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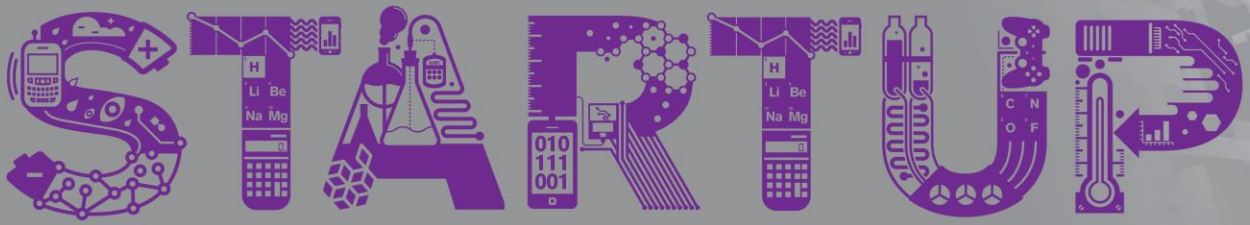

STARTUP

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Python Lesson 8

Lists and For Loops 2

Review

What does this code do?

```
colors = [‘red’, ‘green’, ‘blue’, ‘purple’]
for color in colors:
    print(‘I love’,color)
```

List Functions

Python provides many built-in functions you can use with lists.

- Add an element to the end of a list
  - list.append(x)
- Remove an element from a list
  - list.remove(x)
- Organize a list
  - list.sort()

list.append(x)

- Add an element to the end of the list

```
animals = [“lion”, “bear”, “shark”, “elephant”, “bear”]
animals.append(“crocodile”)
print(animals)
```

```
[‘lion’, ‘bear’, ‘shark’, ‘elephant’, ‘bear’, ‘crocodile’]
```

list.remove(x)

- Remove the **first** element from the list whose value is x.
- If no element in the list looks like x, then an error will occur

```
animals = [“lion”, “bear”, “shark”, “elephant”, “bear”]
animals.remove(“bear”)
print(animals)

[‘lion’, ‘shark’, ‘elephant’, ‘bear’]
```

list.remove(x)

- Remove the **first** element from the list whose value is x.
- If no element in the list looks like x, then an error will occur

```
animals = [“lion”, “bear”, “shark”, “elephant”, “bear”]
animals.remove(“cat”)
print(animals)

ValueError: list.remove(x): x not in list
```

list.sort()

- Sorts the elements in the list

```
animals = [“lion”, “bear”, “shark”, “elephant”, “bear”]
animals.sort()
print(animals)
```

```
[‘bear’, ‘bear’, ‘elephant’, ‘lion’, ‘shark’]
```

list.sort()

- Sorts the elements in the list

```
ages = [12, 56, 13, 5]
ages.sort()
print(ages)
```

```
[5, 12, 13, 56]
```

range(start,end)

- The function range allows us to generate a list of numbers.
- **start**: the number that you want to start at (inclusive).
- **end**: the number that you want to end by (exclusive).

Ex: range(1,5) gives you 1, 2, 3, 4

Iterate through a range of numbers

We can use **for loops** to execute the code block for each number in the range of numbers.

```
for number in range(1, 11):
    print(number)
```

How would you do the same thing with a while loop?

Iterate through a string

We can also use **for loops** to execute the code block for each character inside of a string.

```
forward = “apple”
reverse = “”
for letter in forward:
    reverse = letter + reverse
print(reverse)
```

The in keyword

- You can use the **in** in if statements as well as for loops

```
animals = [“lion”, “bear”, “shark”, “elephant”, “bear”]
if “lion” in animals:
    print(“ROAR!”)

your_name = “Zelda”
if “Z” in your_name:
    print(“You have a Z in your name!”)
```

Recap

- Lists have built in functions to add, remove, and sort elements.
- **For loops** let you execute a block of code once for every
  - **Item** in a **list**
  - **Number** in a **range** of numbers
  - **Character** in a **string**
- The **in** keyword used in for loops can also be used in if statements to test if an element is in a list or a string.