

# 1.Installation of Python

## Introduction

Python is a widely used high-level programming language. It is one of the most popular and flexible server-side programming languages. Windows does not have the Python programming language installed by default. However, you can install Python on Windows in just a few easy steps.

## Installation

### Step 1: Select Python Version

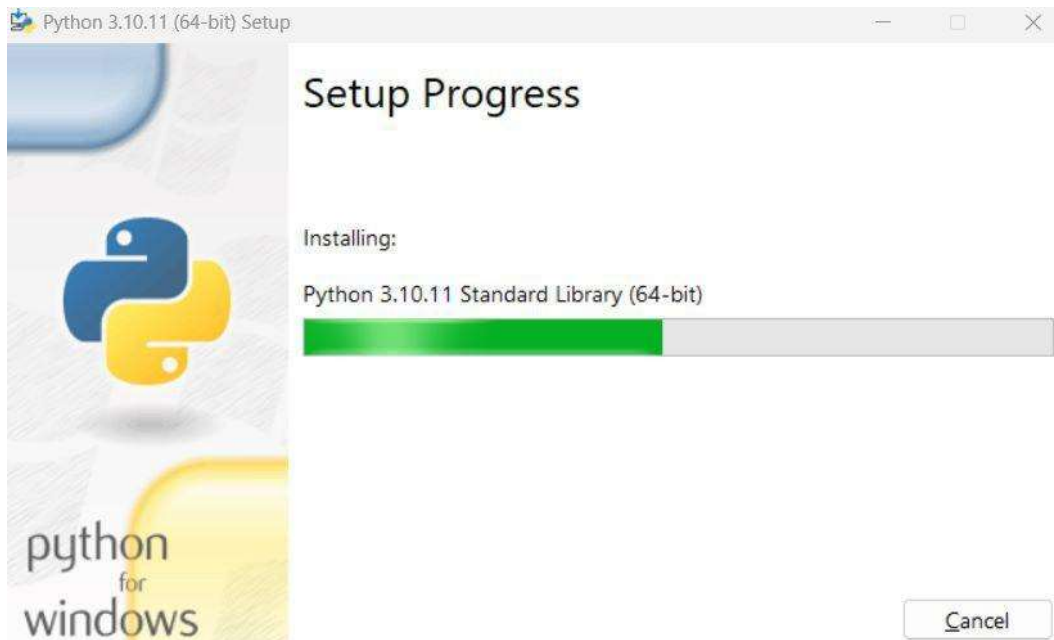
Deciding on a version depends on what you want to do in Python. The two major versions are Python 2 and Python 3. Choosing one over the other might be better depending on your project details. If there are no constraints, choose whichever one you prefer.

### Step 2: Downloading the Python Installer

Once you have downloaded the installer, open the .exe file, such as python-3.10.11-amd64.exe, by double-clicking it to launch the Python installer. Choose the option to Install the launcher for all users by checking the corresponding checkbox, so that all users of the computer can access the Python launcher application. Enable users to run Python from the command line by checking the Add python.exe to PATH checkbox.

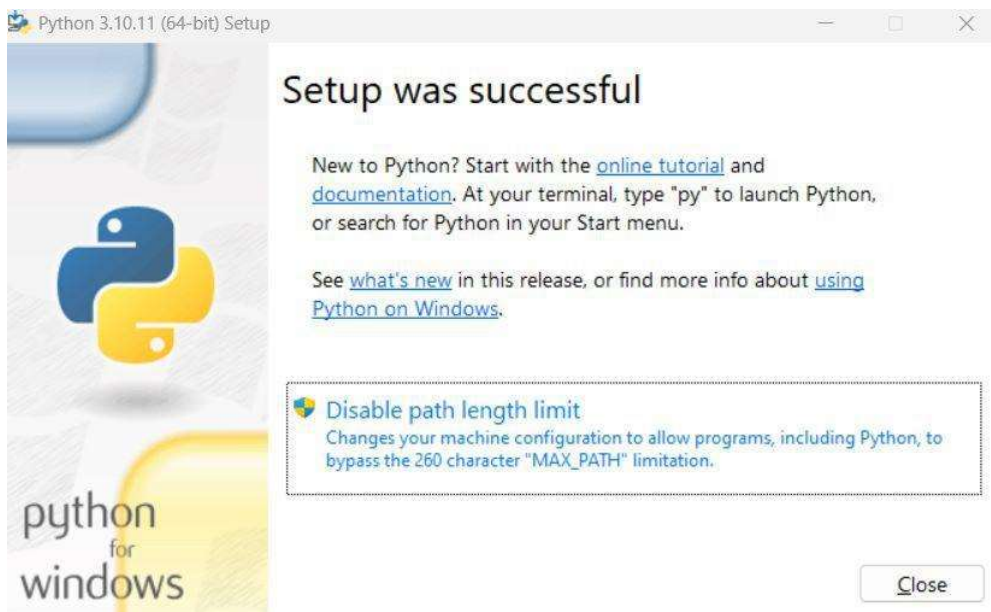


After Clicking the Install Now Button the setup will start installing Python on your Window system. You will see a window like this.



### Step 3: Running the Executable Installer

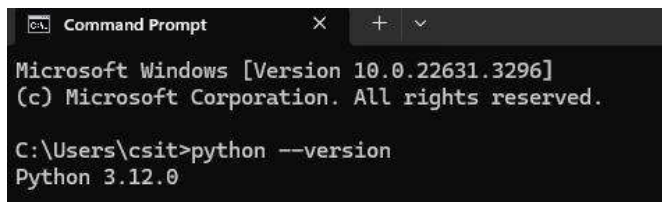
After completing the setup, Python will be installed on your Windows system. You will see a successful message.



## Step 4: Verify the Python Installation in Windows

Close the window after successful installation of Python. You can check if the installation of Python was successful by using either the command line or the Integrated Development Environment (IDLE), which you may have installed. To access the command line, click on the Start menu and type “cmd” in the search bar. Then click on Command Prompt.

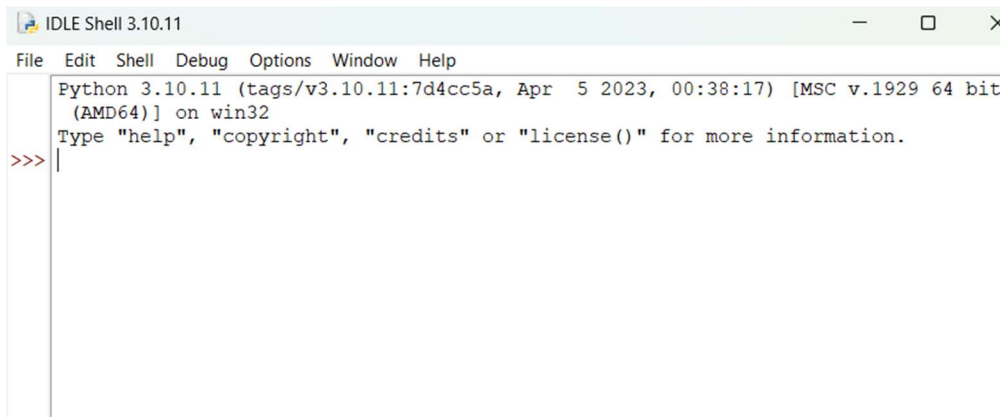
**python --version**



```
Microsoft Windows [Version 10.0.22631.3296]
(c) Microsoft Corporation. All rights reserved.

C:\Users\csit>python --version
Python 3.12.0
```

You can also check the version of Python by opening the IDLE application. Go to Start and enter IDLE in the search bar and then click the IDLE app, for example, IDLE (Python 3.10.11 64-bit). If you can see the Python IDLE window then you are successfully able to download and installed Python on Windows.



```
IDLE Shell 3.10.11
File Edit Shell Debug Options Window Help
Python 3.10.11 (tags/v3.10.11:7d4cc5a, Apr 5 2023, 00:38:17) [MSC v.1929 64 bit
(AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> |
```

## 2. Write a program to concatenate two strings using + operator

### Input :

```
print("Janvi Garg , 0827CI211087")
str1="Hello"
str2="World"
print ("String 1:",str1)
print ("String 2:",str2)
str=str1+str2
print("Concatenated two different strings:",str)
```

### Output :

```
==== RESTART: C:/Users/csit/AppData/Local/Programs/Python/Python39-64/Python.exe
Janvi Garg , 0827CI211087
String 1: Hello
String 2: World
Concatenated two different strings: HelloWorld
```

### 3. Write a program to reverse a string using slicing

#### Input:

```
print("Janvi Garg , 0827CI211087")  
txt = "Hello World"[::-1]  
print(txt)
```

#### Output

```
===== RESTART: C:/Users/csiti/Ap  
Janvi Garg , 0827CI211087  
dlroW olleH
```

**Write a program to perform different methods of string like:  
len(atleast5)**

#### **4.Length**

**Input:**

```
print("Janvi Garg , 0827CI211087")  
a = "Hello, World!"  
print(len(a))
```

**Output:**

```
===== RESTART: C:/Users/csit/.  
Janvi Garg , 0827CI211087  
13
```

#### **5.Slicing**

**Input:**

```
print("Janvi Garg , 0827CI211087")  
b = "Hello, World!"  
print(b[2:5])
```

**Output**

```
===== RESTART: C:/Users/csit/Ar  
Janvi Garg , 0827CI211087  
llo
```

## 6.Modify string – Uppercase

### Input:

```
print("Janvi Garg , 0827CI211087")
a = "Hello, World!"
print(a.upper())
```

### Output

```
===== RESTART: C:/Users/csit,
Janvi Garg , 0827CI211087
HELLO, WORLD!
```

## 7.String Concatenation

### Input:

```
print("Janvi Garg , 0827CI211087")
a = "Hello"
b = "World"
c = a + b
print(c)
```

### Output

```
===== RESTART: C:/Users/csit/A
Janvi Garg , 0827CI211087
HelloWorld
```

## 8.Remove Whitespace

### Input:

```
print("Janvi Garg , 0827CI211087")
a = " Hello, World! "
print(a.strip())
```

### Output

```
===== RESTART: C:/Users/csit/
Janvi Garg , 0827CI211087
Hello, World!
```

9. Write a program to traverse all the characters of the string using for loop.

Input

```
print("Janvi Garg , 0827CI211087")
text = "Hello, World!"
```

```
for char in text:
    print(char)
```

Output

```
===== RESTART: C:/Users/csi
Janvi Garg , 0827CI211087
H
e
l
l
o
,
W
o
r
l
d
```

10. Write a program to print abecedarian series.

```
print("Janvi Garg , 0827CI211087")
def is_abecedarian(input_str):
    for i in range(len(input_str) - 1):
        if input_str[i] > input_str[i + 1]:
            return False
    return True
input_str = input("Enter the string: ")
if is_abecedarian(input_str):
    print("String is Abecedarian")
else:
    print("String is not Abecedarian")
```

Output

```
===== RESTART: C:/Users/csit/AppDa
Janvi Garg , 0827CI211087
Enter the string: almost
String is Abecedarian
```



11. Write a program to check whether a string is present in another string or not.

```
print("Janvi Garg , 0827CI211087")
MyString1 = "A geek in need is a geek indeed"
```

```
if "need" in MyString1:
    print("Yes! it is present in the string")
else:
    print("No! it is not present")
```

Output

```
===== RESTART: C:/Users/csit/AppData/Local/Programs/Python/Python39-6/Python.exe
Janvi Garg , 0827CI211087
Yes! it is present in the string
```

12. Write a program to print

```
A
A B
A B C
A B C D
```

```
print("Janvi Garg , 0827CI211087")
for i in range(1, 5):
    for j in range(65, 65+i):
        a = chr(j)
        print(a, end=" ")
    print()
```

Output

```
===== RESTART: C:/Users/csit/AppData/Local/Programs/Python/Python39-6/Python.exe
Janvi Garg , 0827CI211087
A
A B
A B C
A B C D
```

### 13. Write a program to Create a list with different data types.

```
print("Janvi Garg , 0827CI211087")
list1 = ["1", two, 3.0, true]

print(list1)

===== RESTART: C:/Users/csit
Janvi Garg , 0827CI211087
First Element: 1
Second Element: two
Third Element: 3.0
Fourth Element: True
```

### 14. Write a program to take user input in a list from eval()

```
print("Janvi Garg , 0827CI211087")
print("Enter the list 1 item")
user_list = [3,2,4,1,0,6,7]

for _ in range(user_list):

    print("Enter the list 2 item")
    ser_list = ['ABC' , 'DEF' , 'GHI']

print( user_list)

===== RESTART: C:/Users/csit
Janvi Garg , 0827CI211087

Enter the list 1 items : 3 2 4 1 0 6 7

Enter the list 2 items : ABC DEF GHI

[3, 2, 4, 1, 0, 6, 7]
['ABC', 'DEF', 'GHI']
```

**15. write a program to append five element in a list by using for loop in and append()python.**

```
print("Janvi Garg , 0827CI211087")
for _ in range(5):
    element = input[2,5,6,7]
    my_list.append(8)
list=[2,5,6,7]
list.append(8)
print(list)
```

```
==== RESTART: C:/Users/csit
Janvi Garg , 0827CI211087
```

```
[2, 5, 6, 7, 8]
```

**16. Write a program to sort a list in both ascending and descending order**

```
print("Janvi Garg , 0827CI211087")
List = [[2, 8, 10], [12, 45, 2], [4, 10, 1]]
for i in range(len(List)-1):
    # if the next element is greater then the next element, swap it.
    if List[i][0]>List[i+1][0]:
        List[i],List[i+1]=List[i+1],List[i]
print("Ascending",List)
for i in range(len(List)-1):
    # if the next element is less then the next element, swap it.
    if List[i][0]<List[i+1][0]:
        List[i],List[i+1]=List[i+1],List[i]
print("Descending",List)
```

```
==== RESTART: C:/Users/csit
Janvi Garg , 0827CI211087
```

```
Ascending [[2, 8, 10], [4, 10, 1], [12, 45, 2]]
Descending [[12, 45, 2], [4, 10, 1], [2, 8, 10]]
```

### 17. Write a program to count the occurrences of an element in a list

```
print("Janvi Garg , 0827CI211087")
l = [1, 1, 2, 2, 2, 3, 3, 4, 4, 5, 5]

ele=1

x=[i for i in l if i==ele]

print("the element",ele,"occurs",len(x),"times")
```

```
===== RESTART: C:/Users/csit
Janvi Garg , 0827CI211087
the element 1 occurs 2 times
```

### 18. Write a program to find the index of an element in the list

```
print("Janvi Garg , 0827CI211087")

fruits = ['apple', 'banana', 'cherry', 'apple', 'mango']

index = fruits.index('apple', 1, 4)

print(index)
```

```
===== REST
Janvi Garg , 0827CI211087
3
>>>
```

## 19. Write a program to swap the first and last element of a list.

```
print("Janvi Garg , 0827CI211087")  
  
def swapList(newList):  
    size = len(newList)  
  
    newList[0] = newList[size - 1]  
    newList[size - 1] = newList[0]  
  
newList = [12, 35, 9, 56, 24]  
  
print(swapList(newList))  
  
===== REST  
Janvi Garg , 0827CI211087  
[24, 35, 9, 56, 12]  
>>> |
```

## 20. Write a program to swap two number in list with given position.

```
print("Janvi Garg , 0827CI211087")  
  
def swapList(sl,pos1,pos2):  
    n = len(sl)  
  
    temp = sl[pos1]  
    sl[pos1] = sl[pos2]  
    sl[pos2] = temp  
  
l= [10, 14, 5, 9, 56, 12]  
  
pos1= 2  
  
pos2= 5  
  
print("Swapped list: ",swapList(l,pos1-1,pos2-1))  
  
===== RESTART: C:/Pytho  
Janvi Garg , 0827CI211087  
[10, 14, 5, 9, 56, 12]  
( 'Swapped list: ', [10, 56, 5, 9, 14, 12])  
>>> |
```

## 21. Write a program to check whether a number is in the list or not sublist even and odd.

```
print("Janvi Garg , 0827CI211087")
def Split(mix, num):
    ev_li = [ele for ele in mix if ele % 2 == 0]
    od_li = [ele for ele in mix if ele % 2 != 0]
    mix = [2, 5, 13, 17, 51, 62, 73, 84, 95]
    num_to_check = 62
    Split(mix, num_to_check)
```

```
===== RESTART: C:/Pyth
Janvi Garg , 0827CI211087
62 is in list
('Even list:', [2, 62, 84])
('Odd list:', [5, 13, 17, 51, 73, 95])
>>> |
```

## 22. Write a program to demonstrate the difference between remove and pop in a list.

```
print("Janvi Garg , 0827CI211087")
numbers = [1, 2, 3, 2, 3, 4, 5]
numbers.remove(3)
print(numbers)
print(numbers)
```

```
===== RESTA
Janvi Garg , 0827CI211087
[1, 2, 2, 3, 4, 5]
[1, 2, 2, 3, 4]
>>> |
```

### 23. Write a program to insert an element into a list at a position given by the user

```
print("Janvi Garg , 0827CI211087")  
  
def insert_element(lst, element, position):  
    lst.insert(position, element)  
    return lst  
  
input_list = input("Enter elements of the list separated by spaces: ").split()  
  
input_list = [int(x) if x.isdigit() else float(x) if x.replace('.', '', 1).isdigit() else x for x in input_list]  
  
element = input("Enter the element to insert: ")  
position = int(input("Enter the position to insert (0-indexed): "))  
result_list = insert_element(input_list, element, position)  
print("Updated List:", result_list)
```

```
>>>| ===== RESTART: C:/Users/csit/AppData/Local/Programs/Python  
| Enter elements of the list separated by spaces: 3 5 7 8  
| Enter the element to insert: 4  
| Enter the position to insert (0-indexed): 1  
| Updated List: [3, '4', 5, 7, 8]  
>>>|
```

