Lesson 7 (Files)

Revisiting print()

We already know how to use print for:

- strings
- strings containing special characters
- integers
- concatenation of several strings or stirngs and integers
- lists

In [9]:

```
print('Hello World!')
print('one\ntwo\tthree')
print(25*4)
print('Hello' + ' ' + 'Nazly')
print('If you multiply 25 and 4, you will get: ' + str(25*4))
print('If you multiply 25 and 4, you will get:', 25*4)

print( ['aaa', 'bbb', 123] )
print( "['aaa', 'bbb', 123" )
```

```
Hello World!
one
two     three
100
Hello Nazly
If you multiply 25 and 4, you will get: 100
If you multiply 25 and 4, you will get: 100
['aaa', 'bbb', 123]
['aaa', 'bbb', 123
```

Is it possible to print not to a screen, but to a file?

- yes, and this is easy!

In [34]:

```
f = open('test.txt', 'w')
f.write('Hello World!\n'*5)
f.close()
```

What about reading from a file?

two main options:

- as a whole text
- line by line

In [11]:

```
f = open('test.txt', 'r')

file_content = f.read()
print(file_content)
f.close()
```

```
Hello World!
Hello World!
Hello World!
Hello World!
Hello World!
```

In [18]:

```
f = open('test.txt', 'r')

for line in f:
    print(line)

f.close()
```

```
next line
Hello World!

next line
Hello World!

next line
Hello World!

next line
Hello World!

next line
Hello World!
```

Exercise 1

Write a function *number_of_lines(filename)* that takes file name as paramenter and returns the number of lines in this file

Run this function for 3 files on your hard drive (use text files and not binary files for this)
Output of your programm should be:

```
file_name1: has X lines
file_name2: has Y lines
file_name3: has Z lines
```

In [2]:

```
def number_of_lines(filename):
    f = open(filename, 'r')

    result = 0
    for _ in f:
        result += 1

    f.close()
    return result

print( 'test.txt: has ' + str(number_of_lines('test.txt')) + ' lines')
print( 'test2.txt: has ' + str(number_of_lines('test2.txt')) + ' lines')
print( 'test3.txt: has ' + str(number_of_lines('test3.txt')) + ' lines')
```

```
test.txt: has 5 lines
test2.txt: has 9 lines
test3.txt: has 3 lines
```

Execise 2

Write a programm which gets a filename from the user, and writes content of this file to another file on the hard drive adding number of the line to each line.

Given file *test.txt*:

```
first line
second line
third line
```

it should create a new file *test_numbered.txt* , which contains:

```
1: first line
2: second line
3: third line
```

In [23]:

```
def get_output_filename(input_file_name):
    tmp_list= input_file_name.split('.')
    tmp_list[0] += '_numbered'
    result = '.'.join(tmp_list)
    return result


filename = input('Please enter the filename:')

print('input file: ' + filename)
print('output file: ' + get_output_filename(filename))

f_input = open( filename, 'r' )
f_output = open( get_output_filename(filename), 'w')

line_cnt = 0

for line in f_input:
    line_cnt += 1
    output_line = str(line_cnt) + ':' + line
#    print(output_line)
    f_output.write( output_line )


f_input.close()
f_output.close()
```

```
Please enter the filename:test3.txt
input file: test3.txt
output file: test3_numbered.txt
```