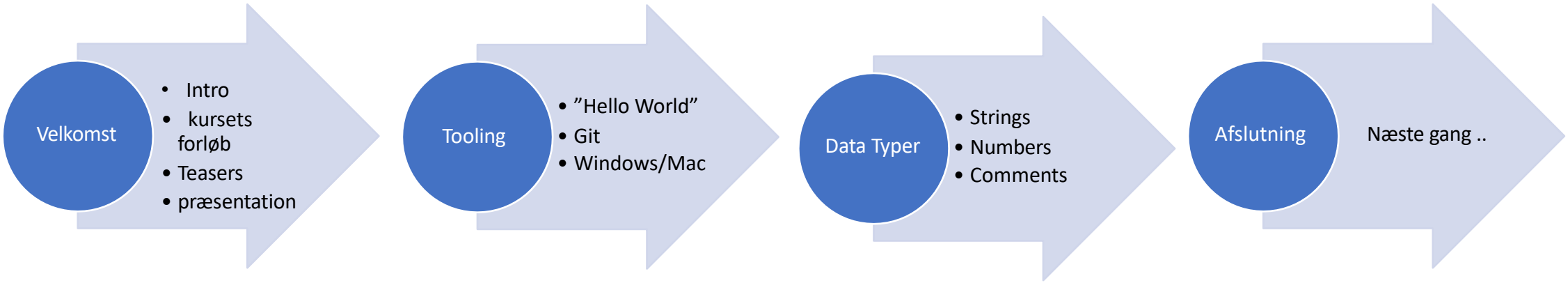
EVU Python

Program


Velkomst
• Intro
• kursets forløb
• Teasers
• præsentation
Tooling
• ”Hello World”
• Git
• Windows/Mac
Data Typer
• Strings
• Numbers
• Comments
Afslutning
Næste gang ..

Velkomst

kursets forløb

24/8

31/8

07/9

14/9

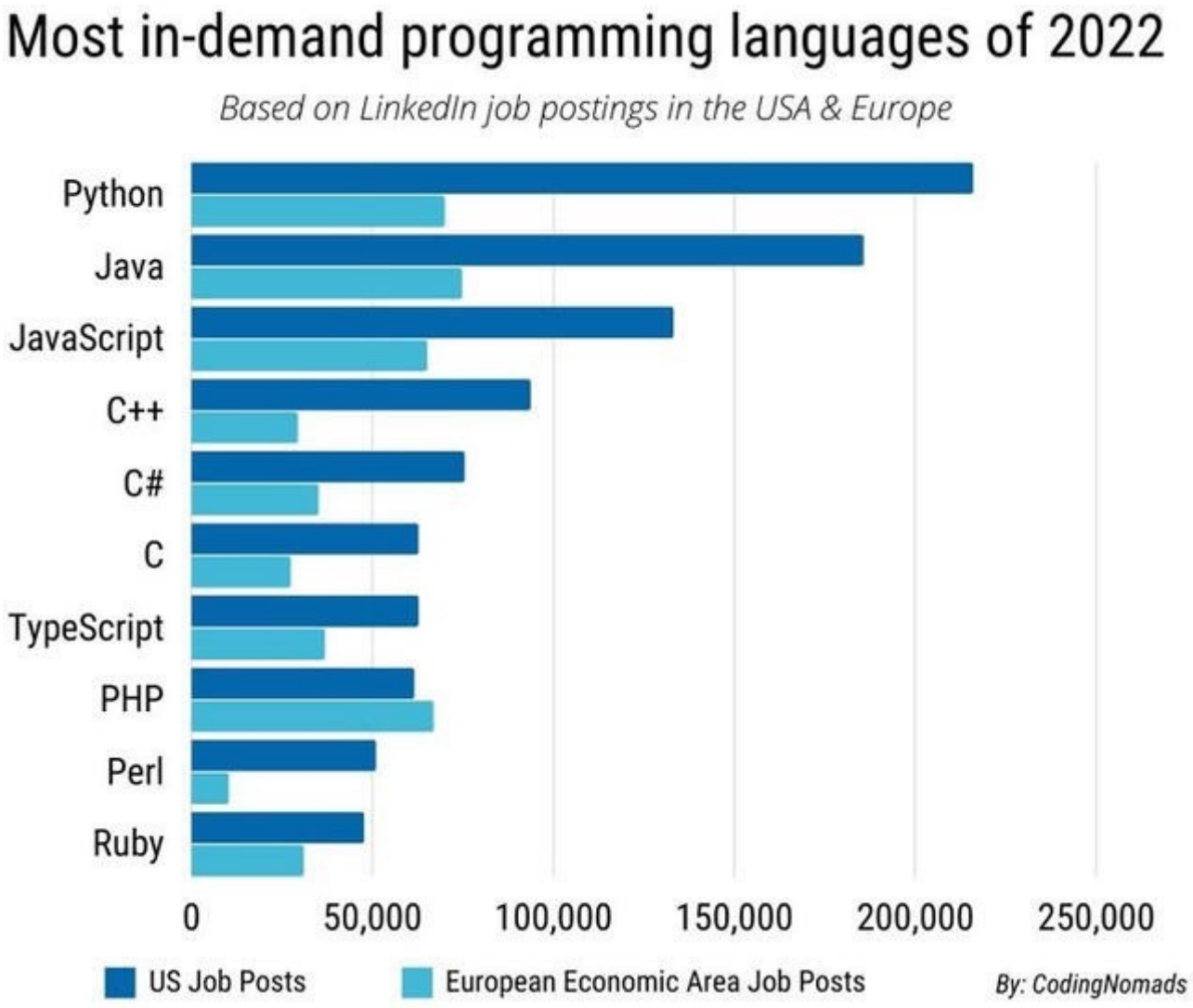
21/9

28/9

5/10

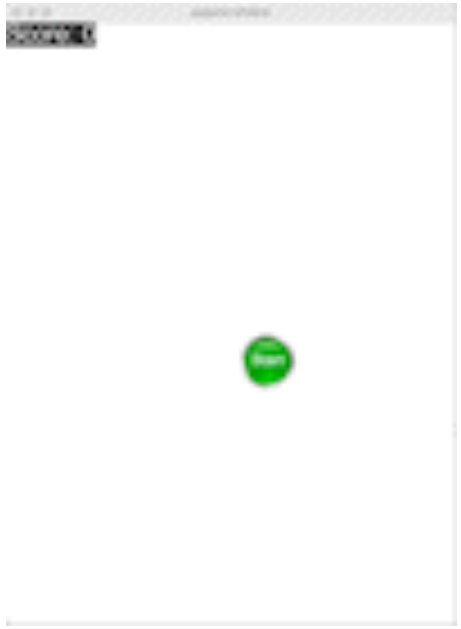
Her forlader vi bogen

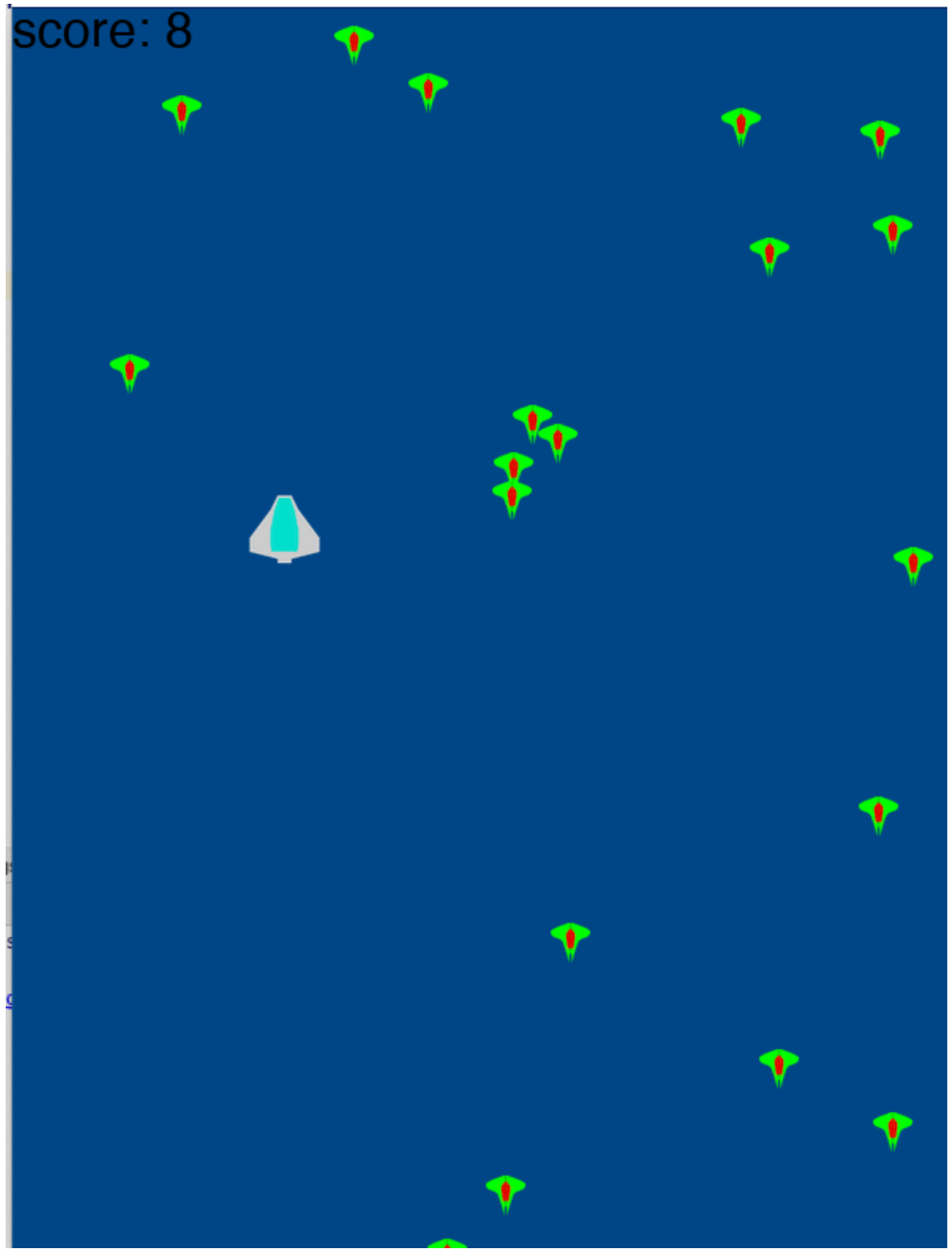
Python Stats



Pygame

Final pygame





The way

Skovlen ..

I/O

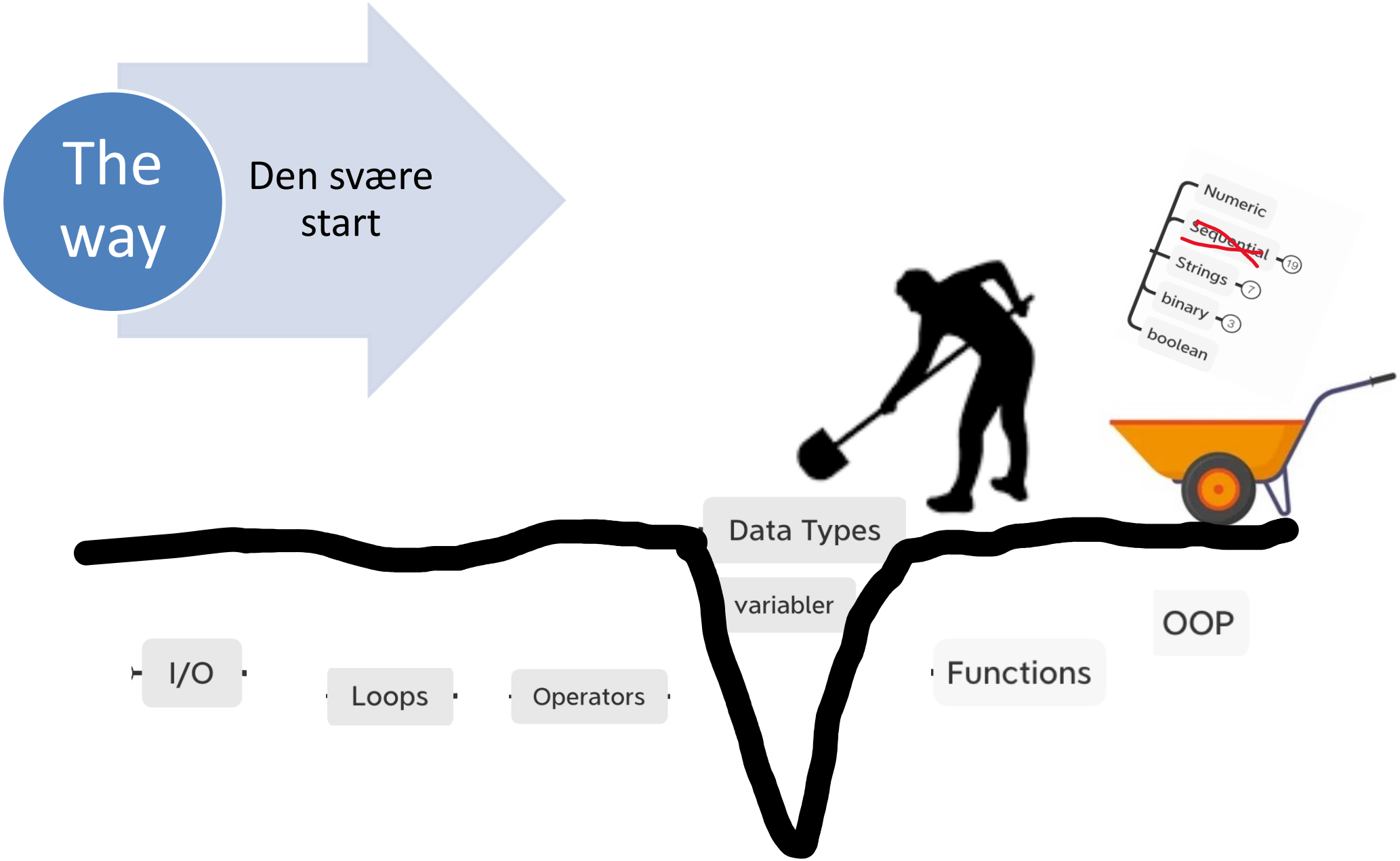
Loops

Operators

Data Types

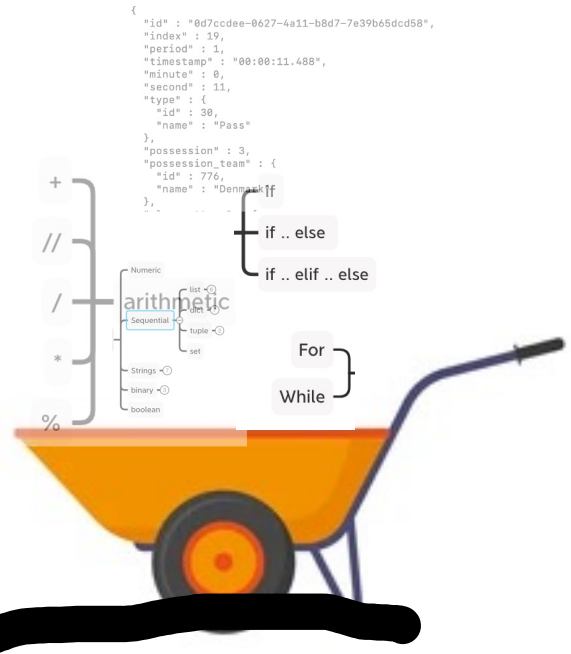
Functions

OOP


The way
Den svære start
Numeric
Sequential
Strings
binary
boolean
Data Types
variabler
OOP
I/O
Loops
Operators
Functions

The way

Så sker der noget ..



I/O

Loops

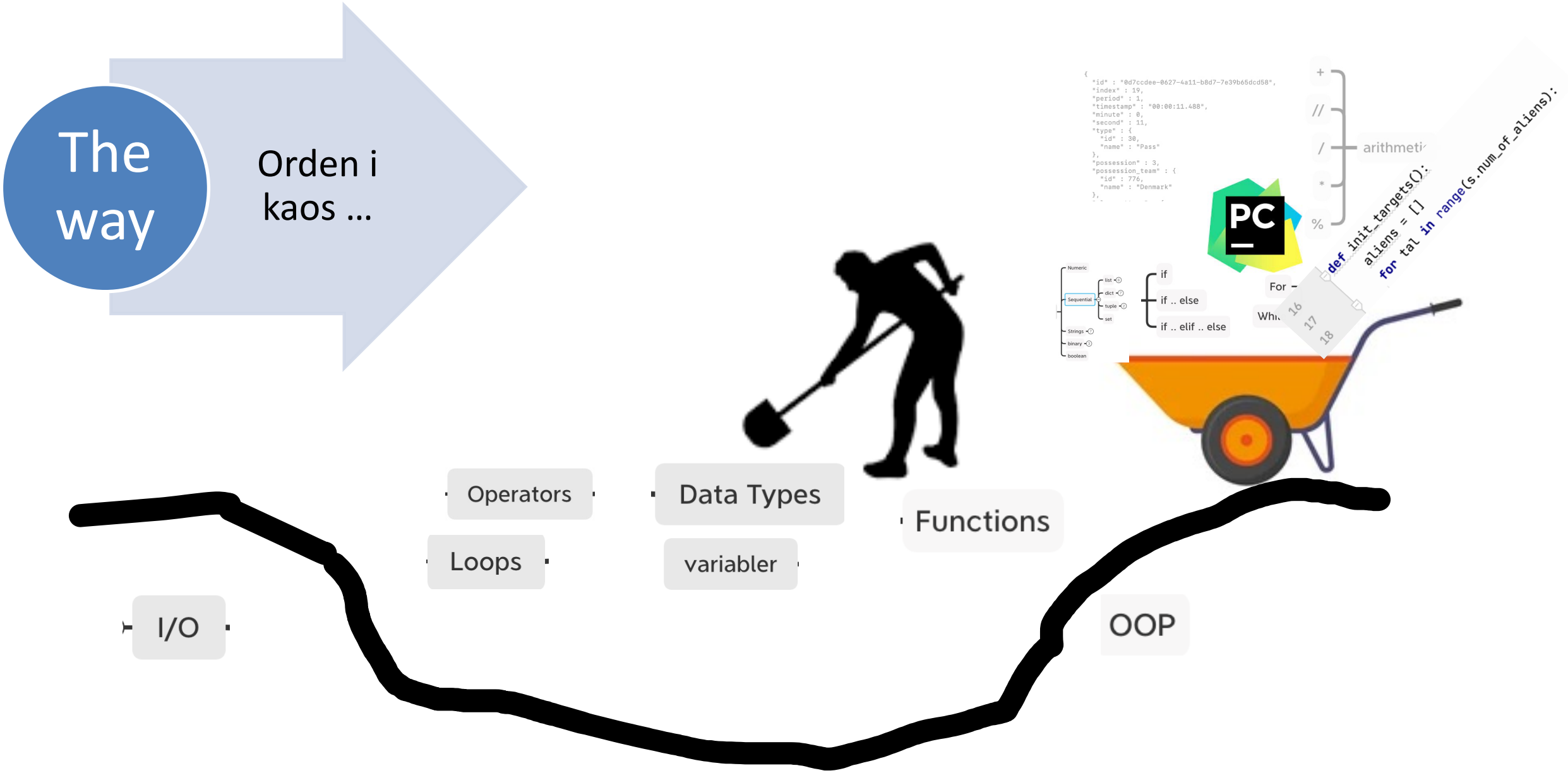
Operators

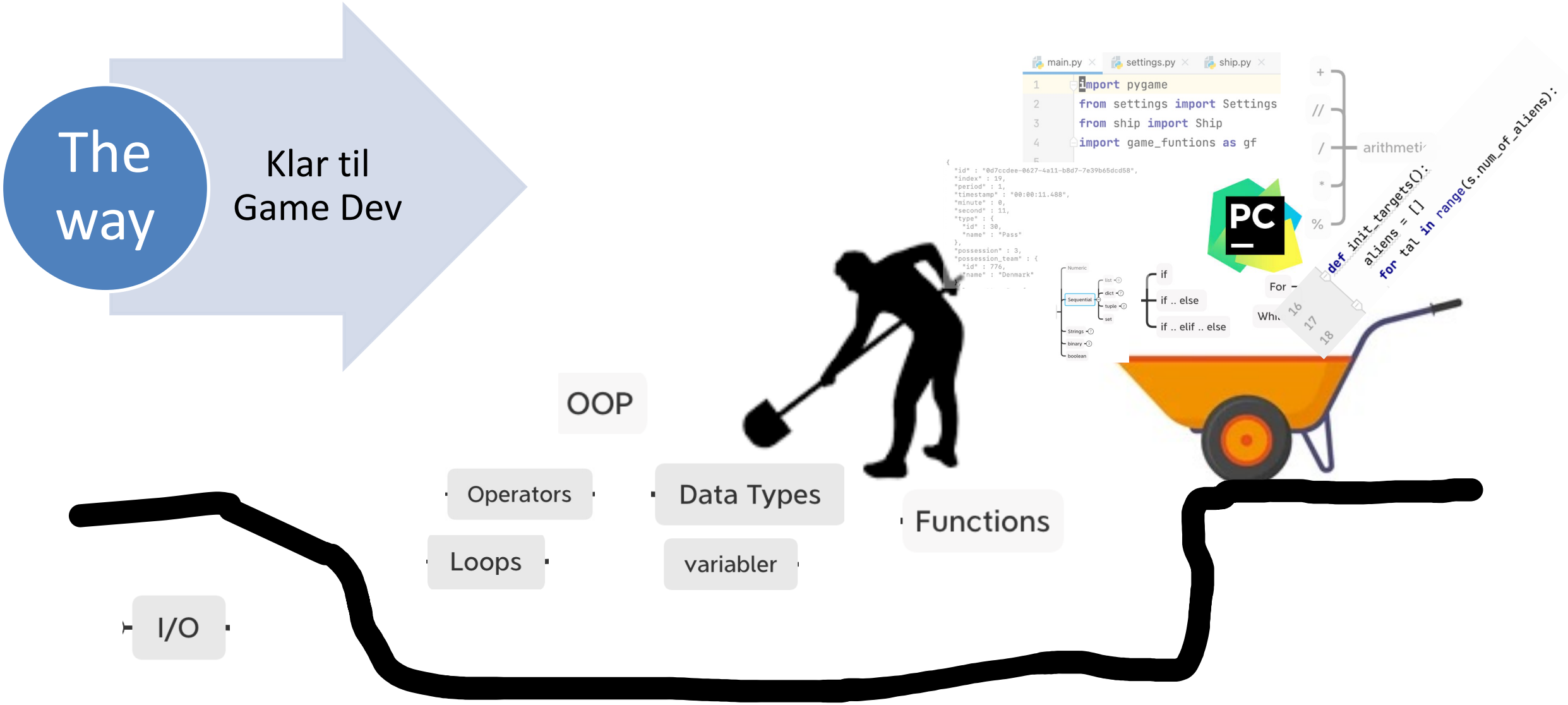
Data Types

variabler

Functions

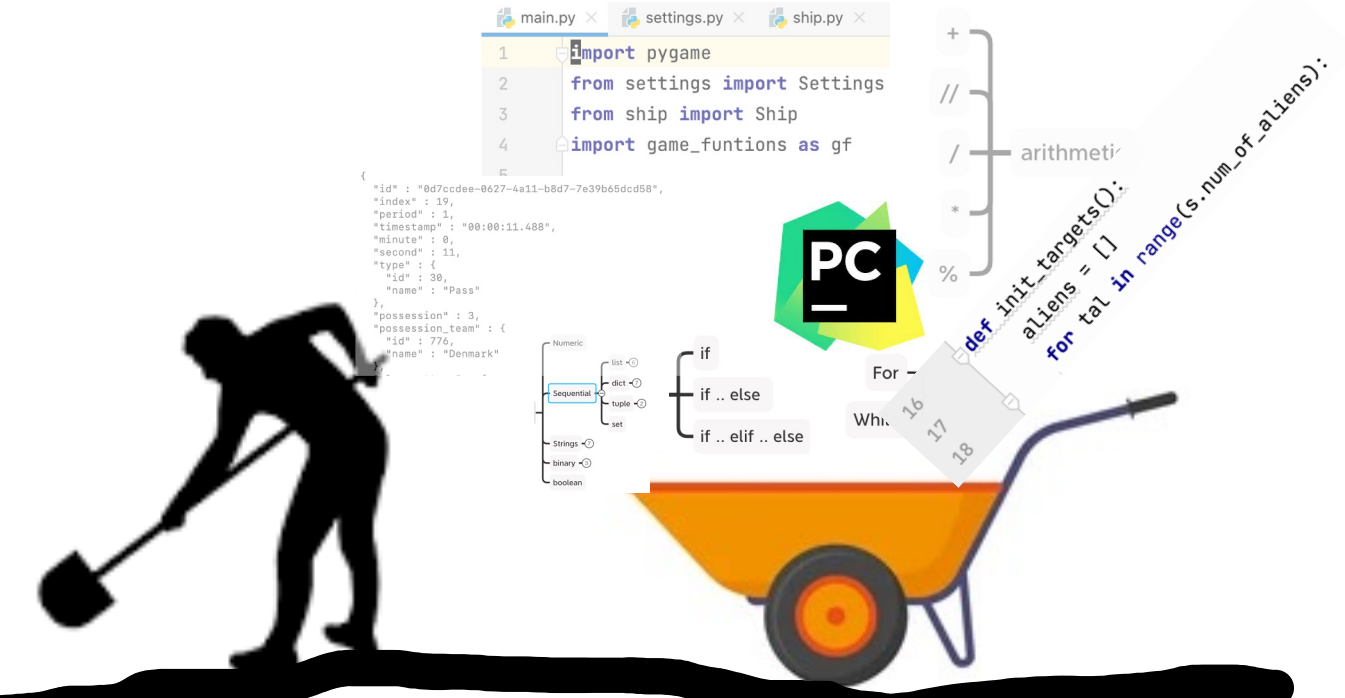
OOP


The way
Orden i kaos ...
I/O
Loops
Operators
Data Types
variabler
Functions
OOP
PC
def init_targets():
aliens = []
for tal in range(s.num_of_aliens):
if
if .. else
if .. elif .. else
arithmeti


The way
Klar til Game Dev
OOP
Operators
Data Types
Functions
Loops
variabler
I/O
main.py
settings.py
ship.py
import pygame
from settings import Settings
from ship import Ship
import game_funtions as gf
if
if .. else
if .. elif .. else
def init_targets():
aliens = []
for tal in range(s.num_of_aliens):

Next up

Videre gående



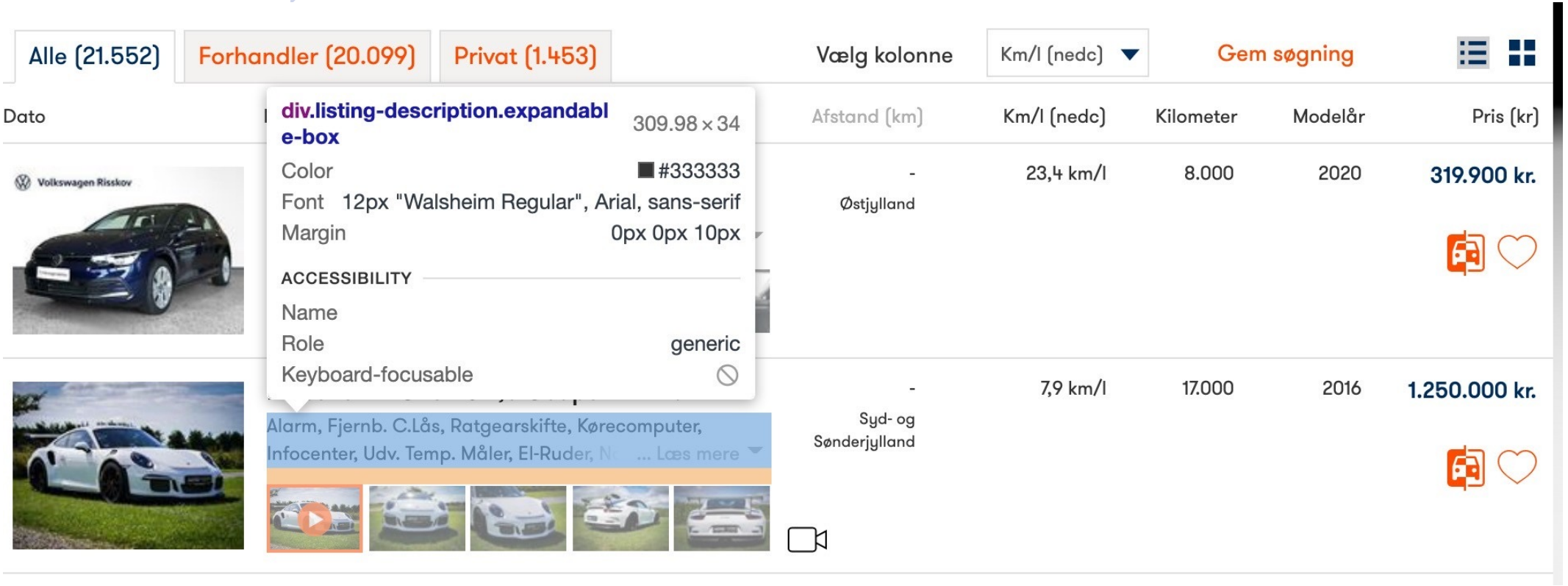
- ECO System
  - PyPi
    - Data Science
      - SciKitLearn
      - Numpy
      - Pandas
      - MatPlotLib
    - WebScraping
      - bs4
      - selenium
    - WebFrames
      - Flask
      - django
  - PSF in Delaware

- I/O
  - Database
    - SQL (1)
    - NoSQL
      - MongoDB (2)
      - Graph
  - Files (4)
  - Serial
  - requests (2)

PAUSE

Teaser

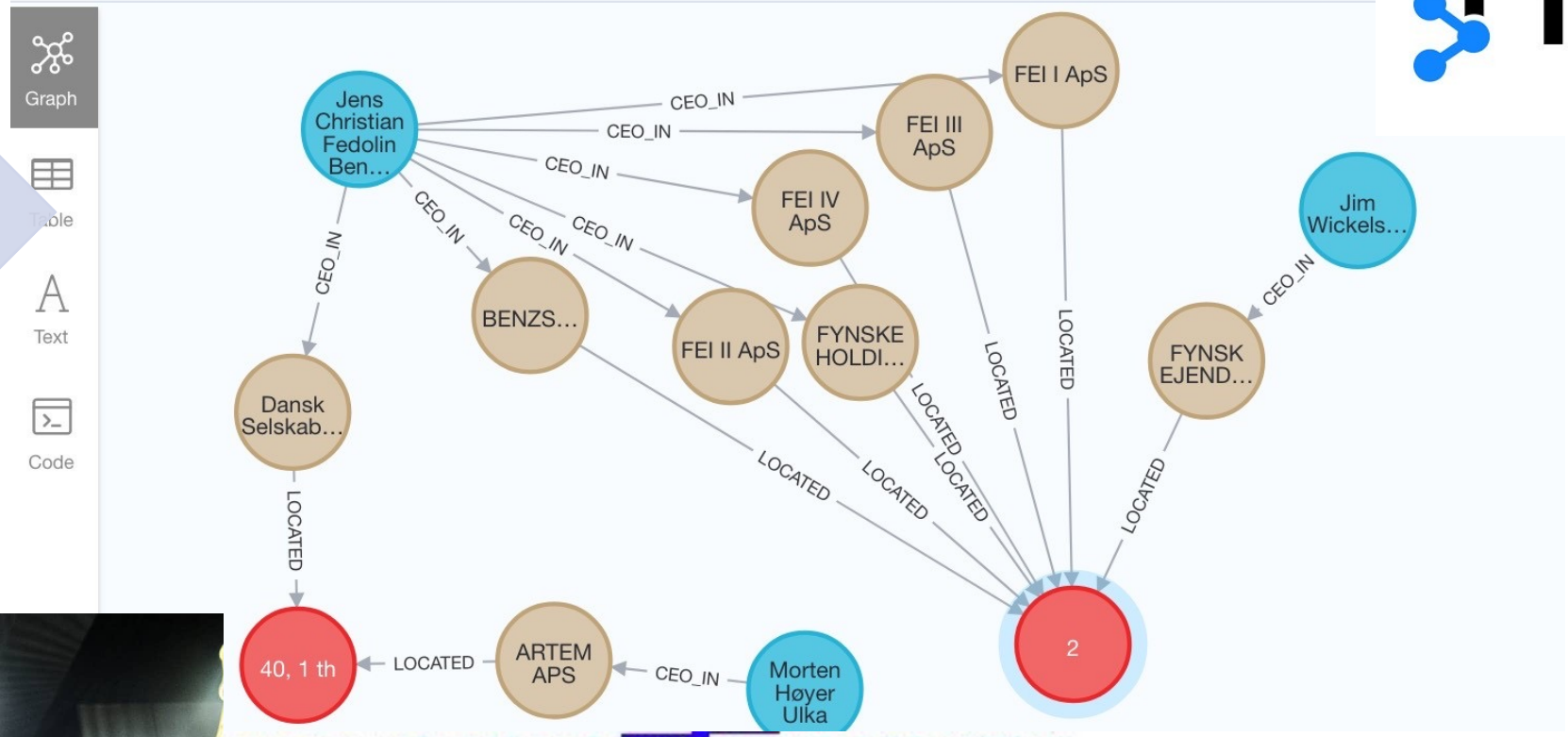
Web Scraping



Teaser

Fraud Detection

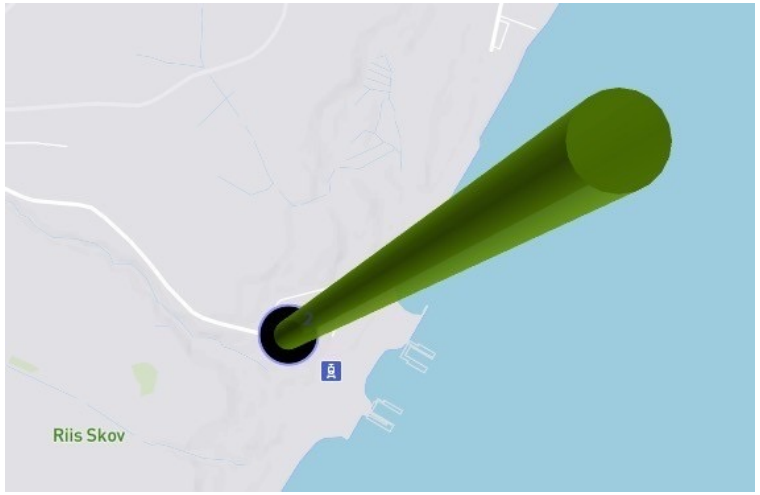
```
neo4j$ match (n:Location) where id(n)=55 return n
```



```
c174">9700</c:AddressOfAuditorPostCodeIdentifier>
Brønderslev</c:AddressOfAuditorDistrictName>
rdjyske Bank</c:NameOfFinancialInstitution>
Vodskovvej</c:AddressOfFinancialStreetName>
extRef="c174">43</c:AddressOfFinancialStreetBuildingIdentifier>
="c174">9310</c:AddressOfFinancialPostCodeIdentifier>
">Vodskov</c:AddressOfFinancialDistrictName>
ester Hassing</e:PlaceOfSignatureOfStatement>
2017-11-07</e:DateOfApprovalOfAnnualReport>
ef="c637">Poul Erik Madsen</d:NameAndSurnameOfMemberOfExecutiveBoard>
tRef="c646">Poul Erik Madsen</d:NameAndSurnameOfMemberOfSupervisoryBoard>
tRef="c647">Martin Nørgaard</d:NameAndSurnameOfMemberOfSupervisoryBoard>
<f:SignatureOfAuditorsPlace contextRef="c174">Brønderslev</f:SignatureOfAuditorsPlace>
```

Teaser

REST API



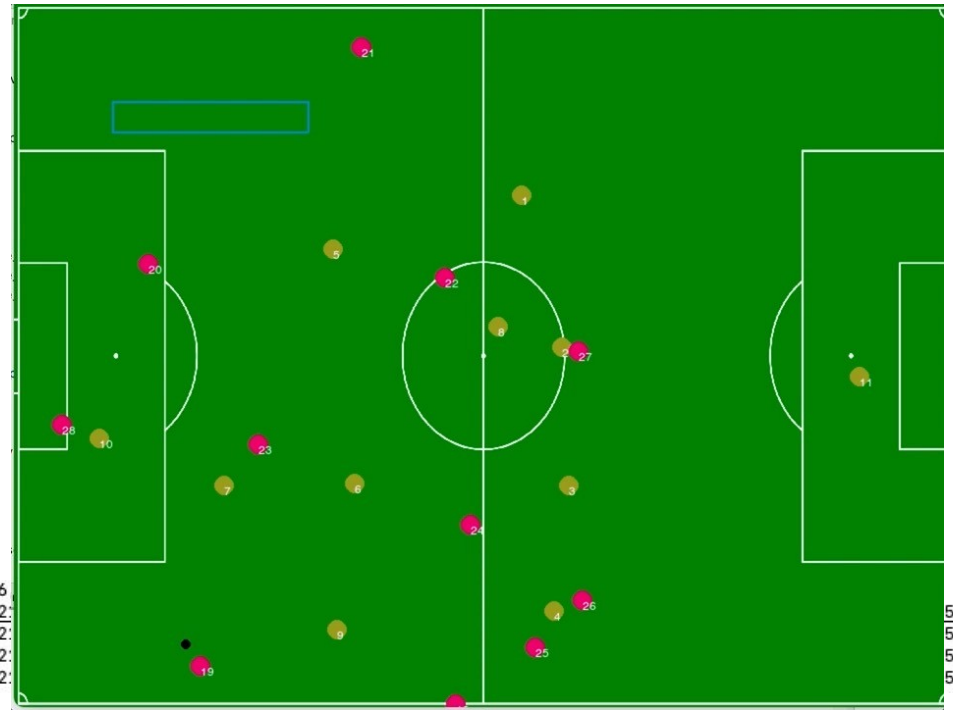
http shell javascript

```http
GET /devices HTTP/1.1
Authorization: Bearer {BEARER_TOKEN}
Host: api.cityflow.live
```


```
},
{
  id: e00fce689f02a96799f34fc2,
  type: 150,
  location: 190,
  latitude: 56.1770897,
  longitude: 10.2296247,
  location_name: Salonvejen,
  city: Risskov,
  country: Denmark,
  roles: [
    4
  ],
  permissions: [],
  tags: [
    Risskov
  ]
},
```

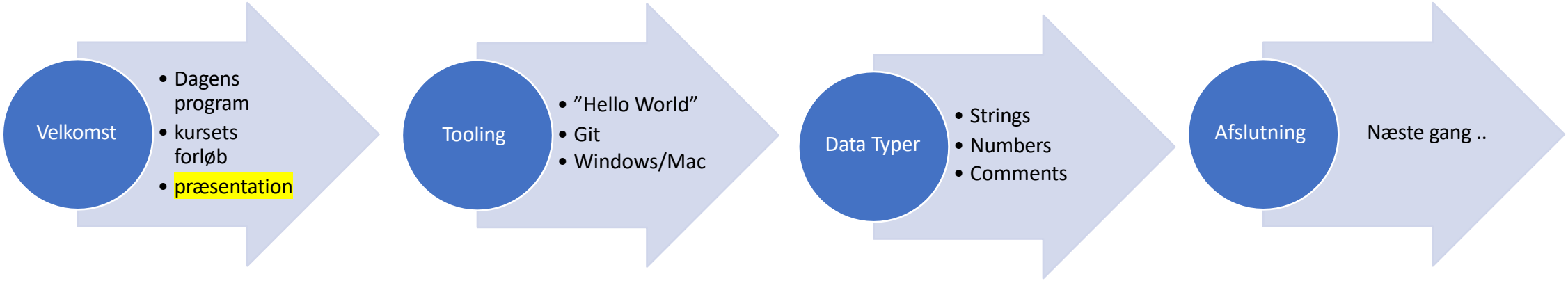
Teaser

Sports Analytics



```
Period,Frame,Time [s],Player11,,Player1,,Player2,,Player3,,Player4,,Player5,,Player6,
1,1,0.04,0.00082,0.48238,0.32648,0.65322,0.33701,0.48863,0.30927,0.35529,0.32137,0.2:  5243,0.43269,NaN,NaN,NaN,NaN,NaN,NaN,0.45472,0.38709
1,2,0.08,0.00096,0.48238,0.32648,0.65322,0.33701,0.48863,0.30927,0.35529,0.32137,0.2:  5243,0.43269,NaN,NaN,NaN,NaN,NaN,NaN,0.49645,0.40656
1,3,0.12,0.00114,0.48238,0.32648,0.65322,0.33701,0.48863,0.30927,0.35529,0.32137,0.2:  5243,0.43269,NaN,NaN,NaN,NaN,NaN,NaN,0.53716,0.42556
1,4,0.16,0.00121,0.48238,0.32622,0.65317,0.33687,0.48988,0.30944,0.35554,0.32142,0.2:  55236,0.43313,NaN,NaN,NaN,NaN,NaN,NaN,0.55346,0.42231
```

Program


Velkomst
• Dagens program
• kursets forløb
• præsentation
Tooling
• ”Hello World”
• Git
• Windows/Mac
Data Typer
• Strings
• Numbers
• Comments
Afslutning
Næste gang ..

Øvelse: Dan grupper ud fra …

	1	2+5	3	4+6
gruppe 1				
gruppe 2				
gruppe 3				
gruppe 4				
gruppe 5				
gruppe 6				

Øvelse

Opgave 2-5: Bliv enige i gruppen om hvem der har fundet det bedste citat og præsentér løsningen
Opgave 2-3: Hvert medlem præsenteres i en notebook-celle:

```
print(navn+" arbejder på "+arbplads+ " som "+rolle.lower()+ "der ligger i "+location.title())
```

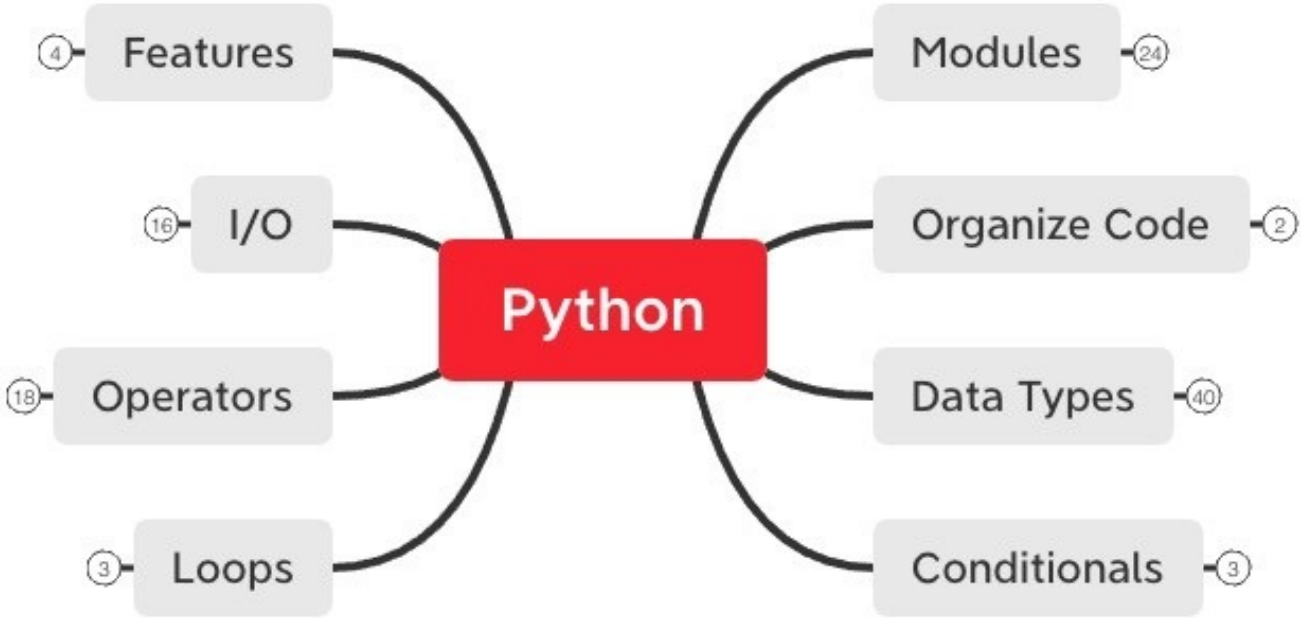
```
Thorbjørn Wulf arbejder på CPH Business som underviserder ligger i Lyngby
```

(og hvis man er i karriere-skift udfylder man med drømme - job, -rolle og –location)

ekstraopgave: Find de 5 forskellige måder man kan *concatenate strings* på i python og illustrer med et simpelt eksempel

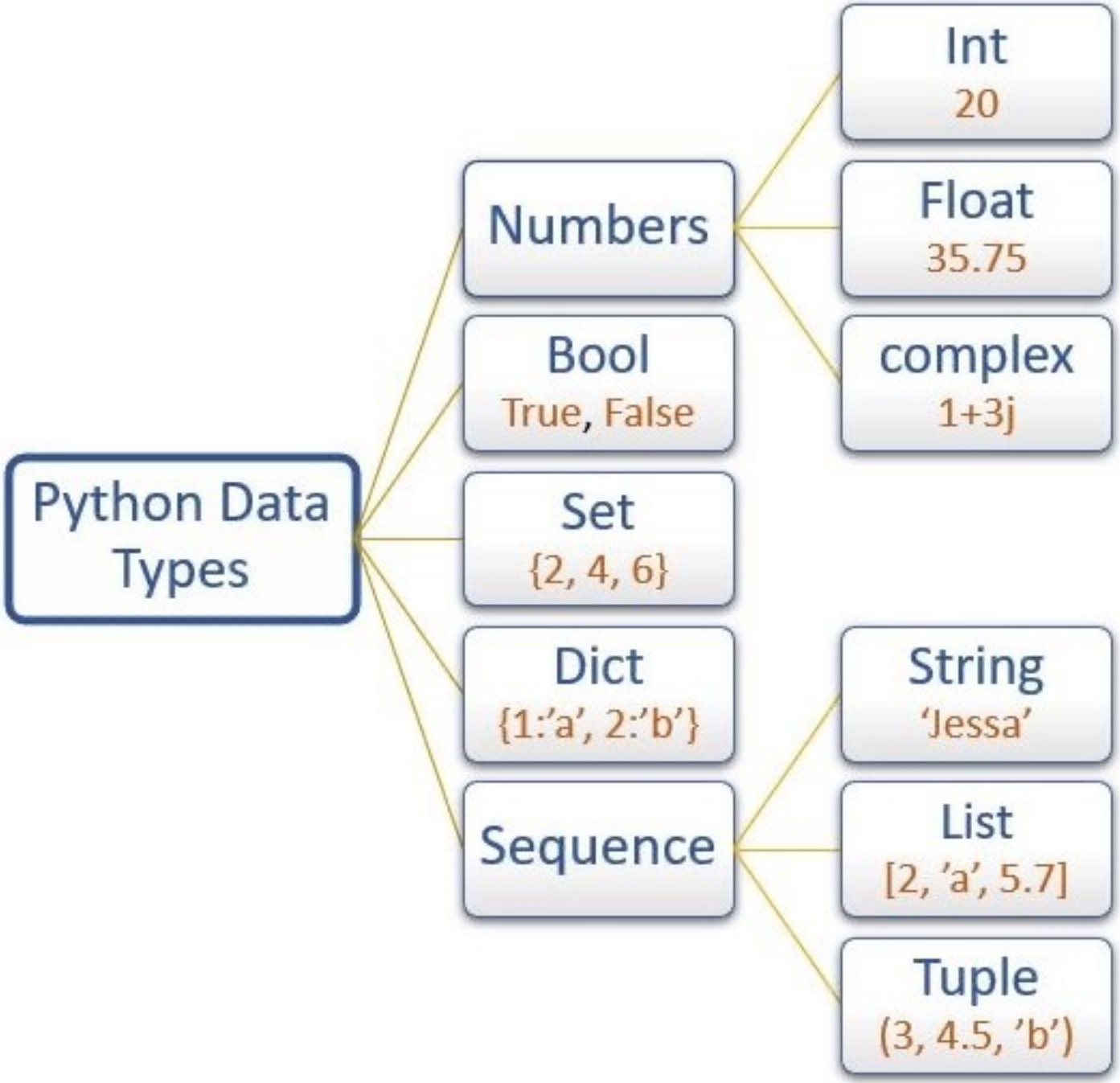
Pause

Python Struktur



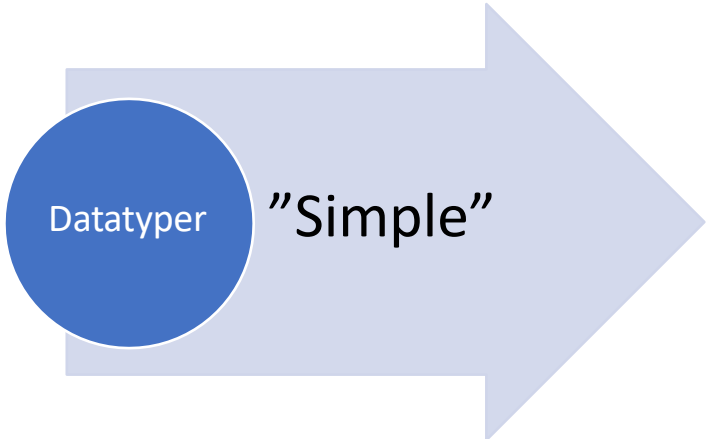
Datatyper

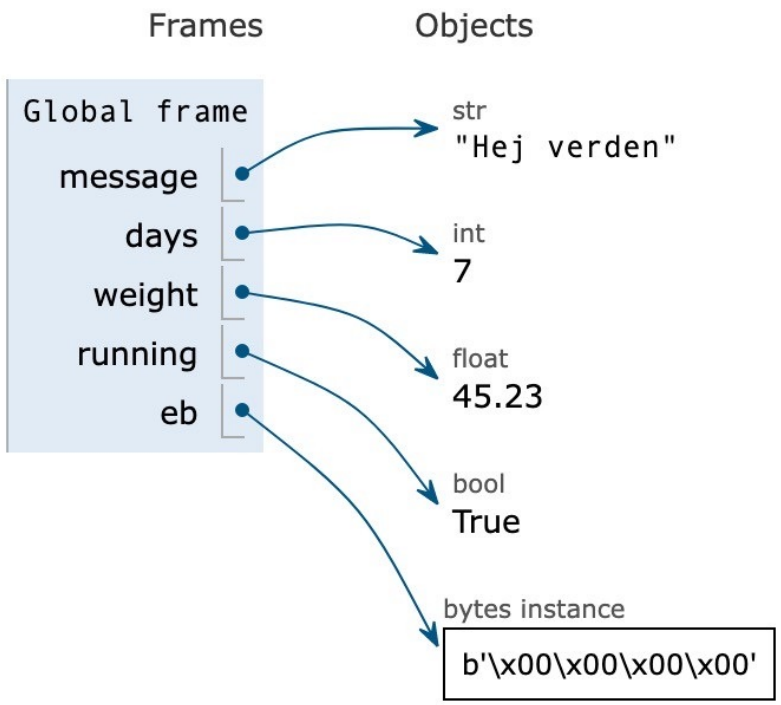
”Simple”



A Python variable is a reserved memory location to store values.

Every value in Python has a datatype.





A Python variable is a reserved memory location to store values. Every value in Python has a datatype.

Text Type:	`str`
Numeric Types:	`int`, `float`, `complex`
Sequence Types:	`list`, `tuple`, `range`
Mapping Type:	`dict`
Set Types:	`set`, `frozenset`
Boolean Type:	`bool`
Binary Types:	`bytes`, `bytearray`, `memoryview`

When you’re using variables in Python, you need to adhere to a few rules and guidelines. Breaking some of these rules will cause errors -> case CVR:

```
2talRevision
2talRevision Reg
3 H Revision
3 H Revision
```

Variabler

Avoid Keywords

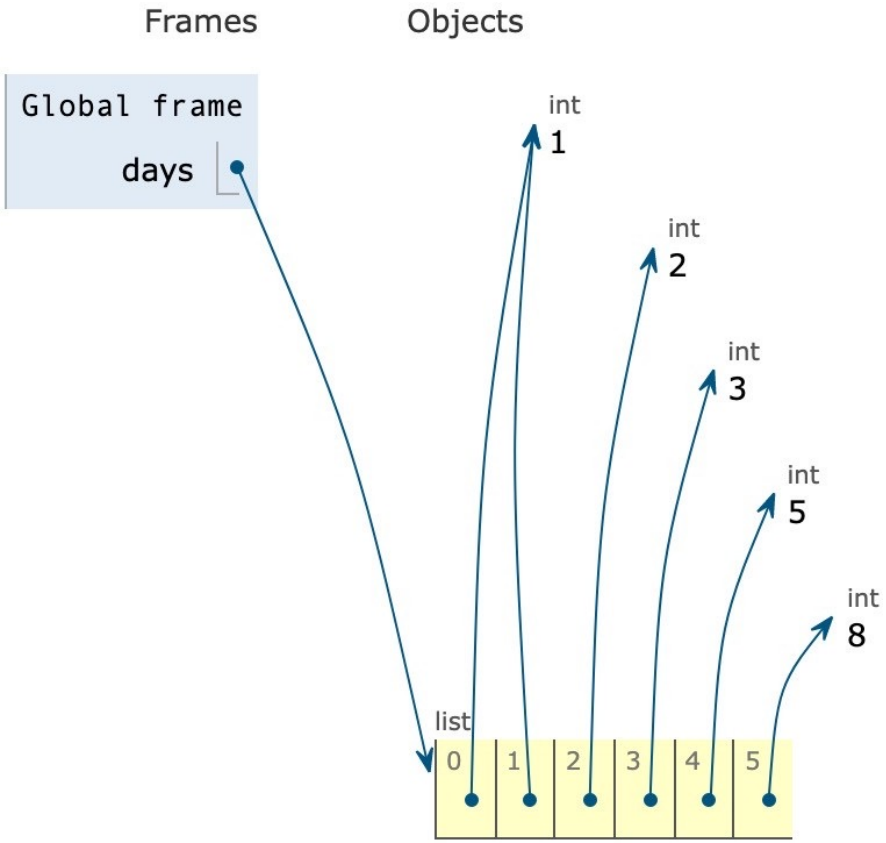
Python Keywords

Each of the following keywords has a specific meaning, and you'll see an error if you try to use them as a variable name.

False	class	finally	is	return
None	continue	for	lambda	try
True	def	from	nonlocal	while
and	del	global	not	with
as	elif	if	or	yield
assert	else	import	pass	
break	except	in	raise	

Datatyper

”Komplekse"



Text Type:	`str`
Numeric Types:	`int`, `float`, `complex`
Sequence Types:	`list`, `tuple`, `range`
Mapping Type:	`dict`
Set Types:	`set`, `frozenset`
Boolean Type:	`bool`
Binary Types:	`bytes`, `bytearray`, `memoryview`

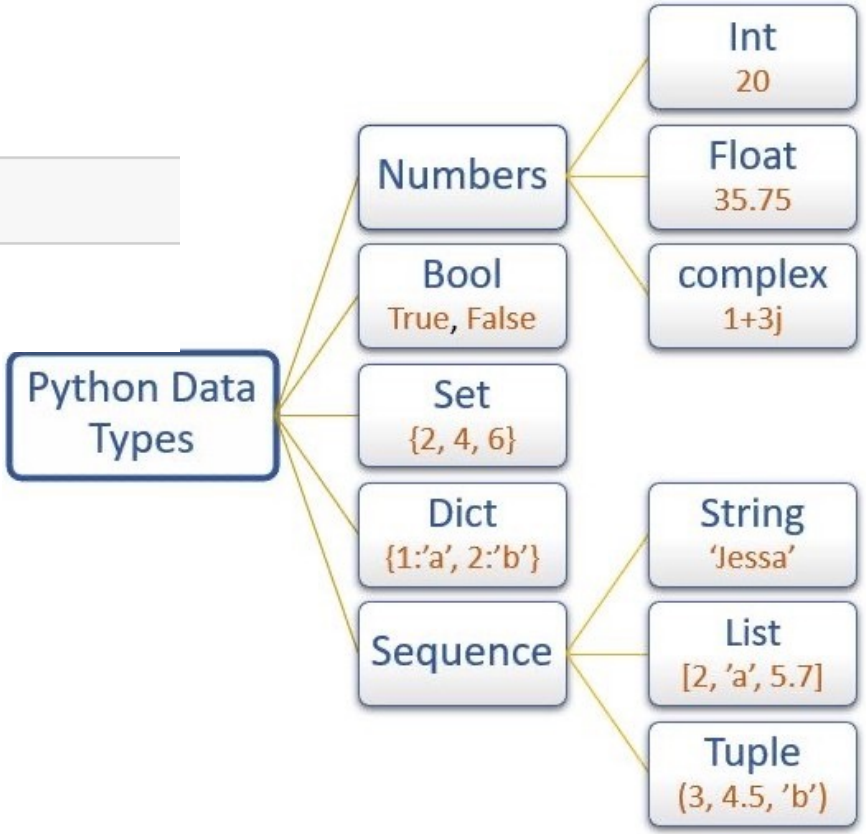
Variabler

How to?

Dynamic Typing

Python uses *dynamic typing*, meaning you can reassign variables to different data types. This makes Python very flexible in assigning data types; it differs from other languages that are *statically typed*.

```
In [7]: type("Jessa")
Out[7]: str
```



notebook

```
In [8]: type( )
Out[8]: int
```

Variabler

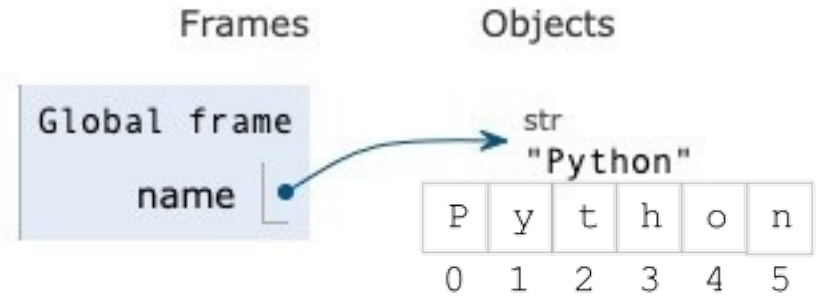
Strings

Definition

A string is simply a series of characters (” ” or ‘ ‘)

”*sequence of bytes representing unicode characters*”

Memory



Standard

print(”kurt verner”)

Special

print(”Kurt \t Verner”)

Speciel special

```
In [87]: navn="BMW \x99"

In [88]: print(navn)

BMW ™
```

Strings

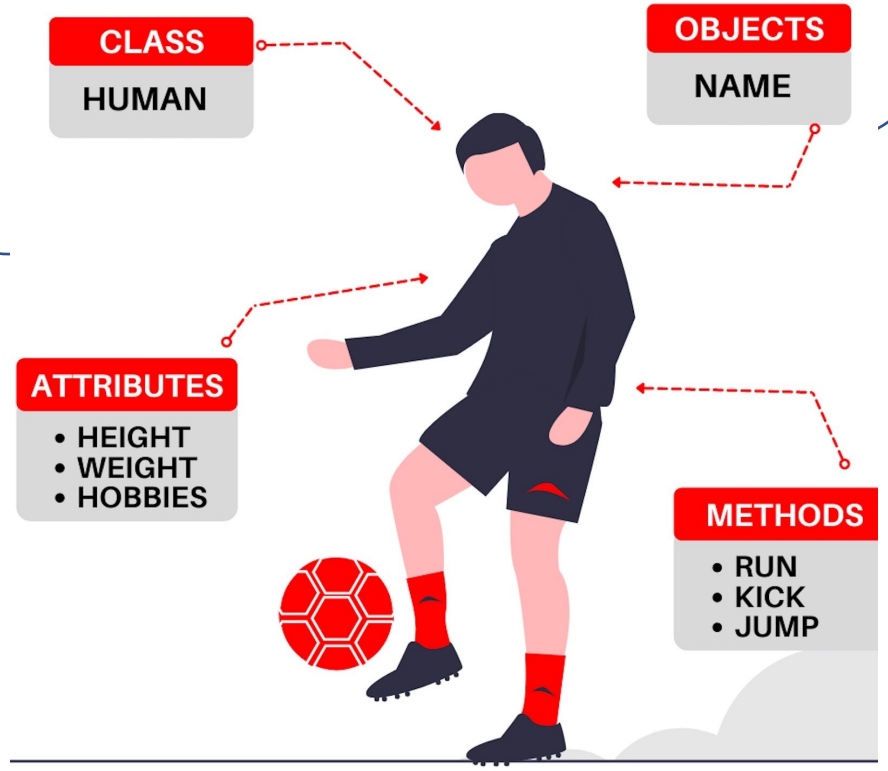
Øvelser

```
In [104]: print(navn)

          McDonalds ©

In [106]: print(pris)

          200 £

In [115]: print(t)

          ½ + ¼ = ¾
```

https://kb.digital-detective.net/display/BF/Extended+ASCII+Table

Variabler Strings

The Dot-notation




```
messi.run(12)
messi.jump()
....

”messi”.toupper()
”messi”.strip()
```

Variabler

Strings

Common built-in functions

print(”kurt Verner”)

len(”kurt Verner”)

Common methods

Function	Description
format()	It's used to create a formatted string from the template string and the supplied values.
split()	Python string split() function is used to split a string into the list of strings based on a delimiter.
join()	This function returns a new string that is the concatenation of the strings in iterable with string object as a delimiter.
strip()	Used to trim whitespaces from the string object.
format_map()	Python string format_map() function returns a formatted version of the string using substitutions from the mapping provided.
upper()	We can convert a string to uppercase in Python using str.upper() function.
lower()	This function creates a new string in lowercase.
replace()	Python string replace() function is used to create a new string by replacing some parts of another string.
find()	Python String find() method is used to find the index of a substring in a string.
translate()	Python String translate() function returns a new string with each character in the string replaced using the given translation table.

Strings

Øvelser

```
In [127]: vej="Kurfürstendam"
          nr = "12"
          zip = 8000
          city = "Århus"
          print()

Kurfürstendam 12
8000 Århus
```

```
In [131]: firma="Hvidkilde A/S "
          # gem den rensede værdi i en ny variabel
          print(f"Firmanavn: {firma}.")

Firmanavn: Hvidkilde A/S .
```

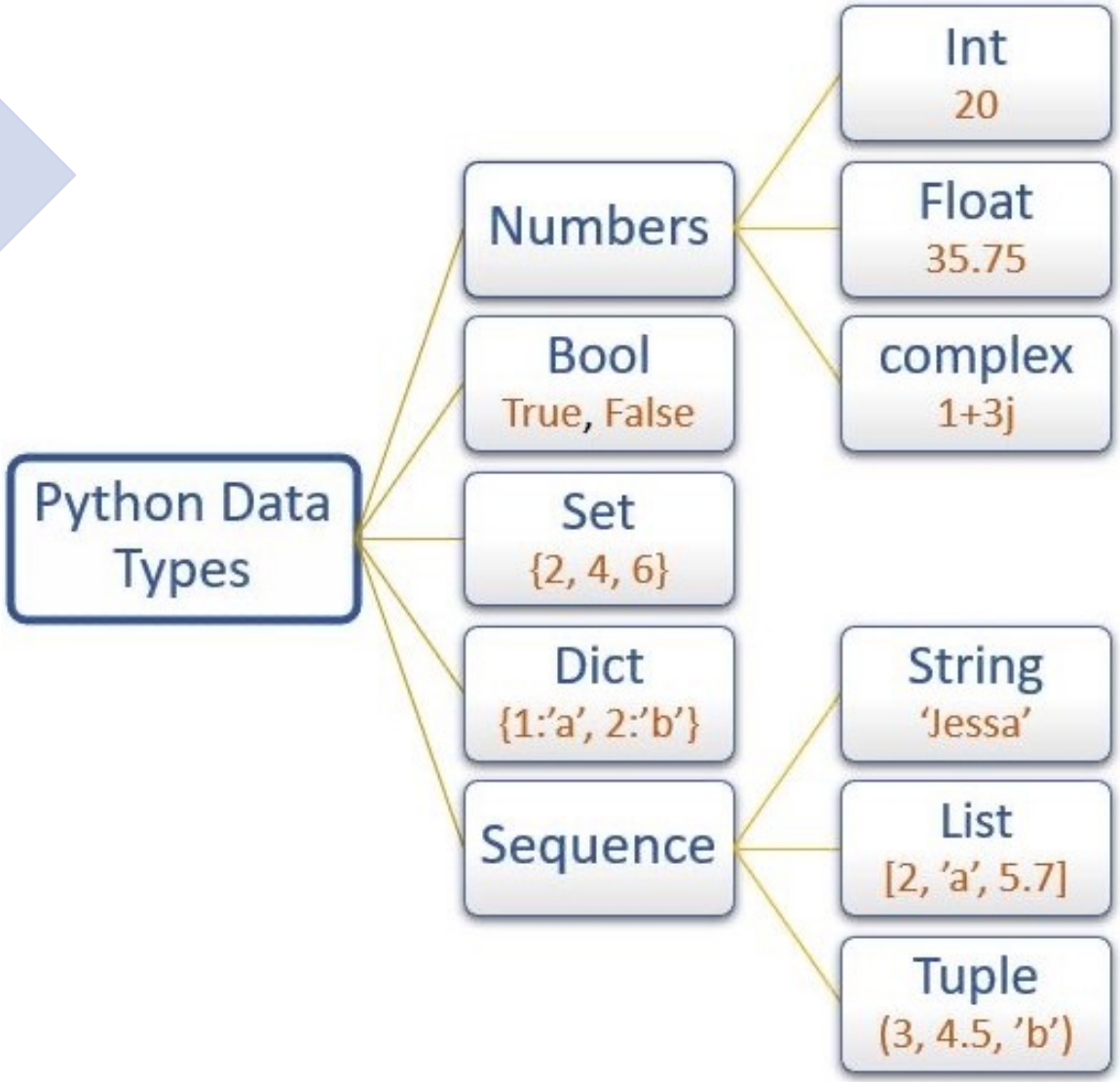
```
In [133]: firma="Hvidkilde A/S"
          # gem den rensede værdi i en ny variabel af samme navn
          print(f"Firmanavn: {firma}.")

Firmanavn: Hvidkilde AS.
```

```
In [135]: full_navn="Kurt Verner Hansen"
          dele = full_navn.split()
```

Pause

Variabler

Numbers



Variabler

Numbers

- Int: 20
- Float: 35.75
- complex: 1+3j

11	Left-to-right	* / %	Multiplication Division Modulo
10	Left-to-right	+ -	Addition Subtraction

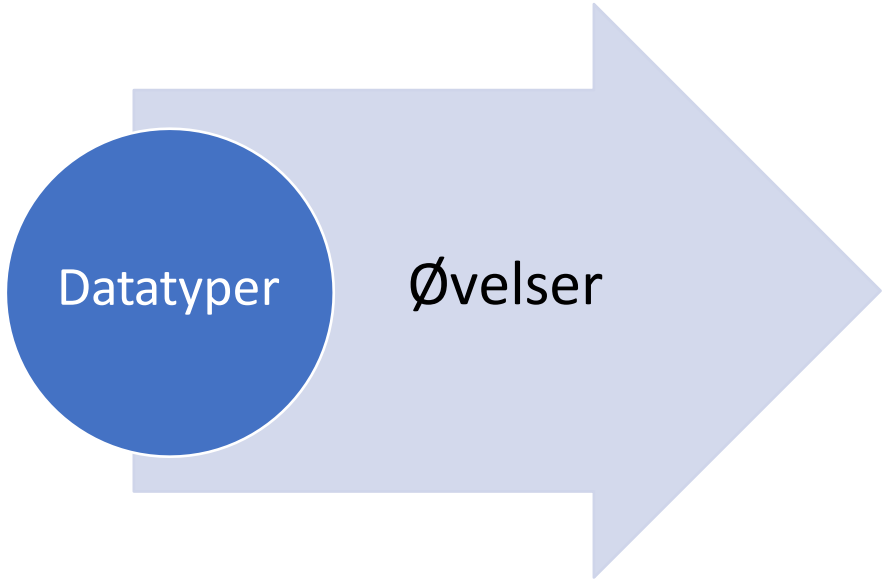
Functions

abs()	divmod()	input()	open()	staticmethod()
all()	enumerate()	int()	ord()	str()
any()	eval()	isinstance()	pow()	sum()
basestring()	execfile()	issubclass()	print()	super()
bin()	file()	iter()	property()	tuple()
bool()	filter()	len()	range()	type()
bytearray()	float()	list()	raw_input()	unichr()
callable()	format()	locals()	reduce()	unicode()
chr()	frozenset()	long()	reload()	vars()
classmethod()	getattr()	map()	repr()	xrange()
cmp()	globals()	max()	reversed()	zip()
compile()	hasattr()	memoryview()	round()	__import__()
complex()	hash()	min()	set()	apply()
delattr()	help()	next()	setattr()	buffer()
dict()	hex()	object()	slice()	coerce()
dir()	id()	oct()	sorted()	intern()

Data

Operators

Operator	Description
**	Exponentiation (raise to the power)
~, +, -	Complement, unary plus and minus (method names for the last two are +@ and -@)
*, /, %, //	Multiply, divide, modulo and floor division
+, -	Addition and subtraction
>>, <<	Right and left bitwise shift
&	Bitwise 'AND'
^	Bitwise exclusive 'OR'
|	Bitwise 'OR'
in, not in, is, is not, <, <=, >, >=, !=, ==	Comparison operators, equality operators, membership and identity operators
not	Boolean 'NOT'
and	Boolean 'AND'
or	Boolean 'OR'
=, %=, /=, //=, -=, +=, *=, **=	Assignment operators



- 2-8 – 8-tals stykkker (add,sub,mult og div)

Tjek dagens github for filen L2-Numbers-exercises

Afslutning

Næste gang ..

PART I: BASICS . . . . . .

Chapter 1: Getting Started . . . . . .

Chapter 2: Variables and Simple Data Types . . . .

Chapter 3: Introducing Lists . . . . . .

Chapter 4: Working with Lists . . . . . .

Chapter 5: if Statements . . . . . .

Chapter 6: Dictionaries. . . . . .

Chapter 7: User Input and while Loops . . . . . .

Chapter 8: Functions . . . . . .

Chapter 9: Classes. . . . . .

Chapter 10: Files and Exceptions. . . . . .

Chapter 11: Testing Your Code . . . . . .

PART II: PROJECTS . . . . . .

Project 1: Alien Invasion

Chapter 12: A Ship That Fires Bullets . . . . . .

Project 2: Kill the birds . . . . . .

Repetition . . . . . .

24/8

31/8

07/9

14/9

21/9

28/9

5/10


Afslutning
Næste gang ..

Python

Tools

- Install GitBash (windows) or Git
- Create Git-account