Les 2 07/10

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IF - ELSE WHILE

★ Relationele operatoren in Python

Table 1 Relational Operators

Python	Math Notation	Description
>	>	Greater than
>=	≥	Greater than or equal
<	<	Less than
<=	≤	Less than or equal
==	=	Equal
!=	≠	Not equal

"=" kent een waarde toe
"==" kijkt een waarde na
Gebruikt in if of while constructies

Vergelijking van strings: volgorde en hiërarchie!
All UPPERCASE letters come before lowercase
'space' comes before all other printable characters
Digits (0-9) come before all letters
See Appendix A for the Basic Latin (ASCII) Subset of Unicode

Aparte commando's string en number. Zie HB!

Datatypes:
String
Float
Boolean
Twee waarden: true, false
Boolean variabelen: failed = true/false
Operatoren: and, or, not (denk aan waardetabellen!)

★ Boolean variabels

AND

```
if temp > 0 and temp < 100 :
   print("Liquid")
```

OR

```
if temp <= 0 or temp >= 100 :
   print("Not liquid")
```

NOT

```
if not attending or grade < 60 :
   print("Drop?")
```

```
if attending and not(grade < 60) :
   print("Stay")
```

--> betere versie

```
if attending and grade >= 60 :
   print("Stay")
```

Geneste commando's
Vb.: programma discriminant (uitgebreid, les 2)
Vb.: schaal van richter (let op de verschillende interpretaties!)

```
if richter >= 8.0 :   # Handle the 'special case' first
   print("Most structures fall")
else:
   if richter >= 7.0 :
      print("Many buildings destroyed")
   else:
      if richter >= 6.0 :
         print("Many buildings damaged, some collapse")
      else:
         if richter >= 4.5 :
            print("Damage to poorly constructed buildings")
         else :    # so that the 'general case' can be
  handled last
            print("No destruction of buildings")
```

=

```
if richter >= 8.0 :   # Handle the 'special case' first
   print("Most structures fall")
elif richter >= 7.0 :
   print("Many buildings destroyed")
elif richter >= 6.0 :
   print("Many buildings damaged, some collapse")
elif richter >= 4.5 :
   print("Damage to poorly constructed buildings")
else :    # so that the 'general case' can be handled last
   print("No destruction of buildings")
```

!=

```
if richter >= 8.0 :
   print("Most structures fall")
if richter >= 7.0 :
   print("Many buildings destroyed")
if richter >= 6.0 :
   print("Many buildings damaged, some collapse")
if richter >= 4.5 :
   print("Damage to poorly constructed buildings")
```

Vb. Count-controlled loops: Som 1 tot n berekenen = (n*(n+1))/2

Count-controlled loops

= while-loop onder invloed van een telopdracht

```
counter = 1            # Initialize the counter
while counter <= 10 :     # Check the counter
   print(counter)
   counter = counter + 1  # Update the loop variable
print("----")
```

Event-controlled loops

= while-loop onder invloed van een voorwaarde

```
##
#  This program computes the time required to double an investment.
#

# Create constant variables.
RATE = 5.0
INITIAL_BALANCE = 10000.0
TARGET = 2 * INITIAL_BALANCE

# Initialize variables used with the loop.
balance = INITIAL_BALANCE
year = 0

# Count the years required for the investment to double.
while balance < TARGET :
   year = year + 1
   interest = balance * RATE / 100
   balance = balance + interest

# Print the results.
print("The investment doubled after", year, "years.")
```

Veel gemaakte programmafouten

Foute voorwaarde, vb.: >= ipv >
Oneindige loops
Loop die maar 1x mee gaat

Sentinel values

Gebruikt in een while-loop die een reeks getallen leest en controleert. Er is geen duidelijkheid over wanneer de while-loop moet stoppen, dus voordat deze start wordt er een waarde ingesteld zodat de loop deze leest als 'einde loop'.

Opm.: in het algemeen wordt de waarde -1 hiervoor gebruikt

While getal != -1:	Start je commando op deze manier om de sentinel variabe;le te installeren

Vb.: berekening gemiddeld salaris

```
# initialisation
total = 0.0
count = 0
# Initial read -  read the first value
salary = float(input("Enter a salary or -1 to
```

0	vraag getal n
1	Som = 0
2	Voor elke " " >= 0 and " " <= 0 som <-> som +1
3	Schrijf som uit

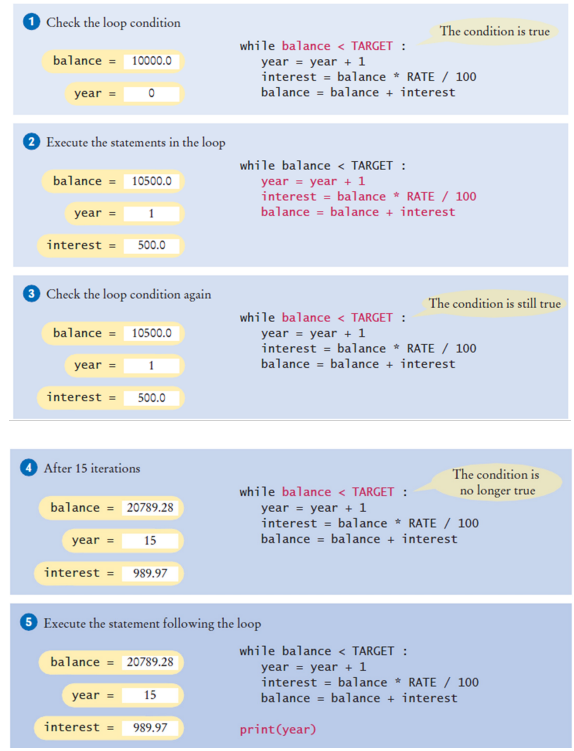
```
n=int(input("geefwardevoorn"))

#startwaarde
som=0
teller=0

while(teller<n):
teller=teller+1
som=som+teller

print("desomis",som)
```

Uitvoering loop voorbeeldprogramma event-controlled loop



```
finish: "))
# We will keep on processing values until a
negative value is input
while salary >= 0.0 :
   total = total + salary
   count = count + 1
   # Next read
   salary = float(input("Enter a salary or -1 to
finish: "))
# Compute an print average salary
if count > 0:
    average = total / count
    print("Average salary is", average)
else:
    print("No data was provided...")
```