Programming for DA

Joseba Carricas
jcarricasga@external.unav.es

Planning

- ~~11/1 - Introduction~~
- ~~18/1 - Working with data files~~
- ~~25/1 - Working with data files~~
- ~~1/2 - Environment setup~~
- ~~8/2 - Basics: conditions~~
- ~~15/2 - First data analysis & presentation~~
- ~~22/2 - First data analysis & presentation~~
- 1/3 - Basics (loops) and review
- 8/3 - Maths & Statistics

- 15/3 - Partial exam

- 22/3 - Manipulating strings
- 29/3 - Data structures
- 5/4 - Data structures
- 26/4 - Data structures

While loops

Use it to execute a set of statements as long as a condition is true.
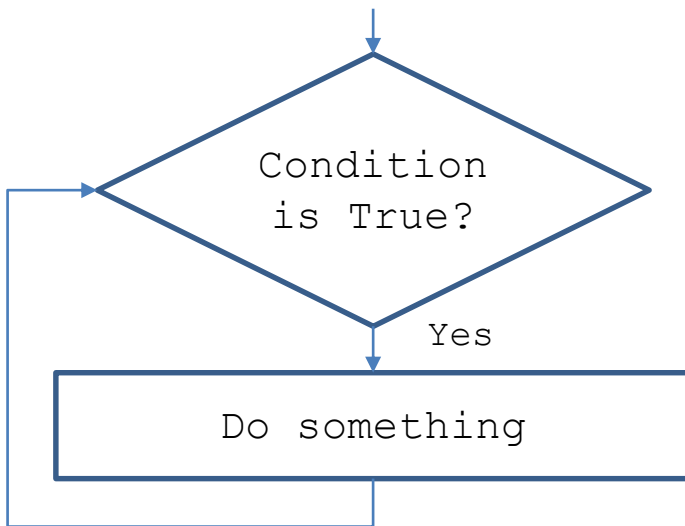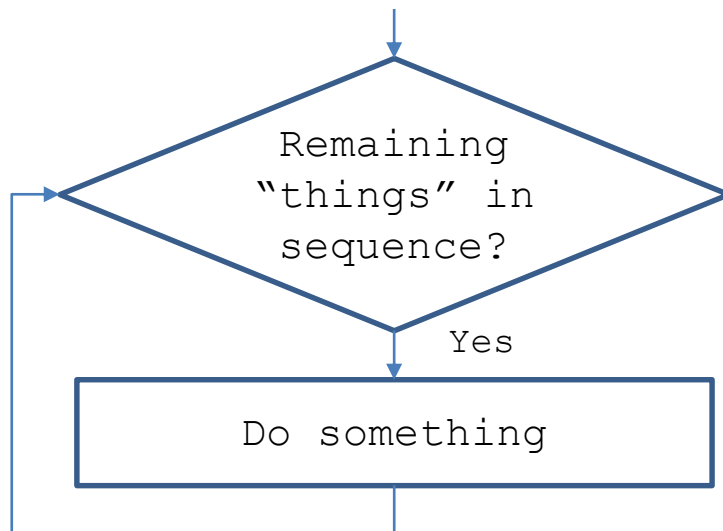


```python
while day_of_month < 20:
```

A brief reference:
https://www.w3schools.com/python/python_while_loops.asp

For loops

Use it to iterate over a sequence.


```python
for line_data in input_reader:

for x in range(2, 6):

for x in [0, 1, 2]:
```

A brief reference:
https://www.w3schools.com/python/python_for_loops.asp

Control statements

Break -> stop the loop.

```python
i = 1
while i < 6:
    print(i)
    if i == 3:
        break
    i += 1
```

Continue -> stop current iteration and continue with the next.

```python
i = 0
while i < 6:
    i += 1
    if i == 3:
        continue
    print(i)
```

(usually used with "if" statement)

Be aware of variable values!

"2 ways of going from 1 to 5"

```python
i = 1
while i < 6:
    print(i)
    if i == 3:
        break
    i += 1
```

```python
i = 0
while i < 6:
    i += 1
    if i == 3:
        continue
    print(i)
```

Go through W3school examples.

1. https://www.w3schools.com/python/python_while_loops.asp

2. https://www.w3schools.com/python/python_for_loops.asp

Copy/paste the example code in IDLE and make them work

Goal: use while loops.

1. Create a program that prints the even numbers lower tan 200.

Goal: use for loops.

1. Create a program that prints the sum of all numbers in a range.

   - 1->10, result: 55 (1+2+3+4+5+6+7+8+9+10)

   - 3->20, result: 207

   - 67->100, result: 2839

Goal: solve with loops.

1. Create a program that gets the factorial of a number.

   - 5! = 5 × 4 × 3 × 2 × 1 = 120

   - 7! = 7 x 6 x 5 × 4 × 3 × 2 × 1 = 5040

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