

Python

Lab -1-B

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What is Python?

- Python is a popular programming language. It was created by Guido van Rossum, and released in 1991.
- It is used for:
 - web development (server-side)
 - software development
 - mathematics
 - system scripting.

Python Install

- To check if you have python installed on a Windows PC, search in the start bar for Python or run the following on the Command Line (cmd.exe):

```
C:\Users\Your Name>py --version
```

Install Python

- <https://www.python.org/downloads/>

The screenshot shows the Python.org homepage with a dark blue header. On the left is the Python logo and the word "python" in white. On the right is a navigation bar with links: "About", "Downloads", "Documentation", "Community", "Success Stories", "News", and "Events". Below the header is a large yellow button labeled "Download Python 3.12.3". To the right of this button is a section titled "Download the latest version for Windows" with a link to "Python for Windows". Below that, there's a link to "Prereleases" and "Docker images". To the right of the text is a graphic of two parachutes against a blue background.

python™

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Download Python 3.12.3

Looking for Python with a different OS? Python for [Windows](#), [Linux/UNIX](#), [macOS](#), [Other](#)

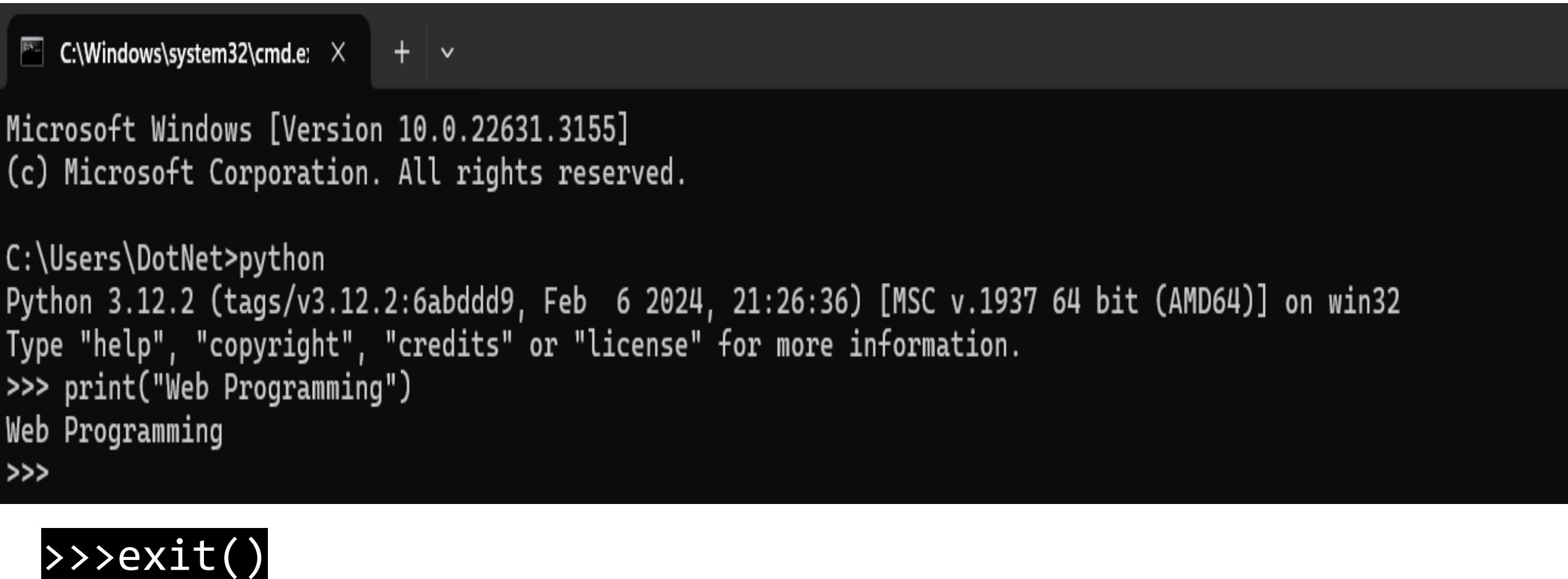
Want to help test development versions of Python 3.13? [Prereleases](#), [Docker images](#)

Print

- `print("Hello, World!")`

The Python Command Line

```
C:\Users\>python
```



A screenshot of a Windows Command Prompt window. The title bar says "C:\Windows\system32\cmd.exe". The window displays the following text:

```
C:\Windows\system32\cmd.exe X + | v  
Microsoft Windows [Version 10.0.22631.3155]  
(c) Microsoft Corporation. All rights reserved.  
  
C:\Users\DotNet>python  
Python 3.12.2 (tags/v3.12.2:6abddd9, Feb 6 2024, 21:26:36) [MSC v.1937 64 bit (AMD64)] on win32  
Type "help", "copyright", "credits" or "license" for more information.  
>>> print("Web Programming")  
Web Programming  
>>>  
>>>exit()
```

Python Quick start

```
C:\Windows\system32\cmd.e + ▾ Microsoft Windows [Version 10.0.22631.3155]
(c) Microsoft Corporation. All rights reserved.

C:\Users\DotNet>python --version
Python 3.12.2

C:\Users\DotNet>cd Desktop

C:\Users\DotNet\Desktop>cd py

C:\Users\DotNet\Desktop\py>in.py

C:\Users\DotNet\Desktop\py>python in.py
django web
```

Python Comments

- `#This is a comment`
`print("Hello, World!")`

Python Variables

- Python has no command for declaring a variable.
- A variable is created the moment you first assign a value to it.
- `x = 5`
`y = "Web"`
`print(x)`
`print(y)`

Assign Multiple Values

- `x, y, z = "A", "B", "C"`

```
print(x)
```

```
print(y)
```

```
print(z)
```

Output Variables

- `x = "Python is awesome"`

```
print(x)
```

- `x = 5`

```
y = "A"
```

```
print(x, y)
```

Python Indentation

- Indentation refers to the spaces at the beginning of a code line.
- Python uses indentation to indicate a block of code.

```
if 5 > 2:  
    print("Five is greater than two!")
```

```
if 5 > 2:  
    print("Five is greater than two!")  
if 5 > 2:  
    print("Five is greater than two!")
```

Python Functions

- A function is a block of code which only runs when it is called.
- You can pass data, known as parameters, into a function.
- A function can return data as a result.

Creating a Function

- In Python a function is defined using the **def** keyword:

```
def my_function():
    print("Hello from a function")
```

Calling a Function

- To call a function, use the function name followed by parenthesis:

```
def my_function():
    print("Hello from a function")
```

```
my_function()
```

Arguments in Function

- Information can be passed into functions as arguments.
- Arguments are specified after the function name, inside the parentheses. You can add as many arguments as you want, just separate them with a comma.

```
def my_function(fname):  
    print(fname + "Text")
```

```
my_function("A")  
my_function("B")  
my_function("C")
```

If ... Else

- Python Conditions and If statements
- Python supports the usual logical conditions from mathematics:
- Equals: `a == b`
- Not Equals: `a != b`
- Less than: `a < b`
- Less than or equal to: `a <= b`
- Greater than: `a > b`
- Greater than or equal to: `a >= b`

continue

- An "if statement" is written by using the **if** keyword.

```
a = 33  
b = 200  
if b > a:  
    print("b is greater than a")
```

Elif

- The **elif** keyword is Python's way of saying "if the previous conditions were not true, then try this condition".

```
a = 33
b = 33
if b > a:
    print("b is greater than a")
elif a == b:
    print("a and b are equal")
```

Else

- The `else` keyword catches anything which isn't caught by the preceding conditions.

```
a = 200
b = 33
if b > a:
    print("b is greater than a")
elif a == b:
    print("a and b are equal")
else:
    print("a is greater than b")
```

Short Hand If

- If you have only one statement to execute, you can put it on the same line as the if statement.

```
if a > b: print("a is greater than b")
```

Short Hand If ... Else

- If you have only one statement to execute, one for if, and one for else, you can put it all on the same line:

a = 2

b = 330

```
print("A") if a > b else print("B")
```

Nested If

- You can have if statements inside if statements, this is called nested if statements.

```
x = 41
```

```
if x > 10:  
    print("Above ten,")  
    if x > 20:  
        print("and also above 20!")  
    else:  
        print("but not above 20.")
```

Loops

- Python programming language provides two types of Python loopshecking time. In this article, we will look at Python loops and understand their working with the help of examp – **For loop** and **While loop** to handle looping requirements.

While Loop in Python

```
count = 0  
while (count < 3):  
    count = count + 1  
    print("Hello")
```

For Loop in Python

n = 4

```
for i in range(0, n):  
    print(i)
```

User Input

- Python 3.6

```
username = input("Enter username:")  
print("Username is: " + username)
```

- Python 2.7

```
username = raw_input("Enter username:")  
print("Username is: " + username)
```