

Common Python Functions for Security



Michael Woolard

Risk and Compliance Manager

@wooly6bear wooly6bear.wordpress.com



Data Types

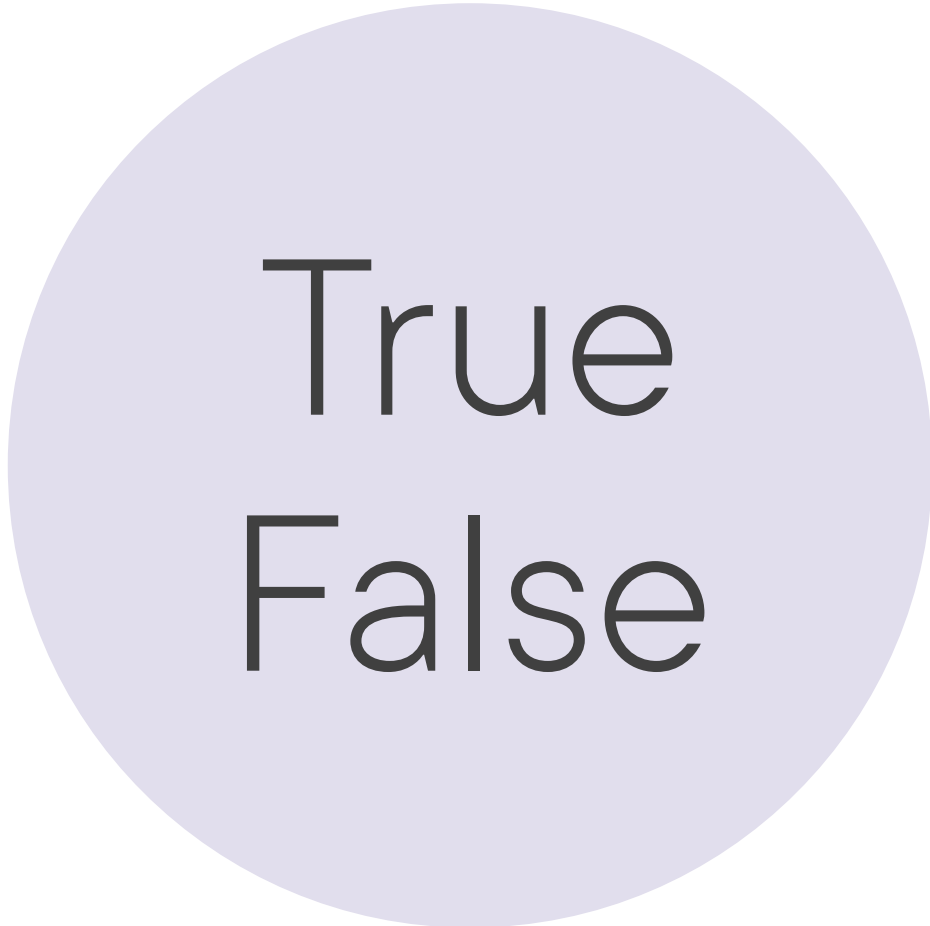


Data Types



6
10.5

Numbers



True
False

Boolean



‘text’

Strings

Casting:

Int()
Float()
Complex()

Bool()

Str()
Chr()

Strings

[1,2,3]

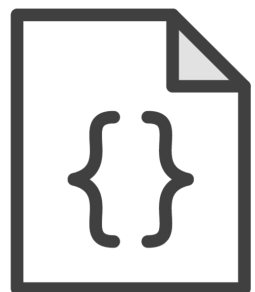
Indexing



Slicing



Concatenating



Format



Strings

[1,2,3]

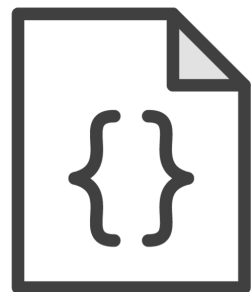
Indexing



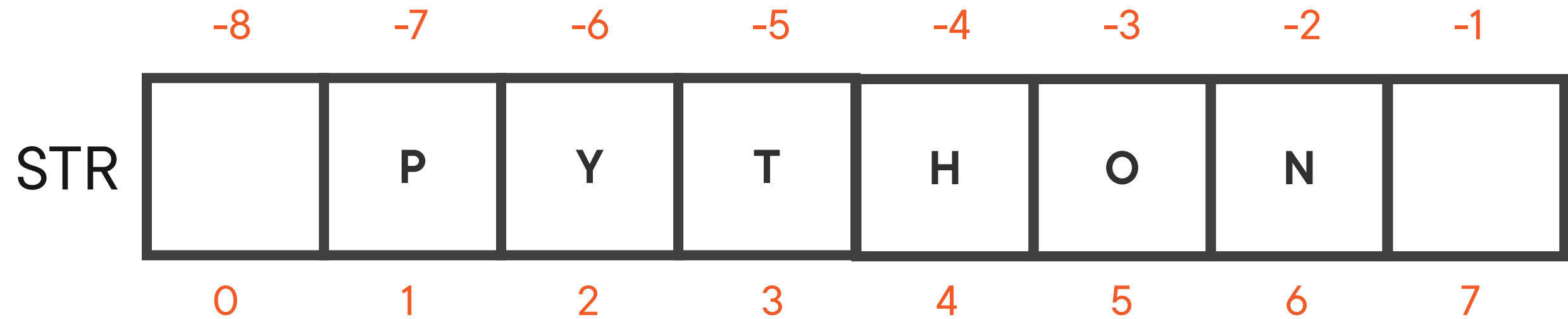
Slicing



Concatenating



Format



```
>>> STR = " PYTHON "  
>>> STR[0]  
,,  
>>> STR[1]  
'P'  
>>> STR[-2]  
'N'
```

Strings

[1,2,3]

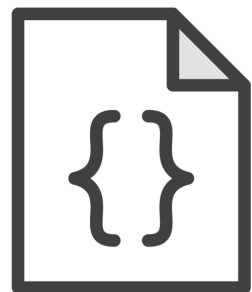
Indexing



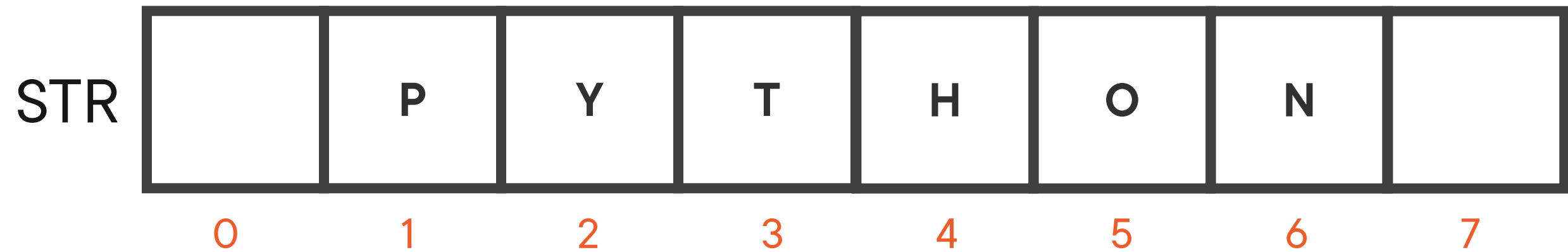
Slicing



Concatenating



Format



```
>>> STR = " PYTHON "
```

```
>>> STR = STR[1:7]
```

```
>>> print(STR)  
'PYTHON'
```

```
>>> STR = STR[2:]
```

```
>>> print(STR)  
'THON'
```

Strings

[1,2,3]

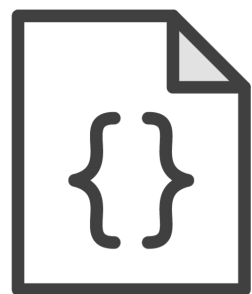
Indexing



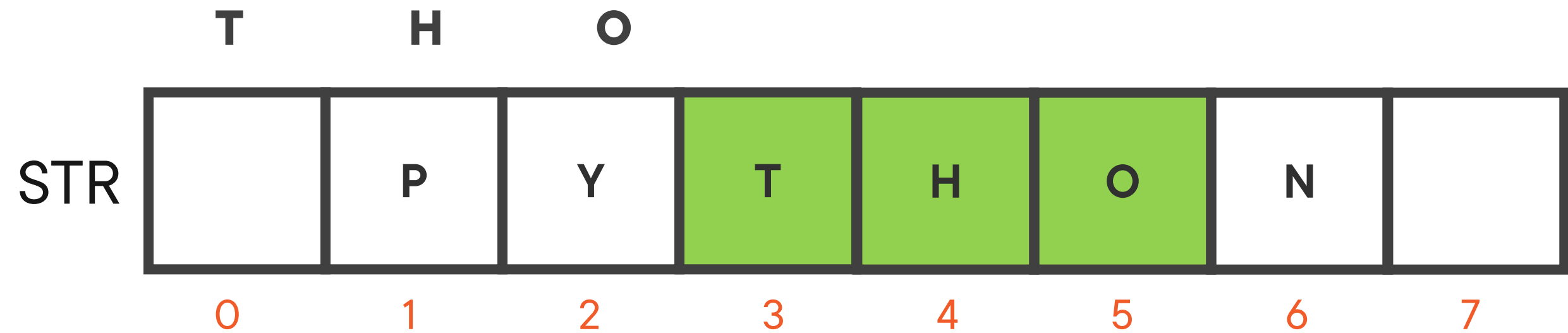
Slicing



Concatenating



Format



```
>>> str1 = 'PYTHON'
>>> str2 = 'THO'
```

```
>>> str2 in str1
TRUE
```

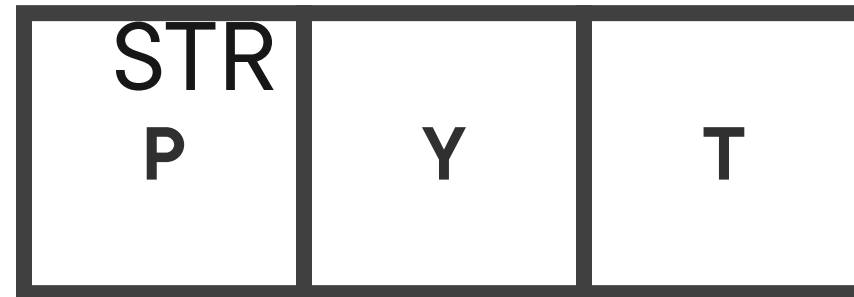
```
>>> 'PHP' not in str1
TRUE
```

Strings

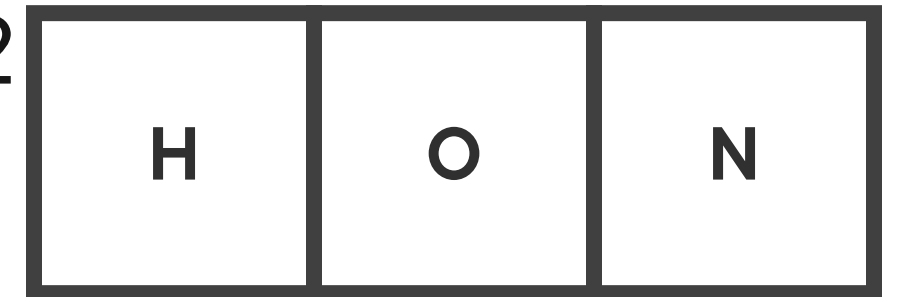
[1,2,3]

Indexing

STR1



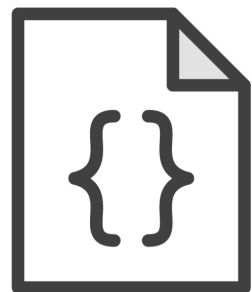
STR2



Slicing



Concatenating



Format

```
>>> STR1 = 'PYT'
>>> STR2 = 'HON'

>>> STR = STR1 + STR2
>>> print(STR)
'PYTHON'

>>> '='*10
'==========='

>>> '='*6
'====='
```


Strings

[1,2,3]

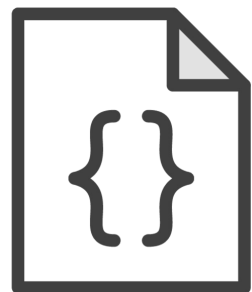
Indexing



Slicing



Concatenating



Format

```
>>> print("Hello " + "World")  
'Hello World'
```

Additional String Methods



Index() / Rindex()

Join()

Strip() / Lstrip() / Rstrip()

Split()

Count()



Data Types

()

Tuples

[]

Lists

{ }

Sets

{ : }

Dictionary

Mutable



File Handling



File Handling



Open File

```
file_var = open("name_of_file.txt", mode)
```

Modes:



Read File

r

Read (default)

w

Write (clears file first)

a

Append

r+/w+/a+

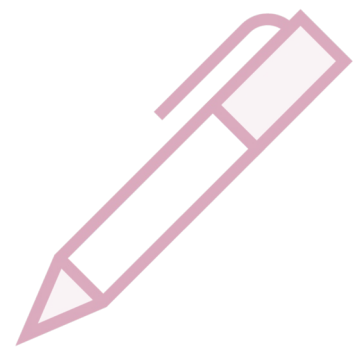
Read & Write

x

Exclusive Write

+b

Binary mode



Write File

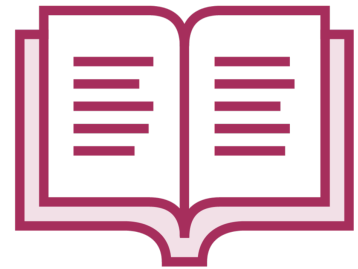


File Handling



Open File

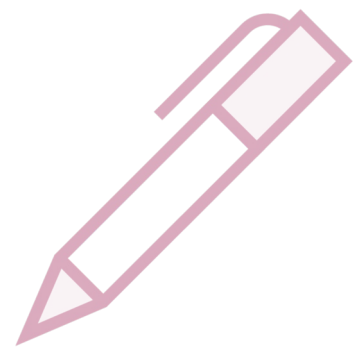
```
file_var = open("name_of_file.txt", mode)
```



Read File

.read()

.readline()



Write File

.readlines()



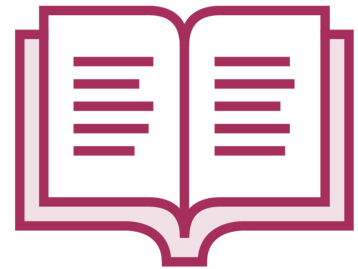
File Handling

.write()

.writelines()



Open File



Read File



Write File



Subprocess



Subprocess

subprocess

- `.run()`
- `.call()`
- `.check_call()`
- `.check_output()`
- `.Popen()`

Main way to run commands since Python 3.5

Returns the `returncode` attribute

Returns the `returncode` if 0, otherwise raises `CalledProcessError`

Returns the output, otherwise raises `CalledProcessError`

Flexible to handle less common cases

*`args, *, stdin=None, stdout=None, stderr=None, shell=False, cwd=None`*



Subprocess



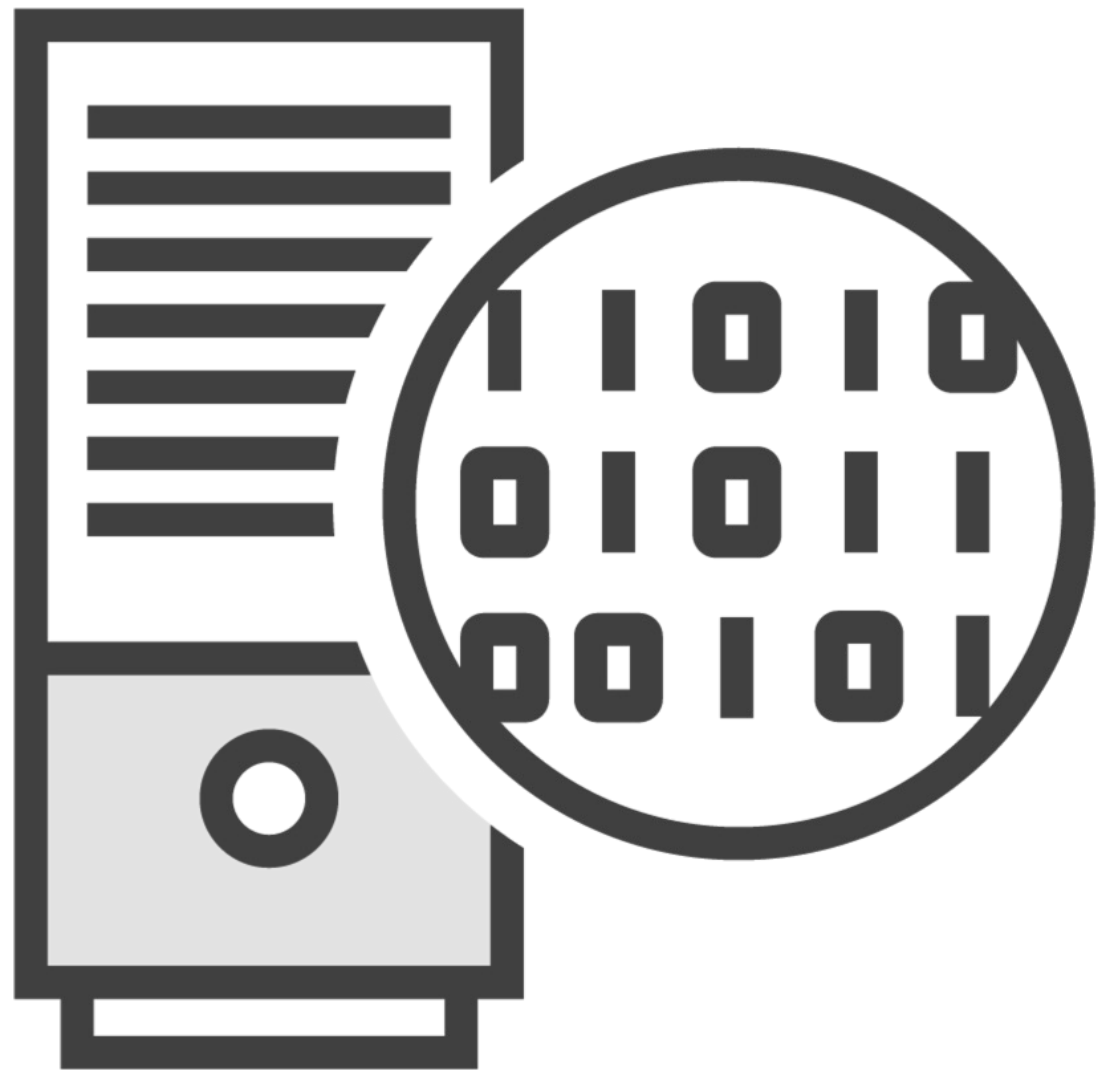
Demo



Encryption/Hashing



Hashing



Base64

- Import base64
- Base64.b64encode()
- Base64.b64decode()

Hashlib

- Import hashlib
- hashlib.sha256
- hashlib.md5()

md5

Files

Version	Operating System	Description	MD5 Sum	File Size	GPG
Gzipped source tarball	Source release		eafda83543bad127cadef4d288fdab87	26355887	SIG
XZ compressed source tarball			bf923eb422a3b8	19754368	SIG
macOS 64-bit installer			86d1f98c6e9b	30997161	SIG
macOS 64-bit installer (arm64)			033431bd69ce	38821163	SIG
Windows embeddable package (32-bit)	Windows		fec0bc06857502a56dd1aeaea6188ef8	7729405	SIG
Windows embeddable package (64-bit)	Windows		57731cf80b1c429a0be7133266d7d7cf	8570740	SIG
Windows help file	Windows		c86feba059b340a1de2a9d2ee705916d	8953644	SIG
Windows installer (32-bit)	Windows		46c35b0a2a4325c275b2ed3187b08ac4	28096840	SIG
Windows installer (64-bit)	Windows	Recommended	e7062b85c3624af82079794729618eca	29235432	SIG

e7062b85c3624af82079794729618eca



Summary



Data Types

- Numbers, Strings
- Lists, Sets, Tuples, Dict

File Handling

- Open
- Read
- Write
- Remove

Subprocess

Encryption/Hashing

