run... Customized Shift+F5

Check Module Alt+X

Python Shell

```
# -*- coding: utf-8 -*-
wiersz = """Dęby, buki, świerki i sosny/n
Przemówcie gromkim głosem/n
By nikt się nie odważył/n
Uśmierć was topora ciosem."/n

print(wiersz, '\n')

drzewa1 = str(input("Podaj drzewa zamiast 'Dęby': "))
drzewa2 = str(input("Podaj drzewa zamiast 'buki': "))
drzewa3 = str(input("Podaj drzewa zamiast 'świerki': "))
drzewa4 = str(input("Podaj drzewa zamiast 'sosny': "))

wiersz2 = """{0}, {1}, {2} i {3}/n
Przemówcie gromkim głosem/n
By nikt się nie odważył/n
Uśmierć was topora ciosem."/n""".format(drzewa1, drzewa2, drzewa3, drzewa4)

print(wiersz2)
```

Ln: 20 Col: 0

Python 3.8.2 Shell

File Edit Shell Debug Options Window Help

Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (Intel)] on win32

Type "help", "copyright", "credits" or "license()" for more information.

>>>

= RESTART: string_zad_3.py =

Dęby, buki, świerki i sosny/n

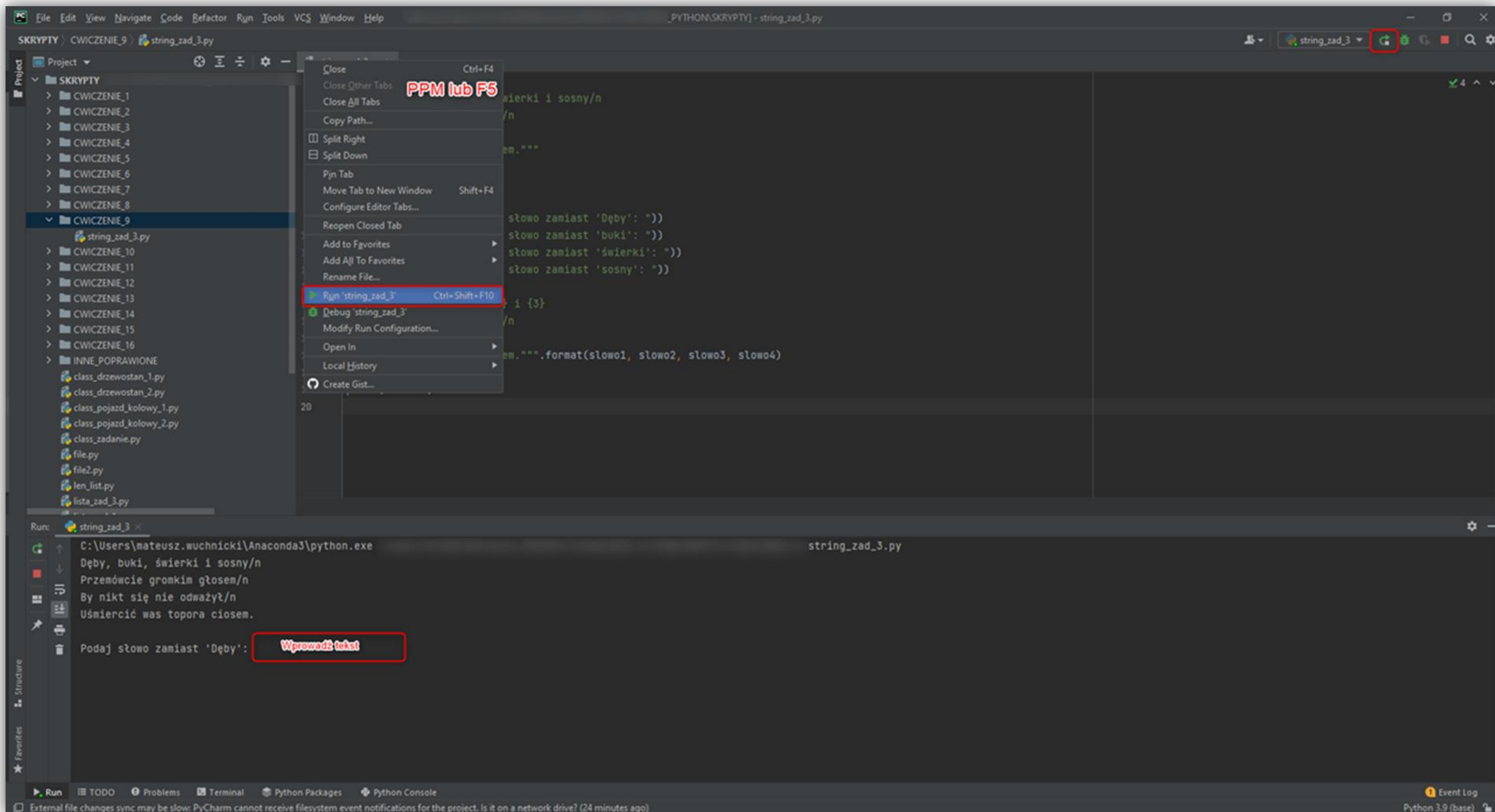
Przemówcie gromkim głosem/n

By nikt się nie odważył/n

Uśmierć was topora ciosem.

Podaj drzewa zamiast 'Dęby': wprowadź tekst

Ln: 10 Col: 29



Spyder

File Edit Search Source Run Debug Consoles Projects Tools View Help

Source Console Object

Usage

Here you can get help of any object by pressing **Ctrl+I** in front of it, either on the Editor or the Console.

Help can also be shown automatically after writing a left parenthesis next to an object. You can activate this behavior in **Preferences > Help**.

New to Spyder? Read our [tutorial](#)

Help Variable Explorer Plots Files

Console 4/A x

Python 3.7.9 (tags/v3.7.9:13c94747c7, Aug 17 2020, 18:58:18) [MSC v.1900 64 bit (AMD64)]
Type "copyright", "credits" or "license" for more information.

IPython 7.22.0 -- An enhanced Interactive Python.

In [1]: runfile('SKRYPTY/CWICZENIE_2')

Reloaded modules: ipykernel, ipykernel.version, ipykernel.connect, ipykernel.kernelapp, zmq.eventloop, zmq.eventloop.ioloop, tornado.platform, tornado.platform.asyncio, tornado.gen, zmq.eventloop.zmqstream, ipython_genutils.importstring, ipykernel.iostream, jupyter_client.session, jupyter_client.jsonutil, jupyter_client.adapter, ipykernel.heartbeat, ipykernel.ipkernel, IPython.utils.tokenutil, ipykernel.comm, ipykernel.comm.manager, ipykernel.comm.comm, ipykernel.kernelbase, tornado.queues, tornado.locks, ipykernel.jsonutil, ipykernel.zmqshell, IPython.core.payloadpage, ipykernel.displayhook, ipykernel.datapub, ipykernel.serialize, ipykernel.pickleutil, ipykernel.codeutil, ipykernel.eventloops, ipykernel.parentpoller, PIL, PIL.version, PIL.Image, PIL.ImageMode, PIL.TiffTags, PIL.binary, PIL.util, PIL.imaging, cffi, cffi.api, cffi.lock, cffi.error, cffi.model, PIL.PngImagePlugin, PIL.ImageChops, PIL.ImageFile, PIL.ImagePalette, PIL.GimpGradientFile, PIL.GimpPaletteFile, PIL.ImageColor, PIL.PaletteFile, PIL.ImageSequence, pyparsing, cycler, kiwisolver, dateutil.rrule, win32api, win32security, ntsecuritycon, IPython.core.completerlib, storemagic, autoreload, mpl_toolkits.mplot3d, mpl_toolkits.mplot3d.axes3d, mpl_toolkits.mplot3d.art3d, mpl_toolkits.mplot3d.proj3d, mpl_toolkits.mplot3d.axis3d, ipykernel.pylab, ipykernel.pylab.backend_inline, ipykernel.pylab.config, spyder, spyder.pil_patch

Wprowadź swój wzrost w meterach:

Wprowadź swój wzrost

```
1 #Simple BMI calculator using python
2 def BMI_calculator(height, weight):
3     return round((weight / height**2),2)
4
5 while True:
6     try:
7         h = float(input("Wprowadź swój wzrost w meterach: "))
8         w = float(input("Wprowadź swoją wagę w kg: "))
9         break
10    except ValueError:
11        print(f"\n{'***100'}\nCóżś poszło nie tak. Użyj kropki jako separatorowa dziesiętnego. \n")
12        f"Spróbuj ponownie...\n{'***100'}\n")
13
14 print(f"\n{'***100'}\nWitamy w kalkulatorze BMI.\n{'***100'}\n")
15 bmi = BMI_calculator(h, w)
16 print("Twoje BMI wynosi: ", bmi)
17
18 if bmi <= 18.5:
19     print("Masz niedowagę.")
20 elif 18.5 < bmi <= 24.9:
21     print("Twoja waga jest prawidłowa.")
22 elif 25 <= bmi <= 29.9:
23     print("Masz nadwagę.")
24 elif 30 <= bmi <= 34.9:
25     print("Masz otyłość I stopnia")
26 elif 35 <= bmi <= 39.9:
27     print("Masz otyłość II stopnia")
28 else:
29     print("Masz otyłość III stopnia")
30 print("Masz otyłość III stopnia")
```

IPython console History

LSP Python: ready custom (Python 3.7.9) Line 30, Col 38 UTF-8-GUESSED CRLF RW Mem 57%

Wersje Pythona

Active Python Releases

For more information visit the [Python Developer's Guide](#).

Python version	Maintenance status	First released	End of support	Release schedule
3.10	bugfix	2021-10-04	2026-10	PEP 619
3.9	security	2020-10-05	2025-10	PEP 596
3.8	security	2019-10-14	2024-10	PEP 569
3.7	security	2018-06-27	2023-06-27	PEP 537
2.7	end-of-life	2010-07-03	2020-01-01	PEP 373

Looking for a specific release?

Python releases by version number:

Release version	Release date	Click for more	
Python 3.7.14	Sept. 6, 2022	Download	Release Notes
Python 3.8.14	Sept. 6, 2022	Download	Release Notes
Python 3.9.14	Sept. 6, 2022	Download	Release Notes
Python 3.10.7	Sept. 6, 2022	Download	Release Notes
Python 3.10.6	Aug. 2, 2022	Download	Release Notes
Python 3.10.5	June 6, 2022	Download	Release Notes
Python 3.9.13	May 17, 2022	Download	Release Notes
Python 3.10.4	March 24, 2022	Download	Release Notes

[View older releases](#)