PROGRAMMING 1 - WEEK 4

Loops

UC Leuven Limburg
MOVING MINDS

Recap

- Arithmetic
- Booleans
- Conditionals
- None

- Strings

Permanent Evaluation

Time limit

- 6 questions – 6 minutes
- Everyone gets 30% extra
- Rounded to 10 minutes maximum

Scrap paper

- Only colored scrap paper handed by the lecturer
- Put it RIGHT in front of you, RIGHT in front of your laptop
- Hand in after the test

Permanent Evaluation

- Be quiet - no talking
- Don't cheat
  - Look at your own screen
- ONLY allowed to be on ANS
  - No GenAI – No VSCode – ...
  - No ppt – No notes – ...
- Browser full screen
- Display Light 100%
- Guess correction: - 1 / (# options – 1)
- Close your laptop when finished

Git: pulling changes

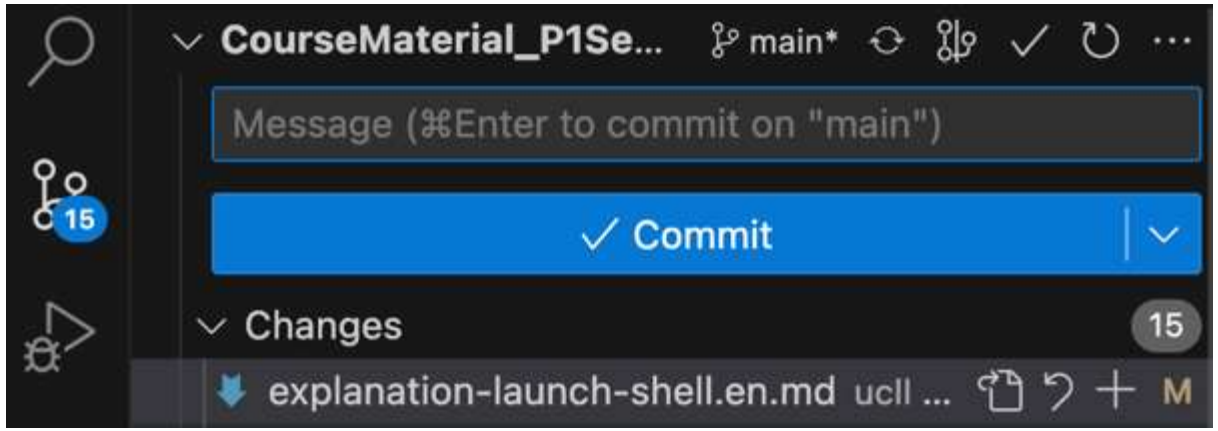
```
git pull
```

If you get an error telling you that you have to set a default merge strategy:

```
git config pull.rebase true
```

(then pull again)

If you get an error telling you that you have conflicting working changes, make sure to discard any changes you might have made to assignment or test files. (Changes to student.py files are ok since we don't modify those)



PROGRAMMING 1 - WEEK 4

Loops

For loop

```
print('Hello')
print('Hello')
print('Hello')
print('Hello')
print('Hello')
```

```
for i in range(1,6):
    print('Hello')
```

For loop

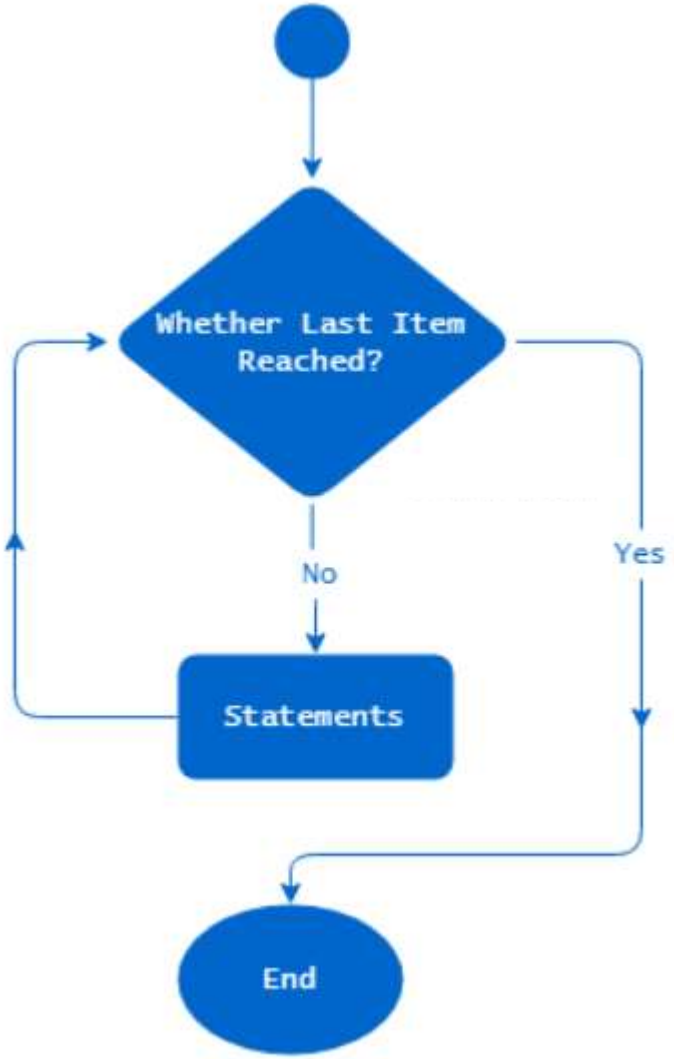
```
for i in range(1,6):
    print(i)
```

```
1
2
3
4
5
```

For-loop

```
for i in range(start,stop):
    # loop statements
```

- i loop-variable
- start start-value for i (included)
- stop stop-value for i (excluded)



Range

```
for i in range(stop):
    # loop statements
```

→ start is assumed to be 0

```
for i in range(start,stop,step):
    # loop statements
```

```
for i in range(1,10,2):
    print(i)
```

```
1
3
5
7
9
```

```
for i in range(5,0,-1):
    print(i)
```

```
5
4
3
2
1
```

Exercise - Count spaces

Write a function **count_spaces(text)** that returns the number of spaces in the input parameter **text**.

String iteration

```
for variable in range(start, stop):
    # body
```

```
for variable in iterable_object:
    # body
```

```
for variable in string:
    # body
```

```
for char in "Hello":
    print(char)
```

```
H
e
l
l
o
```

Exercise - Count spaces

Write a function **count_spaces(text)** that returns the number of spaces in the input parameter **text**.

```
def count_spaces(text):
    count = 0
    for i in range(0,len(text)):
        if text[i] == ' ':
            count += 1
    return count
```

```
def count_spaces(text):
    count = 0
    for char in text:
        if char == ' ':
            count += 1
    return count
```

Exercise - Count spaces

Write a function **count_spaces(text)** that returns the number of spaces in the input parameter **text**.

```
def count_spaces(text):
    count = 0
    for i in text:
        if text[i] == ' ':
            count += 1
    return count
```

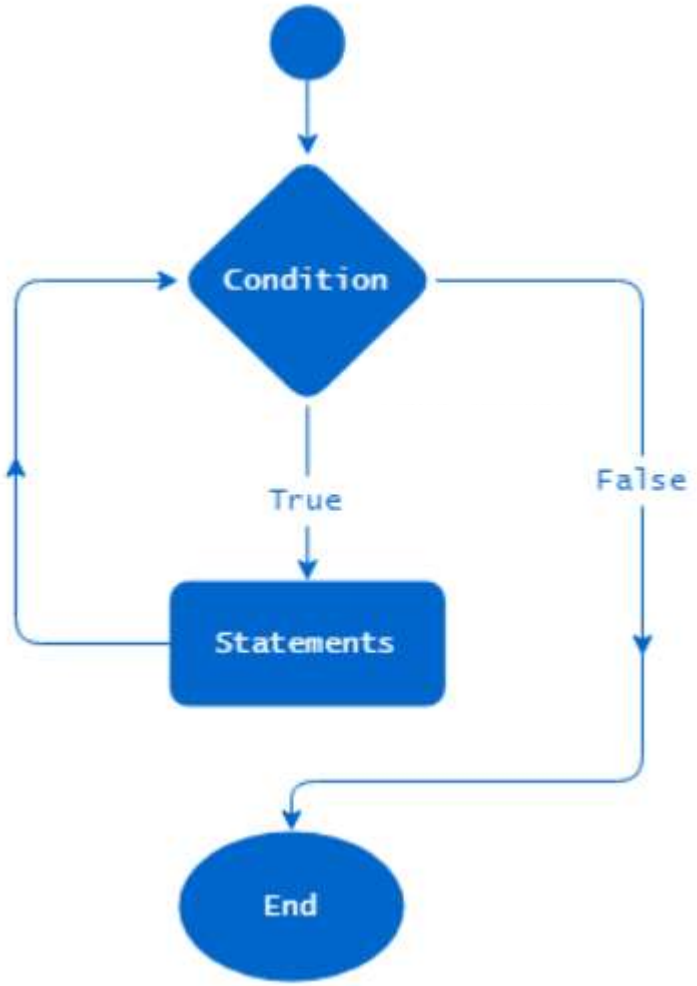
Exercise - Guess number

Write a function **guess_number(number)** where a user must guess the parameter **number**. The function should ask the user to guess a number in the terminal, it should print whether the guess was correct, too low, or too high. If the guess is not correct, the user should be allowed to guess again until the correct number is guessed.

While-loop

```
while condition:
    # statements
```

Condition needs to change inside the while loop!



While loop

```
number = 3

while number > 0:
    print(number)
    number -= 1

print("Go!")
```

```
3
2
1
Go!
```

```
for number in range(3,0,-1):
    print(number)
print("Go!")
```

Exercise - Guess number

Write a function **guess_number(number)** where a user must guess the parameter **number**. The function should ask the user to guess a number in the terminal, it should print whether the guess was correct, too low, or too high. If the guess is not correct, the user should be allowed to guess again until the correct number is guessed.

Extra - Nesting

Terminal

```
a1      a2      a3
b1      b2      b3
c1      c2      c3
d1      d2      d3
e1      e2      e3
```

```python
def print_roster():
    for char in "abcde":
        row = ""
        for i in range(1,4):
            row += f"{char}{i}\t"
        print(row)

print_roster()
```

- 5 rows: a – b – c – d – e – f
- 3 columns: 1 – 2 – 3

Extra - Nesting

```python
def print_roster():
    for char in "abcde":
        row = ""
        for i in range(1,4):
            row += f"{char}{i}\t"
        print(row)

print_roster()
```

This is possible, but it might be better to create seperate functions

```python
def print_roster():
    for char in "abcde":
        print_row(char)

def print_row(char):
    row = ""
    for i in range(1,4):
        row += f"{char}{i}\t"
    print(row)

print_roster()
```

Questions?

Exercises

1. Write a function **count_spaces(text)** that returns the number of spaces in the input parameter **text**.

2. Write a function **guess_number(number)** where a user must guess the parameter **number**. The function should ask the user to guess a number in the terminal, it should print whether the guess was correct, too low, or too high. If the guess is not correct, the user should be allowed to guess again until the correct number is guessed.