File Handling

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# == File Handling ==
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# "a" Append open file for appending values, create file if not exist
# "r" Read [default value] open file for read, case error if the file is not exist
# "w" Write open file for writing, create file if not exist
# "x" create create file, give error if the file exist
# open(): this take the file name with the path, and mode

file = open("C:\\Users\YOUSSEF\Desktop\osama.txt")

# close the file
file.close()

# ===============
# == Note That ==
# ===============
# there are two types of paths
# 1- absolute path: this start with the root to the specific file
# 2- relative path: this related with the your area [working directory]

import os
# get the main current working directory
print(os.getcwd())

# get the working directory of the file
print(os.path.abspath(__file__))

# print the directory of the opened file
print(os.path.dirname(os.path.abspath(__file__)))

# change the current working directory, in this file [not globally]
os.chdir(os.path.dirname(os.path.abspath(__file__)))

# ===============
# == Note That ==
# ===============
# if the path contains any escape sequence charatcter, use "r"
# "r": used to make the path raw string
file = open(r"D:\\Python\Files\nfile\osama.txt")



# ===================
# == Reading Files ==
# ===================

# open file for read
file = open("C:\\Users\YOUSSEF\Desktop\osama.txt", "r")

# print the "Data Object" of the file
print(file)
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print(file.name) # print the path of the file
print(file.mode) # print the mode of the file
print(file.encoding) # print the encoding of the file

# read(): used to read the content of the file
# the default value is [-1], this read all the content of the file
# read all the content of the file
print(file.read())

# you can read specific characters from the file [limit read]
print(file.read(4)) # this read only 4 bytes from the file

# readline(): this used to read line from the file
print(file.readline())

# readlines(): used to read all lines from the file
# the output as list
print(file.readlines())

# read the file using for loop
for line in file:
    print(line)
    if line.startswith('4'):
        break

# close the file
file.close()



# ============================
# == Write & Append To Files ==
# ============================

# Write to the file
# open file for read
# if the file not exist will create new file
# write remove the old content, and write the new content

file = open(r"C:\Users\YOUSSEF\Desktop\osama.txt", 'w')

# writet to the file
file.write("Hello Osama\n")
file.write("Hello Osama\n")
file.write("Hello Osama\n")

# writelines(): need list to write them to the file
myList = ['osama\n', 'ahmed\n', 'ahmed\n']

file.writelines(myList)

# close the file
file.close()

# Append to the file
# open file for append
file = open(r'C:Users\YOUSSEF\Desktop\osama.txt', 'a')
```

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# ============
# == append ==
# ============
# append used to append to the file
# this write to the content of the file
# the append write the content at the "cursor position"
# this append to the file
file.write('osama')

# close the file
file.close()

# ====================
# == important info ==
# ====================

# open file for append
file = open(r"C:\Users\YOUSSEF\Desktop\osama.txt", 'a')

# truncate(): used to truncate from the file, and remove the others
file.truncate(5)

# tell(): used to print the position of the cursor
# the new line in windows = 2-bytes
print(file.tell())

# close the file
file.close()

# open file for read
file = open(r'C:\Users\YOUSSEF\Desktop\osama.txt', 'r')

# seek(): used to put the cursor at the specific position
file.seek(2)

print(file.read())

# close the file
file.close()

import os
# remove file
os.remove(r"C:\Users\YOUSSEF\Desktop\osama.txt")
```