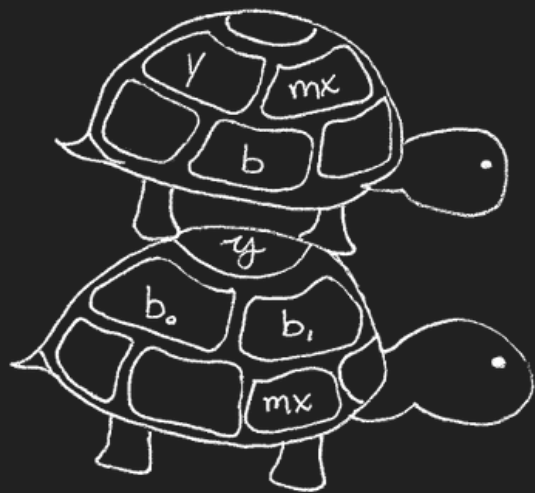# Python Basics

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IT'S OBJECTS ALL
THE WAY DOWN

Objects

Objects

Python is an OO language

Objects have:

- an **id**
- Some attributes
- 0 or more names
- A **type**

```
>>> type(3)
<class 'int'>
>>> type("hello")
<class 'str'>
>>> type(1.23)
<class 'float'>
```

```
>>> id(3)
4523195088
>>> id("hello")
140691145678704
>>> id(1.23)
140691143649040
```

Types

Numbers

Ints: whole/counting numbers

Floats: decimals

```python
# int or float?

x = 1

y = 6.34

z = 1.0
```

Boolean

True (1), False (0)

```
1   # bool
2
3   x = True
4
5   y = False
6
```

Strings

- A collection
- ' '
- " "
- ''' '''

```
1  # string
2
3  a = "Hello"
4  b = 'Goodbye'
5  c = ''' whats
6  up
7  doc'''
```

Lists

- A collection
- [] or list()
- Can have data of different types (this differs from arrays)

```
1   # lists
2
3   m = [1,2,3,4,5]
4
5   n = ["hello", 10, 6.5]
6
7   l = list("ABC")
```

Dictionaries and Sets

Dictionary

- A collection
- {:}
- Key : Value

Set

- A collection
- {}

```
1   # dictionary
2
3   chelsea = {"name": "Chelsea", "Job": "Professor", "Classes": 4}
4
5   # set
6   ages = {18, 19, 19, 20}
7   ages = {18, 19, 19, 20, 20, 20}
8
```

Constructors

- str()
- int()
- float()
- list()
- dict()

```python
1   # constructors
2
3   x = 5
4   x = str(x)
5
6
7   y = 10
8   y = float(10)
```