

# Control Flow

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# Week 5: Learning objectives

Get to know:

- 1 **if, else and elif** conditions
- 2 **for and while** loop
- 3 Useful tips

# Conditional statements

- if statement:
- else:
- elif (else if) statement:
- and, or, in, isinstance

# Loops (repeat an action)

- For - used only when we already knew the number of iterations
- While - used only when the number of iteration are not exactly known

Ways to exit loop:

- break
- continue

Use 'pass' when operation within the loop is not implemented yet

# USEFUL TIPS: One liner and Lambda

Helpful for writing concise codes

```
257
258 # one liner
259 lst = [i if np.mod(i,2)==0 else 5 for i in range(0,10)]
260 # Output - [0, 5, 2, 5, 4, 5, 6, 5, 8, 5]
261
262 # lambda
263 func = lambda a : a + 10
264 func(5)
265 # Output - 15
266
267 my_list = [1, 5, 4, 6, 8, 11, 3, 12]
268 new_list = list(filter(lambda x: (x%2 == 0) , my_list))
269 # Output - [4, 6, 8, 12]
```

# Homework

- ① Task 1
  - ② Task 2
  - ③ Task 3
  - ④ Task 4
- Submit your result as a Github repository
  - Deadline: 1 week

**Note:** Create a github repo from the start and populate it with your results step by step.

# Task 1

Using 'data.xlsx' with 'if' and 'for' loop, do the following:

- 1 Create a '.csv' file with data of only women older than 25 years old
- 2 Create a '.json' file with data of men under than 23 years old

## Task 2

Using 'np.random.random\_integers' function, create a list of length 20 comprising of numbers between 50 and 60. Then, do the following for the list:

- 1 Create a sublist consisting only of odd numbers (list, filter, lambda)
- 2 Create a sublist consisting only of even numbers (list, filter, lambda)
- 3 Create a list with all members multiplied by 10 (one-liner and map/lambda)
- 4 Create a list where one is subtracted from odd numbers and even numbers stay as they are (one-liner)
- 5 Print one of '< 52', '53-55', '56-58' and '>59', respectively, for each number based on their value matches
- 6 Print numbers one by one starting from the beginning until the first number above 58 appears (while)
- 7 Print first 5 numbers using while loop (i += 1)



# Task 3

Using 'data.xlsx', create two separate lists of first names and last names. Then, do the following:

- 1 Print out first name and last name next to each other using 'zip' command with loop
- 2 Print out first name and index of that next to each other using 'enumerate' command with loop

## Task 4: Optional

Do you find it manageable to solve the following problems?

- 1 <https://pynative.com/python-if-else-and-for-loop-exercise-with-solutions/>
- 2 <https://www.w3resource.com/python-exercises/python-conditional-statements-and-loop-exercises.php>

Thank you!