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# For/Range

# WHILE loop review



- What is the expected output?

```
1 animals = ['Cat', 'Dog', 'Elephant', 'Giraffe']
2 i = 0
3
4 while i < len(animals):
5     print(animals[i] + " found in the barn.")
6     i += 1
```

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6     i += 1
```

```
Cat found in the barn.
Dog found in the barn.
Elephant found in the barn.
Giraffe found in the barn.
```

# FOR Loops



- For loops iterate through an iterable.
- This can be a list, a string...or a set, a tuple, a dictionary, etc
- For loops stop once the last element in the iterable is used
- break and continue work with for loops, just like with while loops

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```
barn = ['cat', 'dog', 'elephant', 'giraffe', 'pig']  
for animal in barn:  
    print(animal + " found in the barn")
```

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```
barn = ['cat', 'dog', 'elephant', 'giraffe', 'pig']  
for animal in barn:  
    print(animal + " found in the barn")
```

output:

```
cat found in the barn  
dog found in the barn  
elephant found in the barn  
giraffe found in the barn  
pig found in the barn
```


```
In [27]:
```

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```
for letter in "animal":  
    print(letter)
```



# FOR Loops

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```
for letter in "animal":  
    print(letter)
```

output:

```
a  
n  
i  
m  
a  
l
```

```
In [29]:
```



# For Loops vs While Loops

---

For loops iterate through an iterable (like a list)

While loops repeat until their boolean equality becomes false

```
# Simple WHILE loop
barn = ['cat', 'dog', 'elephant', 'giraffe', 'pig']
i=0
# i is a counter that will help us iterate through the list
# when i gets to the end of the list, the loop will stop
while i < len(barn):
    animal = barn[i]
    print(animal + " found in the barn")
    i += 1
#increment counter
```

# For Loops vs While Loops



For loops iterate through an iterable (like a list)

While loops repeat until their boolean equality becomes false

```
for animal in barn:  
    print(animal + " found in the barn")
```

# For Loops vs While Loops



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# Simple WHILE loop
barn = ['cat', 'dog', 'elephant', 'giraffe', 'pig']
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while i < len(barn):
    animal = barn[i]
    print(animal + " found in the barn")
    i += 1
    #increment counter
```

```
for animal in barn:
    print(animal + " found in the barn")
```

# Introducing range()



- `range()` creates a list of numbers.
- Basically, it counts for you. (Remember, Python starts counting at 0!)

So, the list:

```
Counttofive = [0,1,2,3,4]
```

can be generated as:

```
range(5)
```

# Introducing range()



```
Counttofive = [0,1,2,3,4]
```

```
for i in Counttofive:  
    print(i)
```

```
0  
1  
2  
3  
4
```

```
for i in range(5):  
    print (i)
```

```
0  
1  
2  
3  
4
```

- range() creates a list of numbers. Basically, it counts for you.

# range(): Counting from 1



```
print (i)
```

1  
2  
3  
4  
5

```
Counttofive =[1,2,3,4,5]
```

```
for i in Counttofive:
```

```
for i in range(1,6):  
    print (i)
```

1  
2  
3  
4  
5

# range() in a Nutshell

```
Counttofive =[0,1,2,3,4]
```

```
for i in Counttofive:  
    print(i)
```

0  
1  
2  
3  
4

```
Counttofive =[1,2,3,4,5]
```

```
for i in Counttofive:  
    print (i)
```

1  
2  
3  
4  
5

```
for i in range(5):  
    print (i)
```

0  
1  
2  
3  
4

```
for i in range(1,6):  
    print (i)
```

1  
2  
3  
4  
5

# FOR loops with range()



- another way to loop is to use range to slice by index

```
# for loops with range  
barn = ['cat', 'dog', 'elephant', 'giraffe', 'pig']  
i=0  
  
# another way to loop is to use range to slice by index  
  
for idx in range(len(barn)):  
    print(barn[idx] + " found in the barn")  
  
print("\n\n")
```

```
cat found in the barn  
dog found in the barn  
elephant found in the barn  
giraffe found in the barn  
pig found in the barn
```