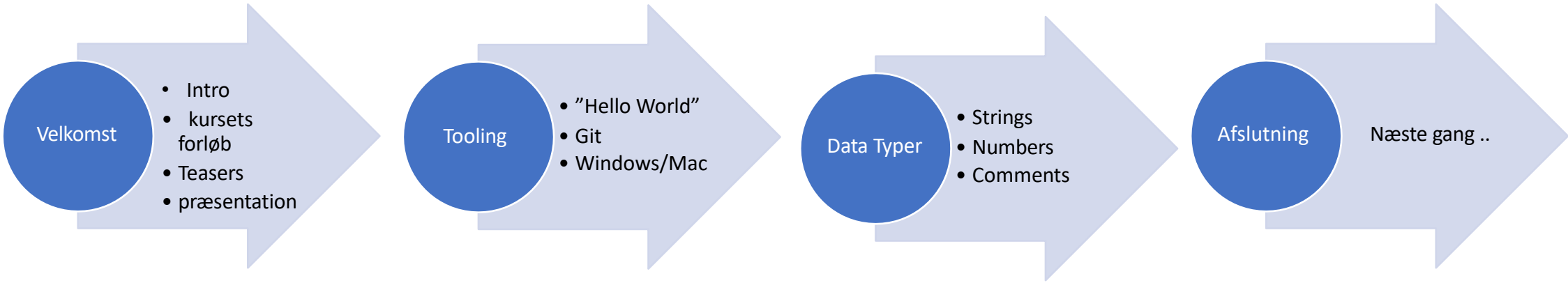
EVU Python

Program


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

Velkomst

kursets forløb

PART I: BASICS 24/8

Chapter 1: Getting Started 24/8

Chapter 2: Variables and Simple Data Types 24/8

Chapter 3: Introducing Lists 31/8

Chapter 4: Working with Lists 31/8

Chapter 5: if Statements 07/9

Chapter 6: Dictionaries. 07/9

Chapter 7: User Input and while Loops 14/9

Chapter 8: Functions 14/9

Chapter 9: Classes. 21/9

Chapter 10: Files and Exceptions. 21/9

Chapter 11: Testing Your Code 21/9

PART II: PROJECTS 28/9

Project 1: Alien Invasion 28/9

Chapter 12: A Ship That Fires Bullets 28/9

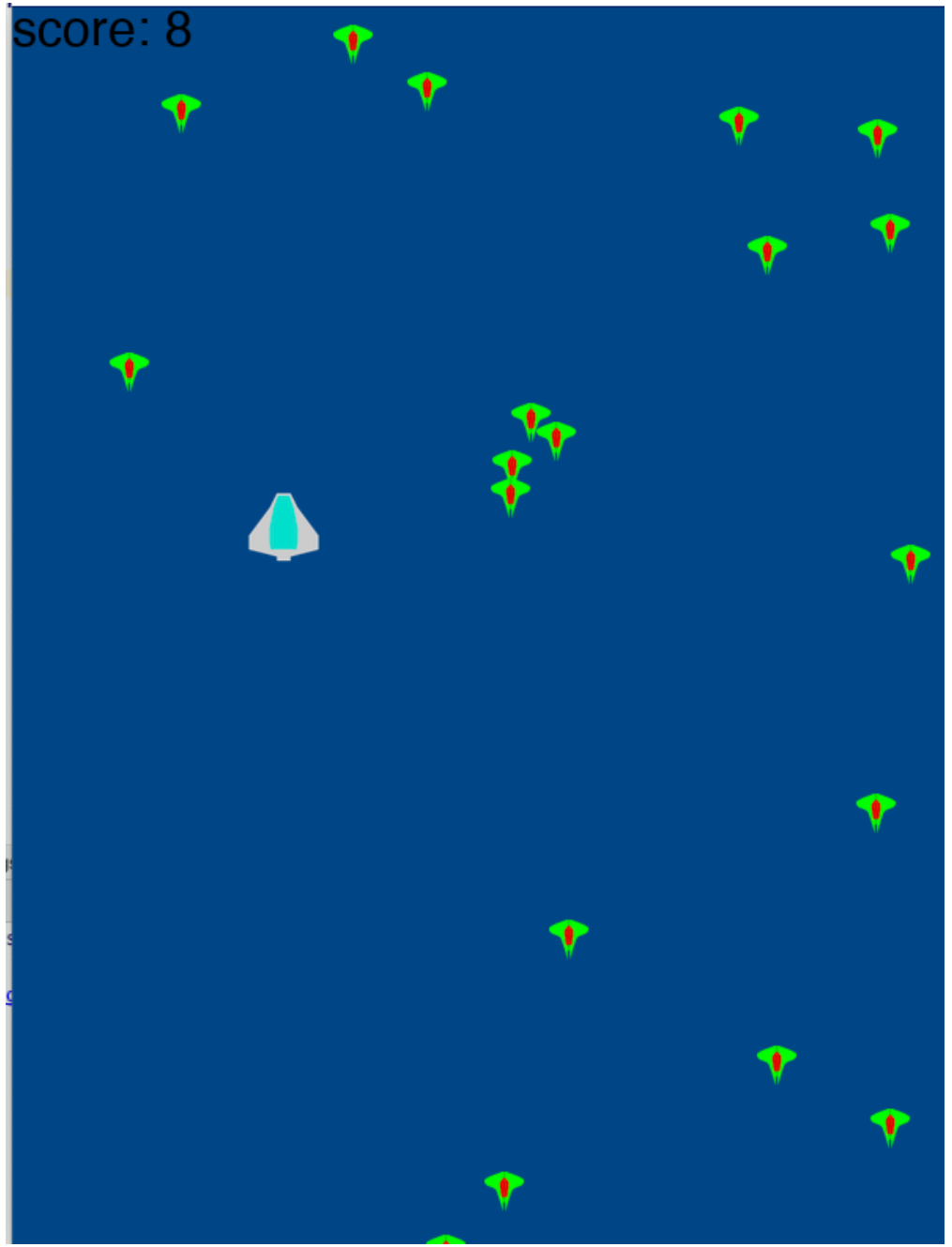
Project 2: Kill the birds 5/10

Repetition 5/10

Her forlader vi bogen

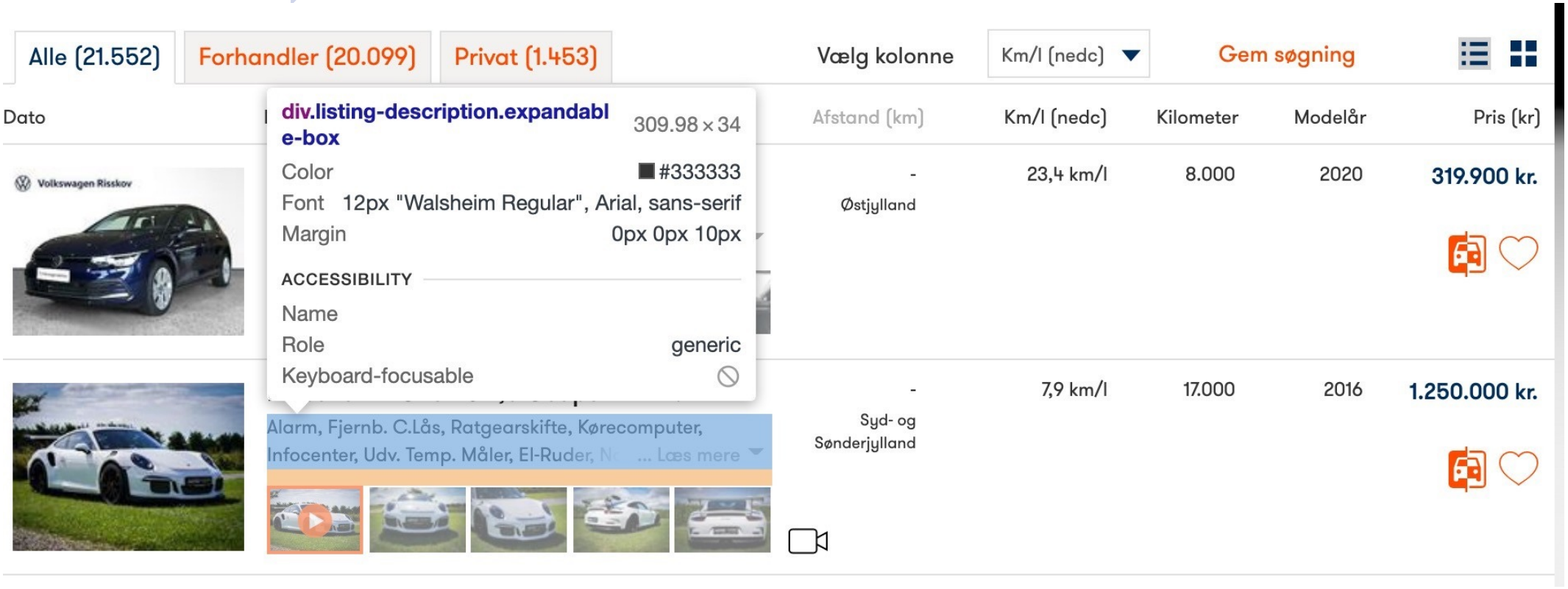
Pygame

Final pygame



Teaser

Web Scraping

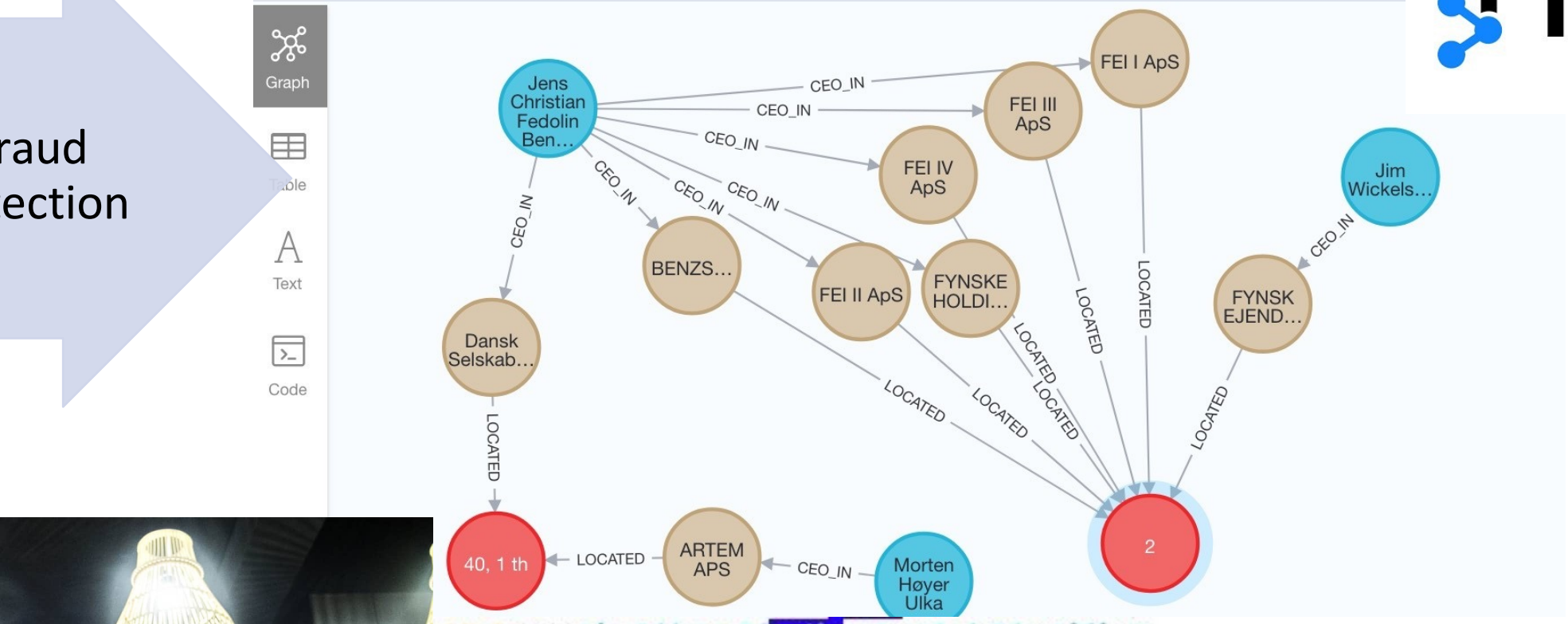


Teaser

Fraud Detection

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

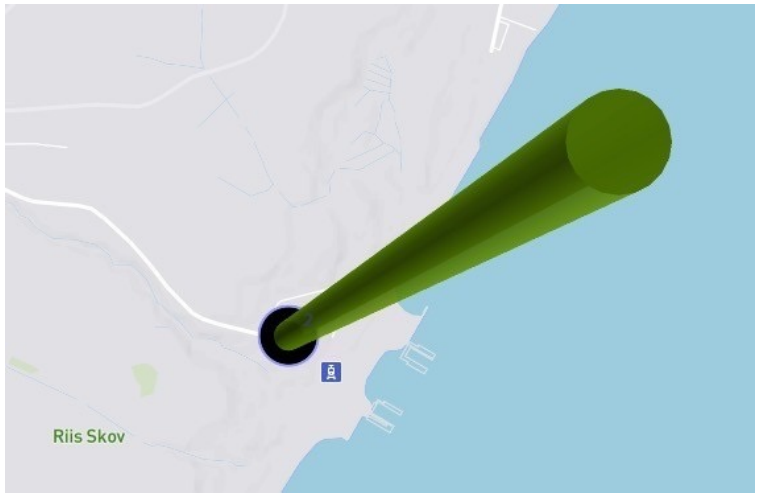
Graph
Table
Text
Code

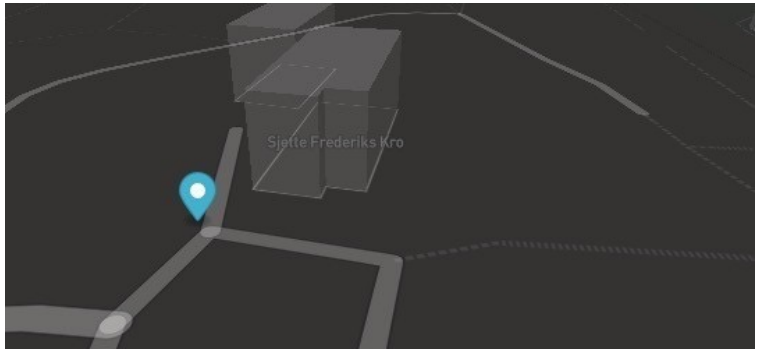


```
c174">9700</c:AddressOfAuditorPostCodeIdentifier>
Brønderslev</c:AddressOfAuditorDistrictName>
rdjyske Bank</c:NameOfFinancialInstitution>
Vodskovvej</c:AddressOfFinancialStreetName>
extRef="c174">43</c:AddressOfFinancialStreetBuildingIdentifier>
="c174">9310</c:AddressOfFinancialPostCodeIdentifier>
">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





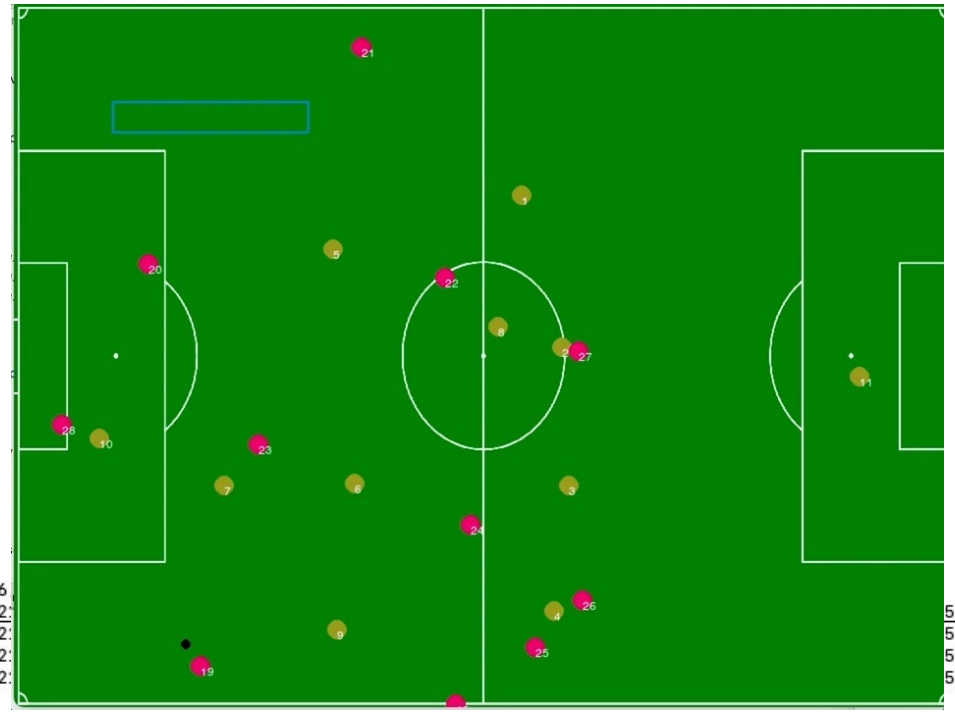
http shell javascript

```
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

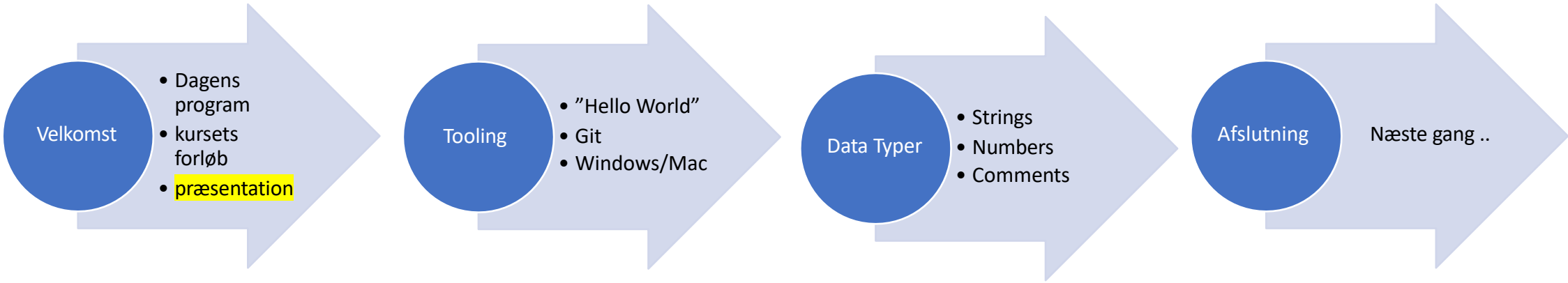
Sports Analytics

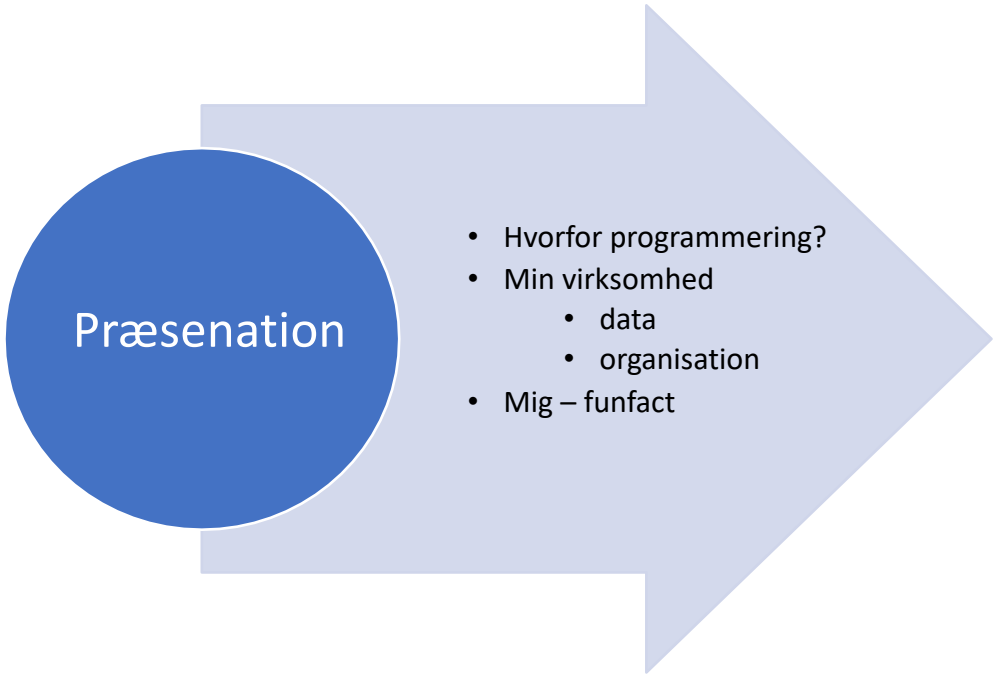


```
Period,Frame,Time [s],Player11,,Player1,,Player2,,Player3,,Player4,,Player5,,Player6,
1,1,0.04,0.00082,0.48238,0.32648,0.65322,0.33701,0.48863,0.30927,0.35529,0.32137,0.2[illegible]5243,0.43269,NaN,NaN,NaN,NaN,NaN,NaN,0.45472,0.38709
1,2,0.08,0.00096,0.48238,0.32648,0.65322,0.33701,0.48863,0.30927,0.35529,0.32137,0.2[illegible]5243,0.43269,NaN,NaN,NaN,NaN,NaN,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[illegible]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[illegible]55236,0.43313,NaN,NaN,NaN,NaN,NaN,NaN,0.55346,0.42231
```

Pause

Program

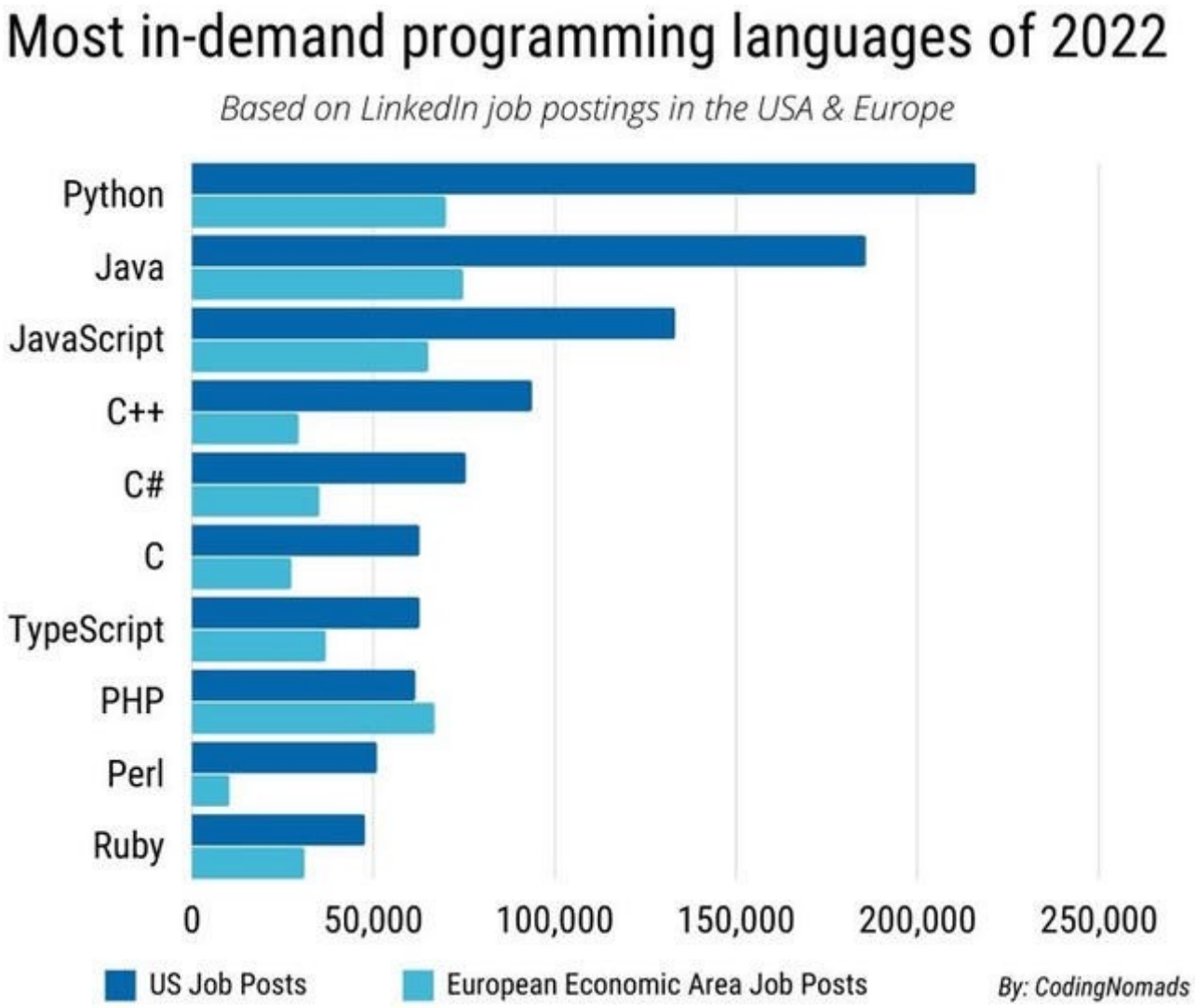

Velkomst
• Dagens program
• kursets forløb
• præsentation
Tooling
• ”Hello World”
• Git
• Windows/Mac
Data Typer
• Strings
• Numbers
• Comments
Afslutning
Næste gang ..


Præsenation
Hvorfor programmering?
Min virksomhed
data
organisation
Mig – funfact

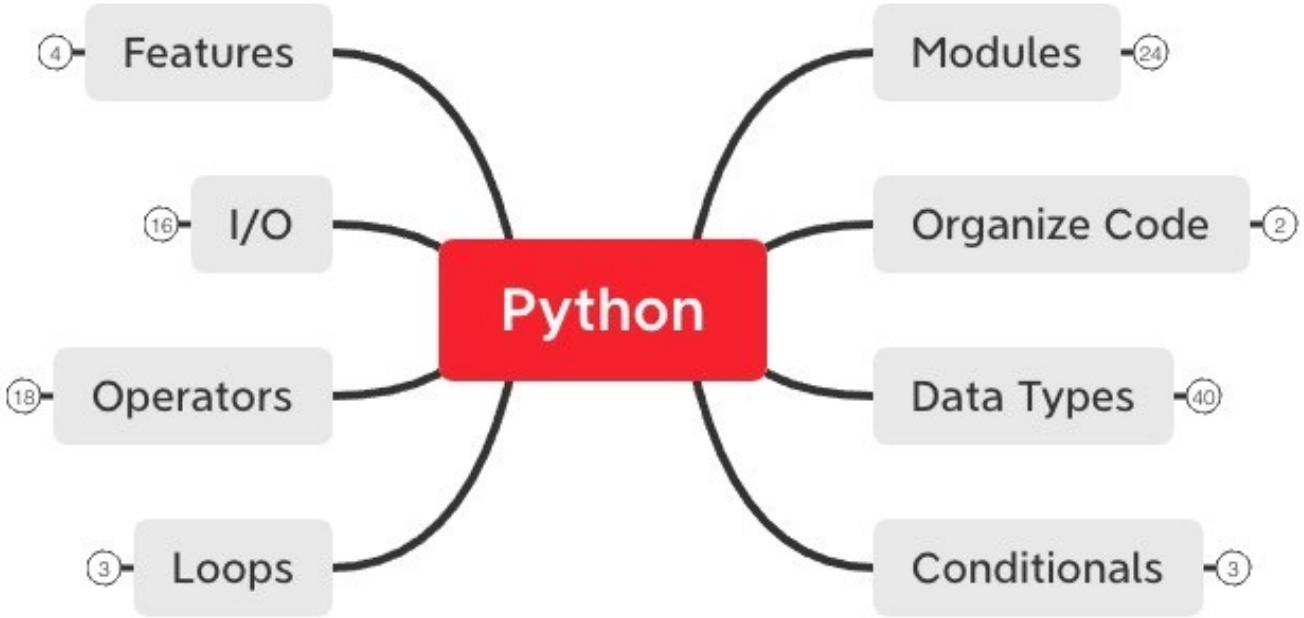
Pause

Python

Stats



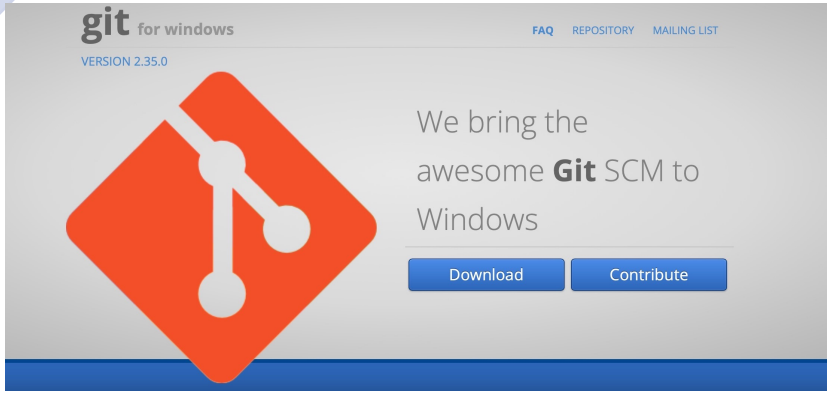
Python Struktur

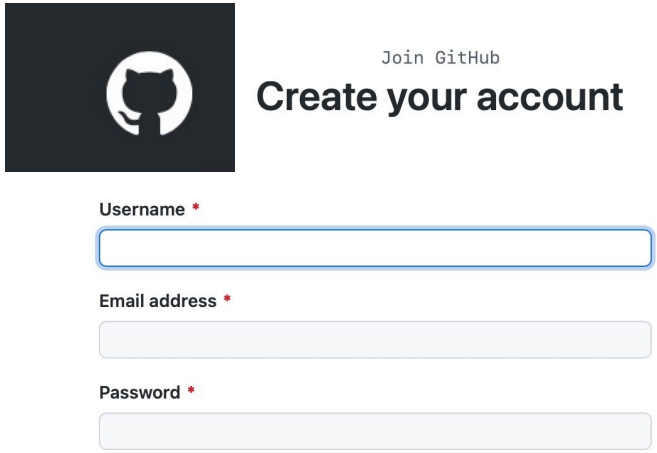


Python

Tools

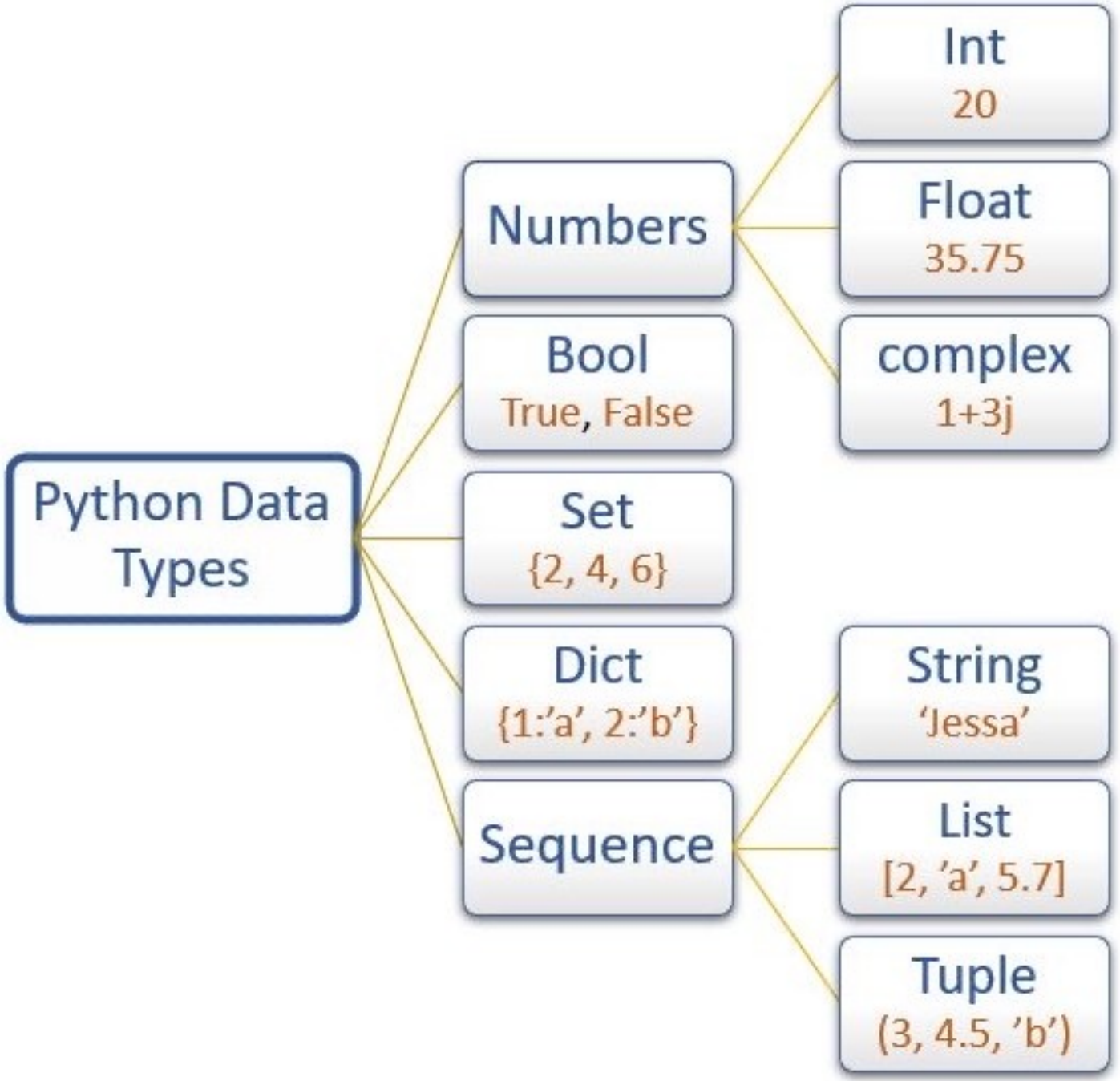
- Install GitBash (windows) or Git
- Create Git-account





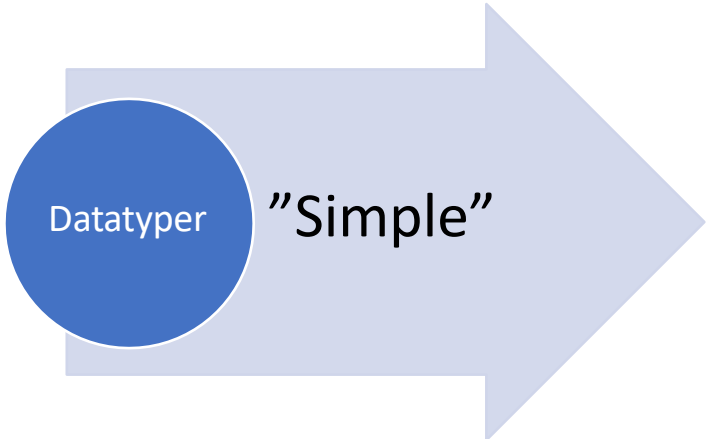
Datatyper

”Simple”

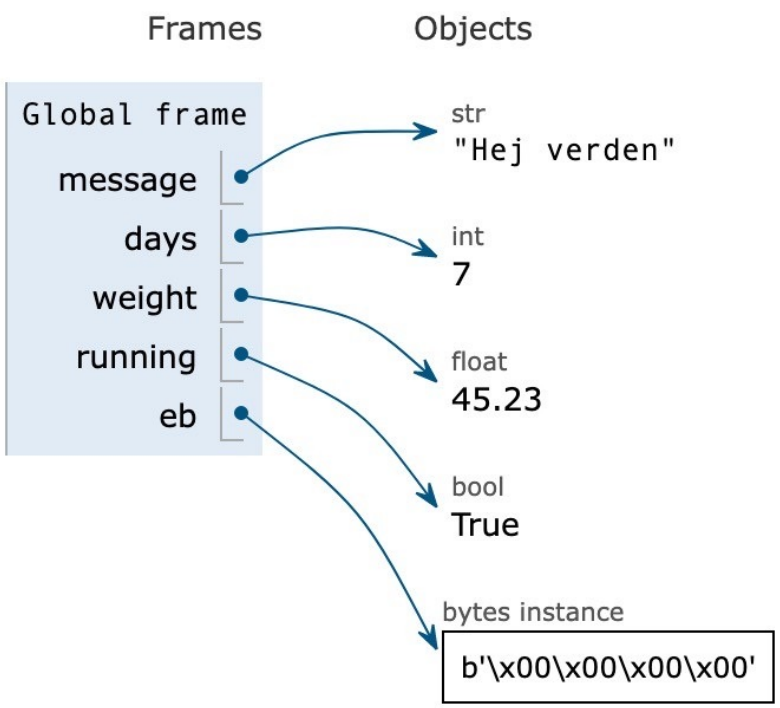


A Python variable is a reserved memory location to store values.

Every value in Python has a datatype.



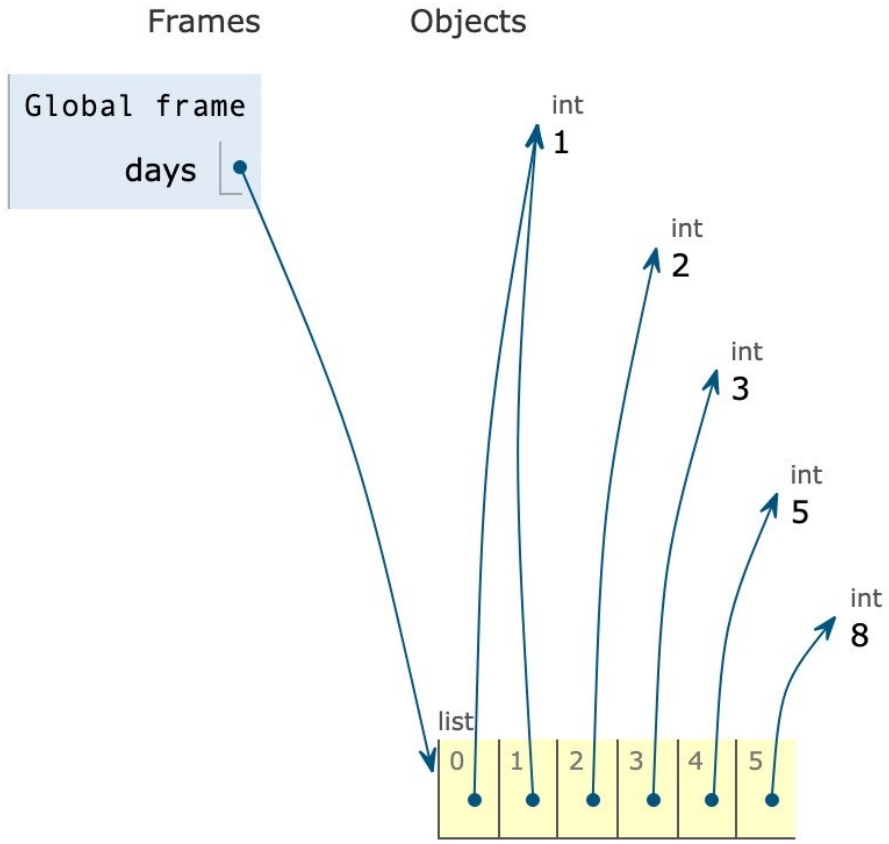
A Python variable is a reserved memory location to store values.
Every value in Python has a datatype.



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`

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`

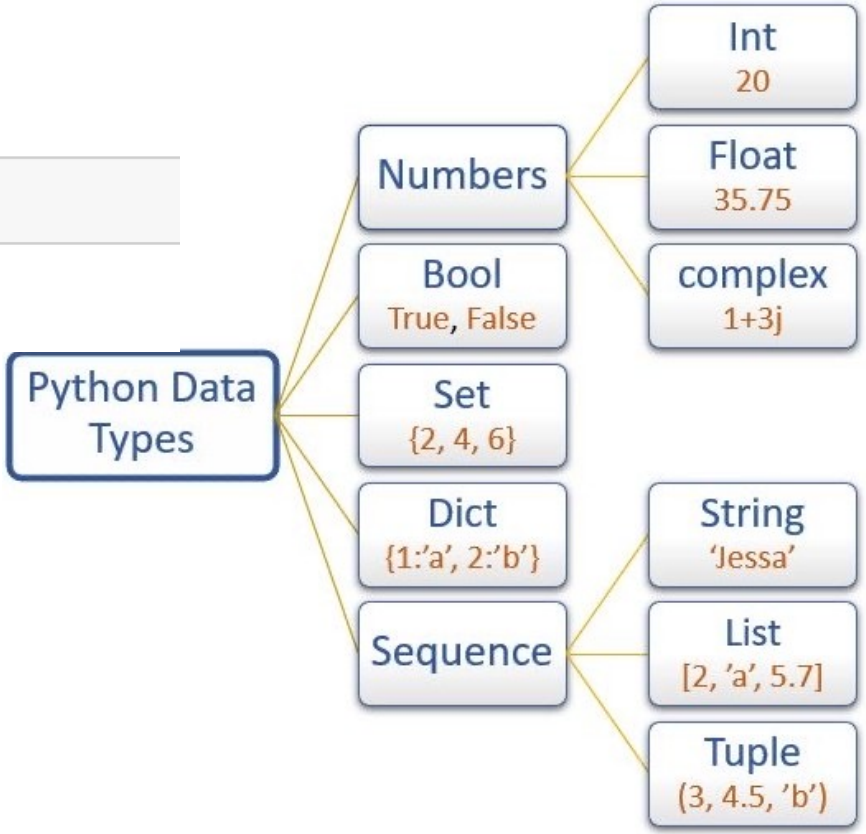
Variabler

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
```



Øvelse

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

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`	

Variabler

Builtin functions

Python Built-in 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()

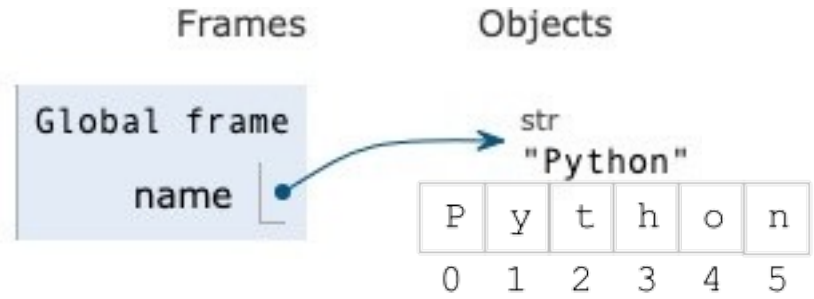
Variabler

Strings

Definition

A string is simply a series of characters (” ” or ‘ ‘)
”*sequence of bytes representing unicode characters*”

Memory



Standard

”Kurt Verner”
” 1234”

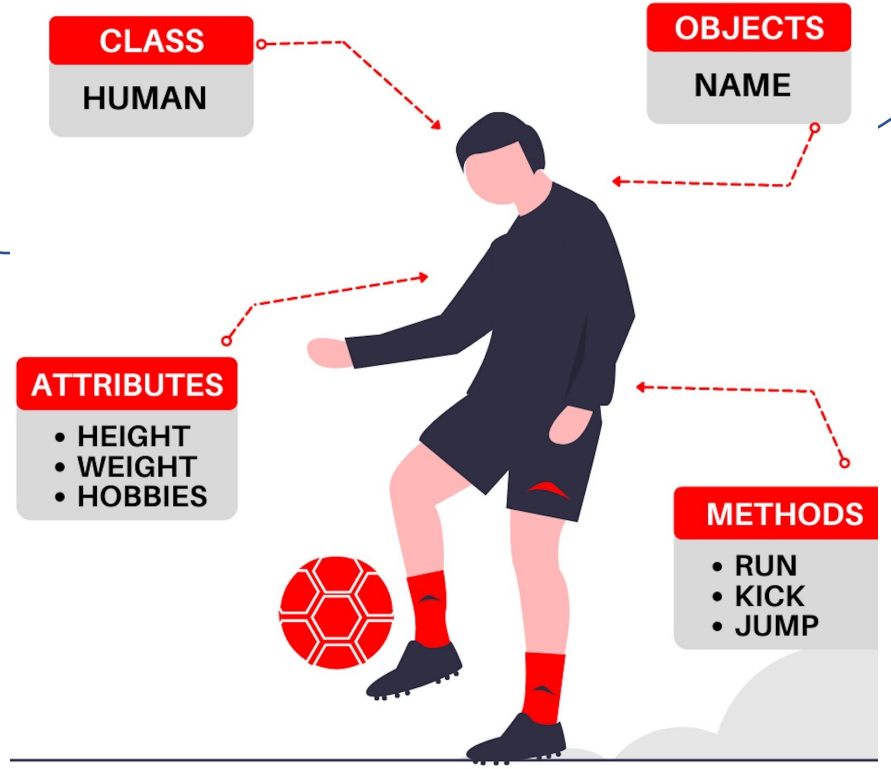
Special

”Kurt \u0023Tegne”
"Kurt\"Med\"Tegn"

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”)

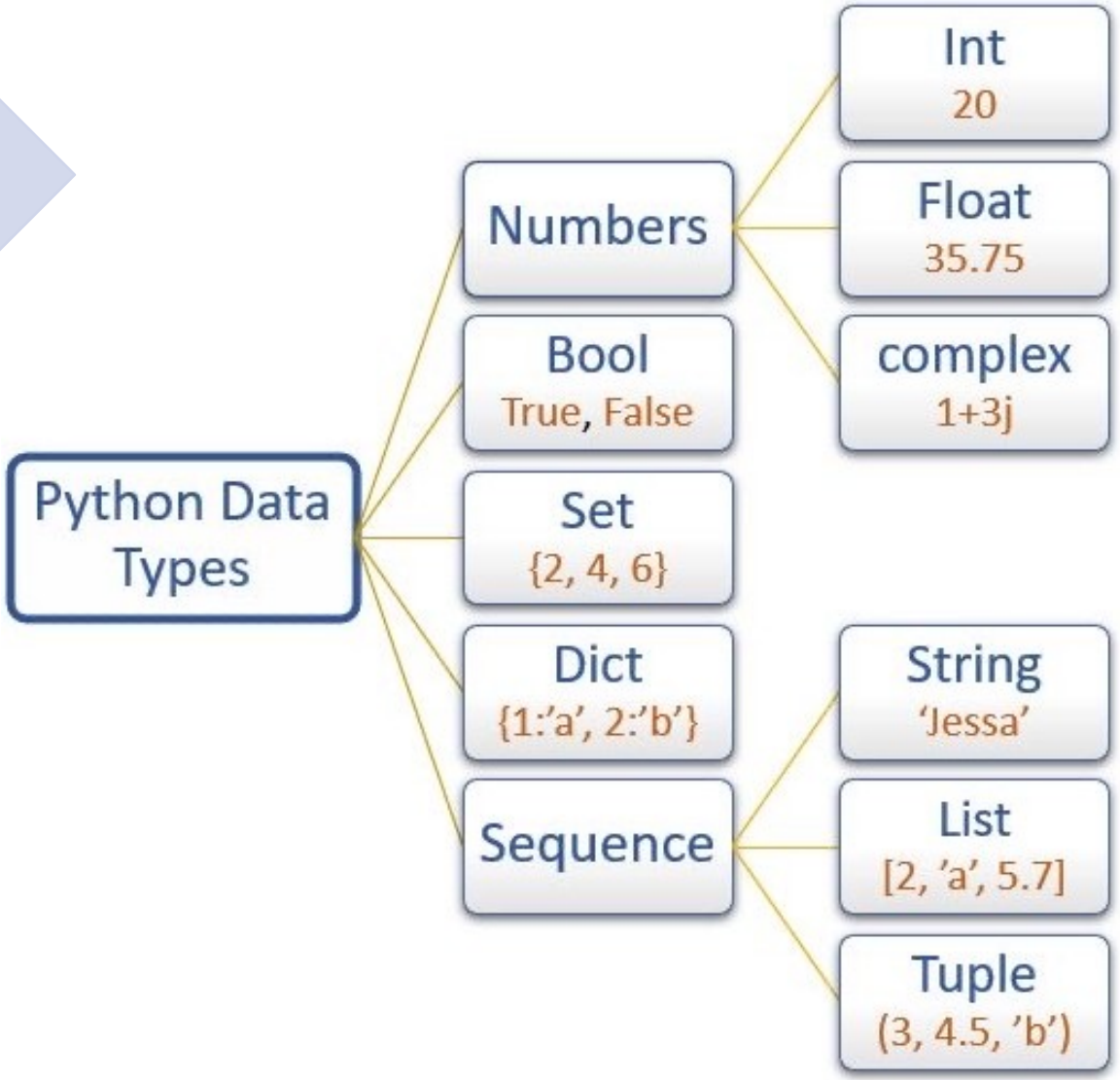
Common methods

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.

Pause

Variabler

Numbers



Data

Operators

Precedence	Associativity	Operator	Description
18	Left-to-right	()	Parentheses (grouping)
17	Left-to-right	*f*(args...)	Function call
16	Left-to-right	*x*[index:index]	Slicing
15	Left-to-right	*x*[index]	Array Subscription
14	Right-to-left	**	Exponentiation
13	Left-to-right	~*x*	Bitwise not
12	Left-to-right	+*x* -*x*	Positive, Negative
11	Left-to-right	* / %	Multiplication Division Modulo
10	Left-to-right	+ -	Addition Subtraction
9	Left-to-right	<< >>	Bitwise left shift Bitwise right shift
8	Left-to-right	&	Bitwise AND
7	Left-to-right	^	Bitwise XOR
6	Left-to-right	|	Bitwise OR
5	Left-to-right	in, not in, is, is not, <, <=, >, >=, <>, == !=	Membership Relational Equality Inequality
4	Left-to-right	not *x*	Boolean NOT
3	Left-to-right	and	Boolean AND
2	Left-to-right	or	Boolean OR
1	Left-to-right	lambda	Lambda expression

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()

Datatyper

Øvelser

- 2-3 – Personal message
- 2-4 – Name – lower,upper
- 2-5 – Famous quote – en rigtig kilde
- 2-7 - Strange name (strip)
- 2-8 – 8-tals stykkker (add,sub,mult og div)

Numbers

13 + 5 * 2 - 4 skal give 32

```
In [ ]:
```

13 + 5 * 2 - 4 / 2 - 13 skal give 3.0

Datatyper

Øvelser

- 2-3 – Personal message
- 2-4 – Name – lower,upper
- 2-5 – Famous quote – en rigtig kilde
- 2-7 - Strange name (strip)
- 2-8 – 8-tals stykkker (add,sub,mult og div)

Numbers

13 + 5 * 2 - 4 skal give 32

```
In [ ]:
```

13 + 5 * 2 - 4 / 2 - 13 skal give 3.0

Afslutning

Næste gang ..

PART I: BASICS 24/8

Chapter 1: Getting Started 24/8

Chapter 2: Variables and Simple Data Types 24/8

Chapter 3: Introducing Lists 31/8

Chapter 4: Working with Lists 31/8

Chapter 5: if Statements 07/9

Chapter 6: Dictionaries. 07/9

Chapter 7: User Input and while Loops 14/9

Chapter 8: Functions 14/9

Chapter 9: Classes. 21/9

Chapter 10: Files and Exceptions. 21/9

Chapter 11: Testing Your Code 21/9

PART II: PROJECTS 28/9

Project 1: Alien Invasion

Chapter 12: A Ship That Fires Bullets 28/9

Project 2: Kill the birds 5/10

Repetition 5/10