File I/O

File Input/ Output (Read/ Write)

- open('filename', 'mode')
  where mode **r** for reading, **w** for writing, or **a** for append

- Examples
  output = **open('output.txt', 'w')** # Open the 'output.txt' to write
  input = **open('input.txt', 'r')** # Open the 'input.txt' to read
  # .txt (**ANSI**) was fine, but .txt (**unicode**) not sure

Read & Write

```
# make manually an 'input.dat' file somewhere in your computer
input = open('C:/temp/input.dat', 'r' ) # 'r' is neglectable
output = open('C:/temp/output.dat', 'w')

A = input.read()          # read whole file into string
A = input.read(N)         # read N bytes
A = input.readline()      # read next line
A = input.readlines()     # read file into list of strings

output.write(A)           # Write string A into file
output.writelines(A)      # Write list of strings

output.close()            # Do not forget to close the file object
```

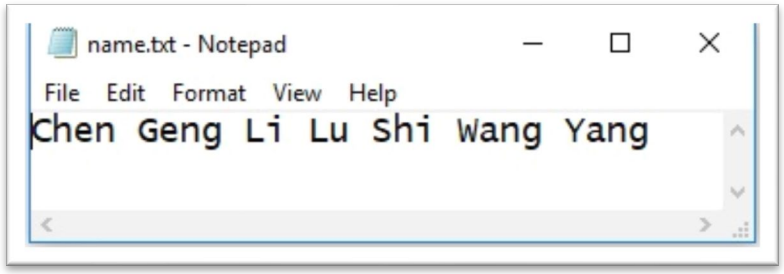
Read & Write - Simple example

```
# make manually an 'input.dat' file somewhere in your computer
>>> input = open('C:/temp/input.dat', 'r' )
>>> output = open('C:/temp/output.dat', 'w')

>>> A = input.read() # read whole file into string
>>> output.write(A) # Write string A into file

>>> output.close() # Do not forget to Close the output object

# manually open the 'output.dat' file on Notepad or Python Shell
```

Open & Read a text file

make a *.txt* file somewhere in your computer

e.g. **c:\somewhere\my_folder\name.txt**




```
>>> f = open("C:/temp/name.txt")
                    # set a path where you've saved the file
>>> A= f.read()
>>> print(A)
Chen Geng Li Lu Shi Wang Yang
>>> f.close
```

Open & Read a text file

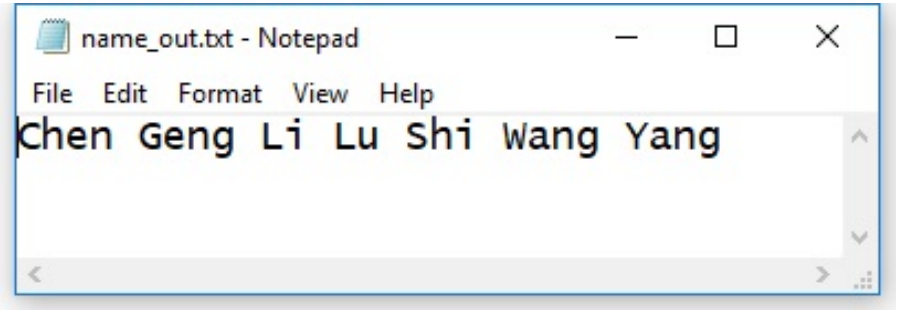
```
# Or, if the file is in the Python folder, e.g.
#                              C:\Program Files (x86)\Python
# then, just simply without specifying the path

>>> f = open("name.txt")
>>> f.read()   # read all the data stored in the file
'Chen Geng Li Lu Shi Wang Yang'
```

Open & Read a text file - Use *for* (instead of .read)

```
>>> for x in open("C:/temp/name.txt" ,"r" ).readlines():
        print (x)                          # Or,  for x in open("C:/temp/name.txt")
Chen Geng Li Lu Shi Wang Yang
>>> lst=[x]
>>> lst

# Or
>>> lst= [ x for x in open("C:/temp/name.txt","r" ).readlines()]
>>> lst
['Chen Geng Li Lu Shi Wang Yang']
```

File Input/ Output (Read/ Write)

```
>>> file_in = open("C:/temp/name.txt")  # we can omit "r"
    file_out = open("C:/temp/name_out.txt", "w")

>>> for line in file_in:
        file_out.write(line)

>>> file_out.close()
```



w : write
a : append
wb : write in binary
r : read (**default**)
rb : read in binary
U : read files with Unix
or Windows line endings

Write - Redirecting **stdout**

```
# Print statements normally go to stdout
#  (standard output, i.e., to the screen)
# stdout can be redirected to a file:
>>> import sys
>>> sys.stdout = open('C:/temp/output.dat', 'w')
>>> print ('Hello, everyone!')     # will write it in output.dat
>>> sys.stdout.close()  # Don't forget to close it before…
# manually open the file
# and see if 'Hello, everyone!' is stored in the file.
```

```
# Alternatively, to print just some stuff to a file:
>>> B = open(' C:/temp/output.dat ', 'w')  # open the file
>>> print ('Ha ha ha', file=B)   // Python 3
>>> B.close()    # Don't forget to close it.
```

Exercise - file parsing

```
# Read the whole thing at once
#    from output.dat file existing in the folder :
A=open('C:/temp/output.dat')
B=A.readlines()
A.close()

for x in B:
   print (x)
```

```
# Line-by-line (shortcut syntax avoiding readline calls):
D=open('C:/temp/output.dat','r')

for line in D:
  print (line)

D.close()
```