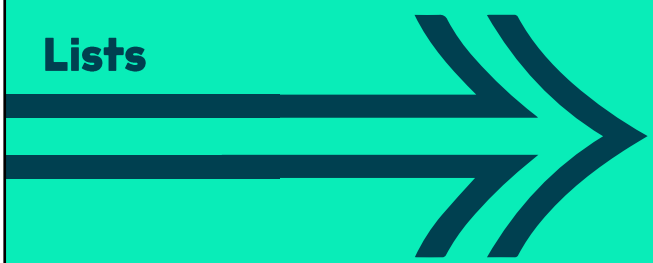
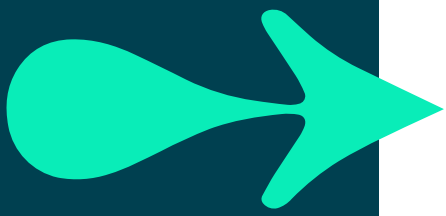
POWERING POTENTIAL

Lists



LESSON OBJECTIVES



In this chapter you will learn how to

- Create lists
- Read an item from a list
- Add an item to a list
- Remove an item from a list
- Replace an item

Python Lists

- List of elements in memory

```
numbers = [1,3,5,7]
```

1
3
5
7

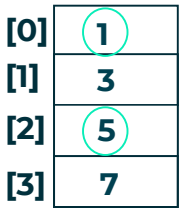
```
names = ['Bob', 'Steve', 'Helen']
```

Bob
Steve
Helen

Address an element using its index

```
numbers = [1,3,5,7,9]

print(numbers[0])
print(numbers[2])
```




```
names = ["Bob", "Steve", "Helen"]

print(names[1])
```

The len() function

- **Use the len**() function to get the length of a List

```
numbers = [1,3,5,7]

print(len(numbers))
```

4

```
names = ["Bob", "Steve", "Helen"]

print(len(names))
```

3

Iterating through a List - for loop

```
names = ["Bob", "Steve", "Helen"]

for name in names:
    print(name)
```

```
Bob
Steve
Helen

Press any key to continue . . .
```

Iterating through a List – while loop

```
names = ["Bob", "Steve", "Helen"]

i=0     # used as index

while(i < len(names) ):
    print(names[i])
    i += 1
```

```
Bob
Steve
Helen

Press any key to continue . . .
```

String is a list of characters

```
greeting = "Hello"
for x in greeting:
    print(x)
```

```
H
e
l
l
o
Press any key to continue . . .
```

```
greeting = "Hello"
i=0     # used as index

while(i < len(greeting)):
    print(greeting[i])
    i += 1
```

Appending elements at the end

```
numbers = [1,3,5,7,9]

numbers.append(88)
```

[1, 3, 5, 7, 9, 88]

```
You can start with an empty List:

nos = []
nos.append(10)
nos.append(20)
nos.append(30)
```

[10, 20, 30]

The append method is used most of the time but you may also use the insert() method to add an element at any position.
For example:
nos = [1,2,3]
nos.insert(1,99)
print(nos)

Will display [1, 99, 2, 3]

Removing elements

```
numbers = [1,3,5,7,5,9,5]

numbers.remove(5)

del(numbers[0])
```

[1, 3, 7, 5, 9, 5]

[3, 7, 5, 9, 5]

```
names = ['Bob', 'Steve', 'Helen']

names.remove("Steve")
```

['Bob', 'Helen']

Works with any kind of List

Checking for existence

- Use the **in** command to check if an item is present in a List.

```
adminIDs = [12,33,84,45,67,36,16,66,67,99]
id = int(input('Enter your ID '))
if id in adminIDs:
    print('Welcome!')
```

numeric

```
names = ['David','John','Joanne','Sean','Sonia']
if 'Sean' in names:
    print('Sean is in the list!')
```

strings

```
names = "David,John,Joanne,Sean,Sonia"
if 'John' in names:
    print('John is in the list!')
```

List of characters (string)

Sorting List elements

- Use the sort() function to sort elements

```
ages = [12,33,84,45,67,36,16]

ages.sort()
print(ages)
```

[12, 16, 33, 36, 45, 67, 84]

```
ages = [12,33,84,45,67,36,16]

ages.sort(reverse=True)
print(ages)
```

[84, 67, 45, 36, 33, 16, 12]

The string.split() function

- Used for splitting and extracting elements from a string using a delimiter.

```
data = 'Bob,Steve,Helen'
names = data.split(',')
print(names)
```

['Bob', 'Steve', 'Helen']

```
data='18/OCT/2020'
parts = data.split('/')
print(parts)
```

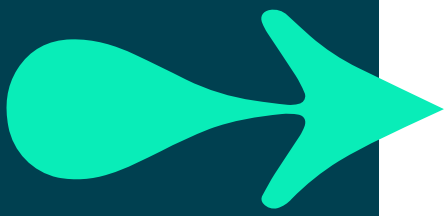
['18', 'OCT', '2020']

Python Fundamentals

In this lesson we have covered:

- How to create a list
- Read an item from a list
- Add an item to a list
- Remove an item from a list
- Replace an item

Exercise



Please see your Exercise Guide

04-Lists.docx

- This exercise has many activities
- See how many you can do!

Further Reading

- https://www.python.org/
- https://www.python.org/dev/peps/pep-0008/#a-foolish-consistency-is-the-hobgoblin-of-little-minds

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Thank you