

Read Write Files



To read a text file in Python, you follow these steps:

- First, open a text file for reading by using the `open()` function
- Second, read text from the text file using the `file.read()`, `readline()`, or `readlines()` method of the file object.
- Third, close the file using the `file.close()` method. This frees up resources and ensures consistency across different python versions

`open(<file>, <mode>)`

Relative or absolute path to the file (including the extension)

A string (character) that indicates what you want to do with the file.

Method	Description
<code>writeable()</code>	Returns whether the file can be written to or not
<code>readable()</code>	Returns whether the file stream can be read or not
<code>read()</code>	Returns the file content
<code>readline()</code>	Returns one line from the file
<code>readlines()</code>	Returns a list of lines from the file
<code>write()</code>	Writes the specified string to the file
<code>writelines()</code>	Write a list of strings to the file
<code>close()</code>	Closes the file
<code>flush()</code>	Flushes the internal buffer
<code>seek()</code>	Change the file position
<code>tell()</code>	Returns the current file
<code>truncate()</code>	Resizes the file to a specified

Reading file

```
# Reading the txt file
file_name = "authors.txt"
file = open(file_name, "r")
content = file.read()
print(content)
```

English,Charles Severance
 English,Sue Blumberg
 English,Elloit Hauser
 Spanish,Fernando TardÃfo MuÃfÃ±iz

```
# Printing the path of file
print(file.name)
# Printing the mode of file
print(file.mode)
# Printing the file with '\n' as a new file
print(content)
# Printing the type of file
print(type(content))
```

authors.txt
 r
 English,Charles Severance
 English,Sue Blumberg
 English,Elloit Hauser

Spanish,Fernando TardÃfo MuÃfÃ±iz

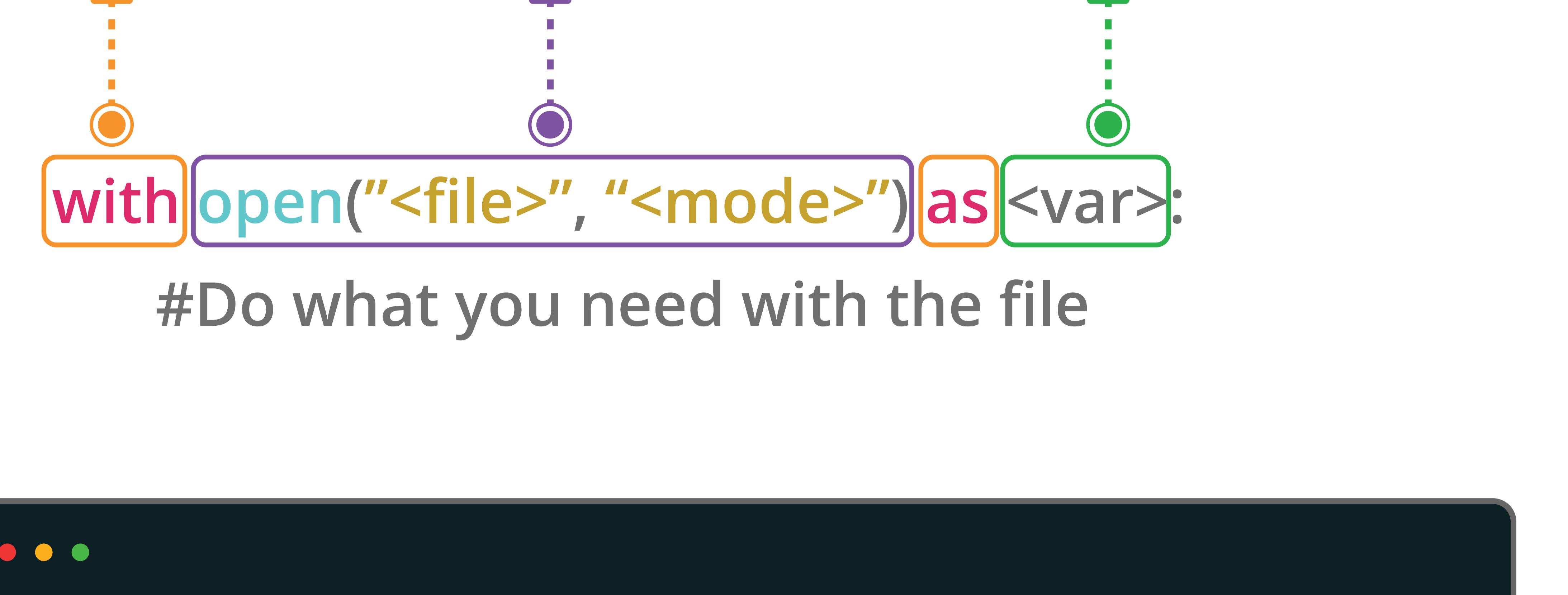
<class 'str'>

```
# Close the file
file.close()

# Verification of the closed file
file.closed
```

True

Another way to read a file



#Do what you need with the file

• • •

```
# Verification of the closed file  
file.closed
```

True

• • •

```
# See the content of the file  
print(content)
```

English,Charles Severance
English,Sue Blumberg
English,Elloitt Hauser
Spanish,Fernando TardÃfo MuÃfÃ±iz

• • •

```
# Reading the first 20 characters in the text file  
fname = 'authors.txt'  
with open(fname, 'r') as f:  
    print(f.read(20))
```

English,Charles Seve

• • •

```
# Reading certain amount of characters in the file  
fname = 'authors.txt'  
with open(fname, 'r') as f:  
    print(f.read(10))  
    print()  
    print(f.read(20))  
    print()  
    print(f.read(50))  
    print()  
    print(f.read(100))
```

English,Ch

arles Severance
Engl

ish,Sue Blumberg
English,Elloitt Hauser
Spanish,

Fernando TardÃfo MuÃfÃ±iz

• • •

```
# Reading first line in the text file  
with open(fname, 'r') as f:  
    print('The first line is: ', f.readline())
```

The first line is: English,Charles Severance

• • •

```
with open(fname, 'r') as f:  
    line_number = 1  
    for line in f:  
        print('Line number', str(line_number), ':', line)  
        line_number+=1
```

Line number 1 : English,Charles Severance

Line number 2 : English,Sue Blumberg

Line number 3 : English,Elloitt Hauser

Line number 4 : Spanish,Fernando TardÃfo MuÃfÃ±iz

Loop usage in the text file

• • •

```
with open(fname, 'r') as f:  
    line_number = 1  
    for line in f:  
        print('Line number', str(line_number), ':', line)  
        line_number+=1
```

Line number 1 : English,Charles Severance

Line number 2 : English,Sue Blumberg

Line number 3 : English,Elloitt Hauser

Line number 4 : Spanish,Fernando TardÃfo MuÃfÃ±iz

Methods

read(n) function

- Reads atmost n bytes from the file if n is specified, else reads the entire file.
- Returns the retrieved bytes in the form of a string.

```
● ● ●  
with open(fname, 'r') as f:  
    print(f.read())
```

English,Charles Severance
English,Sue Blumberg
English,Elloitt Hauser
Spanish,Fernando TardÃ±o MuÃ±iz

```
● ● ●  
with open(fname, 'r') as f:  
    print(f.read(30))
```

English,Charles Severance
Engl

readline() function

Reads one line at a time from the file in the form of string

readlines() function

Reads all the lines from the file and returns a list of lines.

```
● ● ●  
with open(fname, 'r') as f:  
    content=f.readlines()  
    print(content)
```

['English,Charles Severance\n', 'English,Sue Blumberg\n', 'English,Elloitt Hauser\n', 'Spanish,Fernando TardÃ±o MuÃ±iz\n']

strip() function

Removes the leading and trailing spaces from the given string.

```
● ● ●  
with open(fname, 'r') as f:  
    len_file = 0  
    total_len_file = 0  
    for line in f:  
        # Total length of line in the text file  
        total_len_file = total_len_file+len(line)  
        # Length of the line after removing leading and trailing spaces  
        len_file = len_file+len(line.strip())  
    print(f'Total length of the line is {total_len_file}.')  
    print(f'The length of the line after removing leading and trailing spaces is {len_file}.')
```

Total length of the line is 106.
The length of the line after removing leading and trailing spaces is 102.

Size of the text file

```
● ● ●  
with open(fname, 'r') as f:  
    str = ""  
    for line in f:  
        str+=line  
    print(f'The size of the text file is {len(str)}.')
```

The size of the text file is 26.
The size of the text file is 49.
The size of the text file is 72.
The size of the text file is 106.

Number of lines in the text

```
● ● ●  
with open(fname, 'r') as f:  
    count = 0  
    for line in f:  
        count = count + 1  
    print(f'The number of lines in the text file is {count}.')
```

The number of lines in the text file is 1.
The number of lines in the text file is 2.
The number of lines in the text file is 3.
The number of lines in the text file is 4.

•r+ Reading and writing. Cannot truncate the file.

```
● ● ●  
with open(fname, 'r+') as f:  
    content=f.readlines()  
    f.seek(0,0) # writing at the beginning of the file  
    f.write('From The San Diego Union-Tribune' + '\n')  
    f.write("Refreshing ... brashly confident ... indisputably entertain-  
ing." + "\n")  
    f.write("To my family..." + '\n')  
    f.seek(0,0)  
    print(f.read())
```

From The San Diego Union-Tribune
Refreshing ... brashly confident ... indisputably entertaining.
To my family...
From The San Diego Union-Tribune
Refreshing ... brashly confident ... indisputably entertaining.
To my family...

Copy the file

```
● ● ●  
# Let's copy the text file 'pcr_file.txt' to another one 'pcr_-  
file_1.txt'  
fname = 'pcr_file.txt'  
with open(fname, 'r') as f_reading:
```

```
    with open('pcr_file_1.txt', 'w') as f_writing:  
        for line in f_reading:  
            f_writing.write(line)
```

```
# For the verification, execute the following codes
```

```
fname = 'pcr_file_1.txt'  
with open(fname, 'r') as f:  
    print(f.read())  
# Now, there are 2 files from the same file content.
```

From The San Diego Union-Tribune
Refreshing ... brashly confident ... indisputably entertaining.

To my family...

From The San Diego Union-Tribune

Refreshing ... brashly confident ... indisputably entertaining.

To my family...

```
● ● ●  
# Writing the student names into a file
```

```
fname = open(r'student_name.txt', 'w')
```

```
for i in range(3):
```

```
    name = input('Enter a student name: ')
```

```
    fname.write(name)
```

```
    fname.write('\n') # To write names as a new line
```

```
fname = open(r'student_name.txt', 'r')
```

```
for line in fname:
```

```
    print(line)
```

```
fname.close()
```

Enter a student name: mahesh

Enter a student name: mahesh

Enter a student name: mahesh

mahesh

mahesh

Mahesh

```
● ● ●  
lines = ['Hello, World!', 'Hi, Python!']
```

```
with open('new_file.txt', 'w') as f:
```

```
    for line in lines:
```

```
        f.write(line)
```

```
        f.write('\n')
```

```
with open('new_file.txt', 'r') as f:
```

```
    print(f.read())
```

Hello, World!

Hi, Python!

Hi, Sun!

Hello, Summer!

Hi, See!