



Artificial Intelligence (Machine Learning & Deep Learning) [Course]

Week 2 - Day 1

[See examples / code in GitHub code repository]

**It is not about Theory, it is 20% Theory and 80% Practical –
Technical/Development/Programming [Mostly Python based]**

Functions

Keyword Name of the function Input to the function

```
def function_name (input parameters):  
    """ A Docstring """  
    # Statement/s  
    return variable/s
```

Document string

sequence of statements

exit or return from function

enjoyalgorithms.com

❑ Types of Python Functions:

❑ (Built-in functions , Functions defined in built-in modules, User-defined functions)
Pass by Reference vs Value

References:

https://www.w3schools.com/python/python_functions.asp

<https://www.geeksforgeeks.org/python-functions/>

https://www.tutorialspoint.com/python/python_functions.htm

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Exercises



File Operations

Python File Handling



1. Create Files
2. Read Files
3. Write to Files



1. List Files From Directory
2. Copy, Rename, Delete Files from Directory
3. Copy, Delete Directories

```
# Create and Write
with open('test.txt', 'w') as fp:
    fp.write('new line')
# Read
with open('test.txt', 'r') as fp:
    fp.read()
```

```
os.rename('old_file_name', 'new_file_name')
os.remove('file_path')
```

```
shutil.copy('src_file_path', 'new_path')
shutil.move('src_file_path', 'new_path')
```

```
os.listdir('dir_path') # Get all files
shutil.rmtree('path') # Remove directory
shutil.copytree('src_path', 'dst_path') # Copy dir
```

PYnative.com

References:

<https://www.geeksforgeeks.org/file-handling-python/>

https://www.w3schools.com/python/python_file_handling.asp

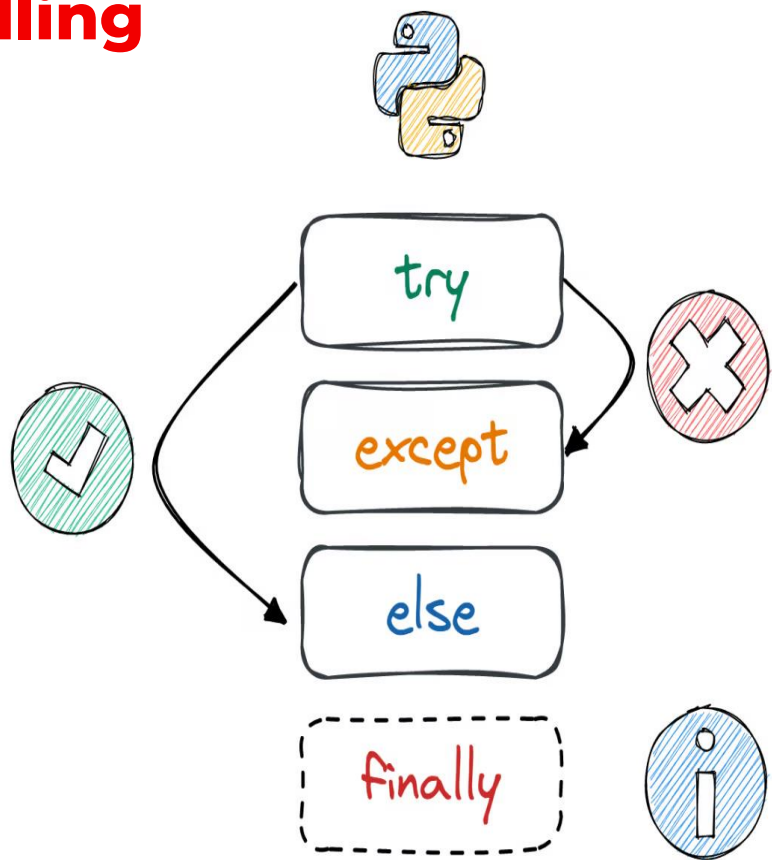
<https://www.includehelp.com/python/file-handling-programs.aspx>

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Exercises



Exception Handling



References:

<https://www.geeksforgeeks.org/python-exception-handling/>

<https://www.programiz.com/python-programming/exception-handling>

<https://python.land/deep-dives/python-try-except>

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Exercises



python

Map and Filter

map() and filter() Function

Map Function

```
def square(a):  
    return a**2  
  
List1 = [2,3,5,7,9]  
square_list1 = list(map(square,List1))  
  
print(square_list1)  
# Output: [4, 9, 25, 49, 81]
```

Function Name

Your List

The map() function is a high-order function in Python and it is used to apply a function to every element of an iterable such as a list or tuple and returns a new iterable object (which is an iterator) with the modified elements.

Consider lambda functions over separate definitions.

The filter() function is a high-order function in Python and it is used to filter out elements from an iterable (such as a list or tuple) based on a specific condition (or Function).

Filter Function

```
def even(n):  
    return n%2 == 0  
  
L1 = [1,2,3,4,5,6,7,8,9,10]  
even_l1 = list(filter(even,L1))  
  
print(even_l1) # Output: [2, 4, 6, 8, 10]
```

Your List

Function Name



python

Reduce



```
from functools import reduce

input = [12, 5, 23, 1]

def myFunction(a, b):
    return a + b

result = reduce(myFunction, input)
print(result)

# 41
```

References:

<https://www.geeksforgeeks.org/map-reduce-and-filter-operations-in-python/>

<https://stackabuse.com/map-filter-and-reduce-in-python-with-examples/>

[https://www.learnpython.org/en/Map, Filter, Reduce](https://www.learnpython.org/en/Map,_Filter,_Reduce)

<https://www.askpython.com/python/built-in-methods/map-vs-filter-function-python>

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Exercises



python



Thank you - for listening and participating

- ☐ Questions / Queries
- ☐ Suggestions/Recommendation
- ☐ Ideas.....?

Shahzad Sarwar
Cognitive Convergence

<https://cognitiveconvergence.com>
shahzad@cognitiveconvergence.com

voice: +1 4242530744 (USA) +92-3004762901 (Pak)