

Learn Python as fast and as much as possible

Python:

- The textbook has a chapter (Appendix) on Python
- Free Python course on <https://www.datacamp.com/>
- DiveIntoPython.pdf from course resources
- Python CheatSheets
 - Google and look them up in the course resources
 - <https://www.datacamp.com/community/data-science-cheatsheets>
 - <https://ehmatthes.github.io/pcc/cheatsheets/README.html>

Python CheatSheet

Beginner's Python Cheat Sheet

Variables and Strings

Variables are used to store values. A string is a series of characters, surrounded by single or double quotes.

Hello world

```
print("Hello world!")
```

Hello world with a variable

```
msg = "Hello world!"  
print(msg)
```

Concatenation (combining strings)

```
first_name = 'albert'  
last_name = 'einstein'  
full_name = first_name + ' ' + last_name  
print(full_name)
```

Lists

A list stores a series of items in a particular order. You access items using an index, or within a loop.

Lists (cont.)

List comprehensions

```
squares = [x**2 for x in range(1, 11)]
```

Slicing a list

```
finishers = ['sam', 'bob', 'ada', 'bea']  
first_two = finishers[:2]
```

Copying a list

```
copy_of_bikes = bikes[:]
```

Tuples

Tuples are similar to lists, but the items in a tuple can't be modified.

Making a tuple

```
dimensions = (1920, 1080)
```

If statements

If statements are used to test for particular conditions and respond appropriately.

Conditional tests

```
equals          x == 42  
not equal       x != 42  
greater than    x > 42
```

Dictionaries

Dictionaries store connections between pieces of information. Each item in a dictionary is a key-value pair.

A simple dictionary

```
alien = {'color': 'green', 'points': 5}
```

Accessing a value

```
print("The alien's color is " + alien['color'])
```

Adding a new key-value pair

```
alien['x_position'] = 0
```

Looping through all key-value pairs

```
fav_numbers = {'eric': 17, 'ever': 4}  
for name, number in fav_numbers.items():  
    print(name + ' loves ' + str(number))
```

Looping through all keys

```
fav_numbers = {'eric': 17, 'ever': 4}  
for name in fav_numbers.keys():  
    print(name + ' loves a number')
```

Looping through all the values

```
fav_numbers = {'eric': 17, 'ever': 4}  
for number in fav_numbers.values():  
    print(str(number) + ' is a favorite')
```

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```
first_name = 'albert'
last_name = 'einstein'
full_name = first_name + ' ' + last_name
print(full_name)
```

Lists

A list stores a series of items in a particular order. You access items using an index, or within a loop.

Make a list

```
bikes = ['trek', 'redline', 'giant']
```

Get the first item in a list

```
first_bike = bikes[0]
```

Get the last item in a list

```
last_bike = bikes[-1]
```

Looping through a list

```
for bike in bikes:
    print(bike)
```

Adding items to a list

```
bikes = []
bikes.append('trek')
bikes.append('redline')
bikes.append('giant')
```

Making numerical lists

```
squares = []
for x in range(1, 11):
    squares.append(x**2)
```

If statements

If statements are used to test for particular conditions and respond appropriately.

Conditional tests

equals	x == 42
not equal	x != 42
greater than	x > 42
or equal to	x >= 42
less than	x < 42
or equal to	x <= 42

Conditional test with lists

```
'trek' in bikes
'surly' not in bikes
```

Assigning boolean values

```
game_active = True
can_edit = False
```

A simple if test

```
if age >= 18:
    print("You can vote!")
```

If-elif-else statements

```
if age < 4:
    ticket_price = 0
elif age < 18:
    ticket_price = 10
else:
    ticket_price = 15
```

```
fav_numbers = {'eric': 17, 'ever': 4}
for name in fav_numbers.keys():
    print(name + ' loves a number')
```

Looping through all the values

```
fav_numbers = {'eric': 17, 'ever': 4}
for number in fav_numbers.values():
    print(str(number) + ' is a favorite')
```

User input

Your programs can prompt the user for input. All input is stored as a string.

Prompting for a value

```
name = input("What's your name? ")
print("Hello, " + name + "!")
```

Prompting for numerical input

```
age = input("How old are you? ")
age = int(age)
```

```
pi = input("What's the value of pi? ")
pi = float(pi)
```

Python Crash Course

Covers Python 3 and Python 2

nostarchpress.com/pythoncrashcourse



Python core concepts checklist

Make sure you are comfortable with the following

- How to create a class
- Distinguish between class methods versus instance method
- Familiar with the various built-in data type, know how to parse a date string into a date object
- Know what is a list, and how to loop through each elements in the list, know list comprehension
- ...

Learning by doing