J233
Coding for Journalists

LECTURER
Soo Oh

PROMPTS

Sign into Slack and Google

start Zoom recording

Agenda

Announcements + check-in

Homework review + how much time

Pop quiz

Control flow

BREAK

Homework

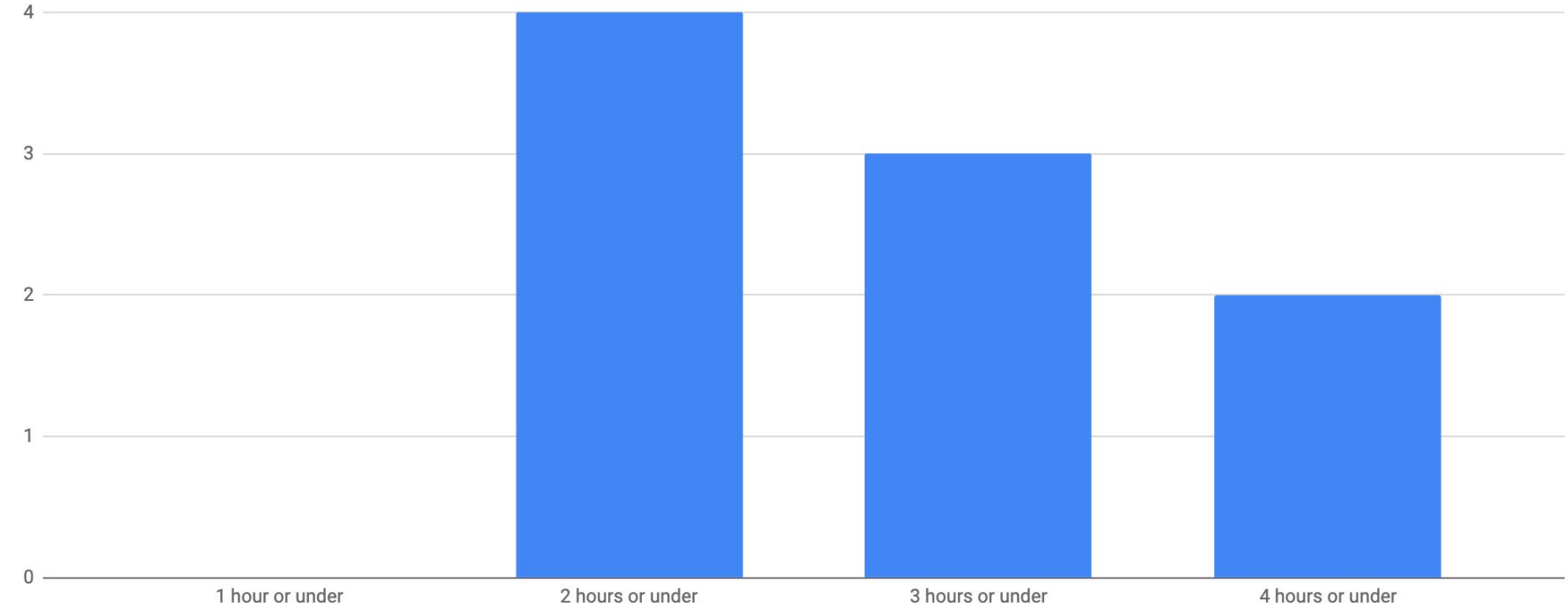
Announcements and checking in

How was Saturday homework?

Final project ideas

Codecademy

Week of 0918: students grouped by time spent outside of lecture and office hours



Homework Review

Documenting

Markdown

You got credit for using Markdown blocks. For future notebooks, include:

- Assignment name in title
- Your name somewhere at the top
- *Some* formatting for the questions, preferably using header styles

What questions do you have?

Control flow

`Control flow`

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

Types of **control flow**:

- **sequential** (what we've been doing so far, we execute one line after another in order)
- **selection** (`if`... `elif`... `else`)
- **repetition** (`for` and `while` loops)

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# Let's say who know someone named Alex
alex_age = 13
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# Let's say who know someone named Alex
alex_age = 13

if alex_age < 16:
    alex_can_drive_legally = False
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# Let's say who know someone named Alex
alex_age = 13

if alex_age < 16:
    alex_can_drive_legally = False
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# Let's say who know someone named Alex
alex_age = 13

if alex_age < 16:
    alex_can_drive_legally = False
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# Let's say who know someone named Alex
alex_age = 13

if alex_age < 16:
    alex_can_drive_legally = False
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# Let's say who know someone named Alex
alex_age = 13

if alex_age < 16:
    alex_can_drive_legally = False
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# Let's say who know someone named Alex
alex_age = 13

if alex_age < 16:
    alex_can_drive_legally = False
else:
    alex_can_drive_legally = True
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# Let's say who know someone named Alex
alex_age = 13

if alex_age < 16:
    alex_can_drive_legally = False
else:
    alex_can_drive_legally = True
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# Let's say who know someone named Alex
alex_age = 13

if alex_age < 16:
    alex_can_drive_legally = False
else:
    alex_can_drive_legally = True

alex_can_drive_legally
Out[]:
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# Let's say who know someone named Alex
alex_age = 13

if alex_age < 16:
    alex_can_drive_legally = False
else:
    alex_can_drive_legally = True

alex_can_drive_legally
Out[]: False
```

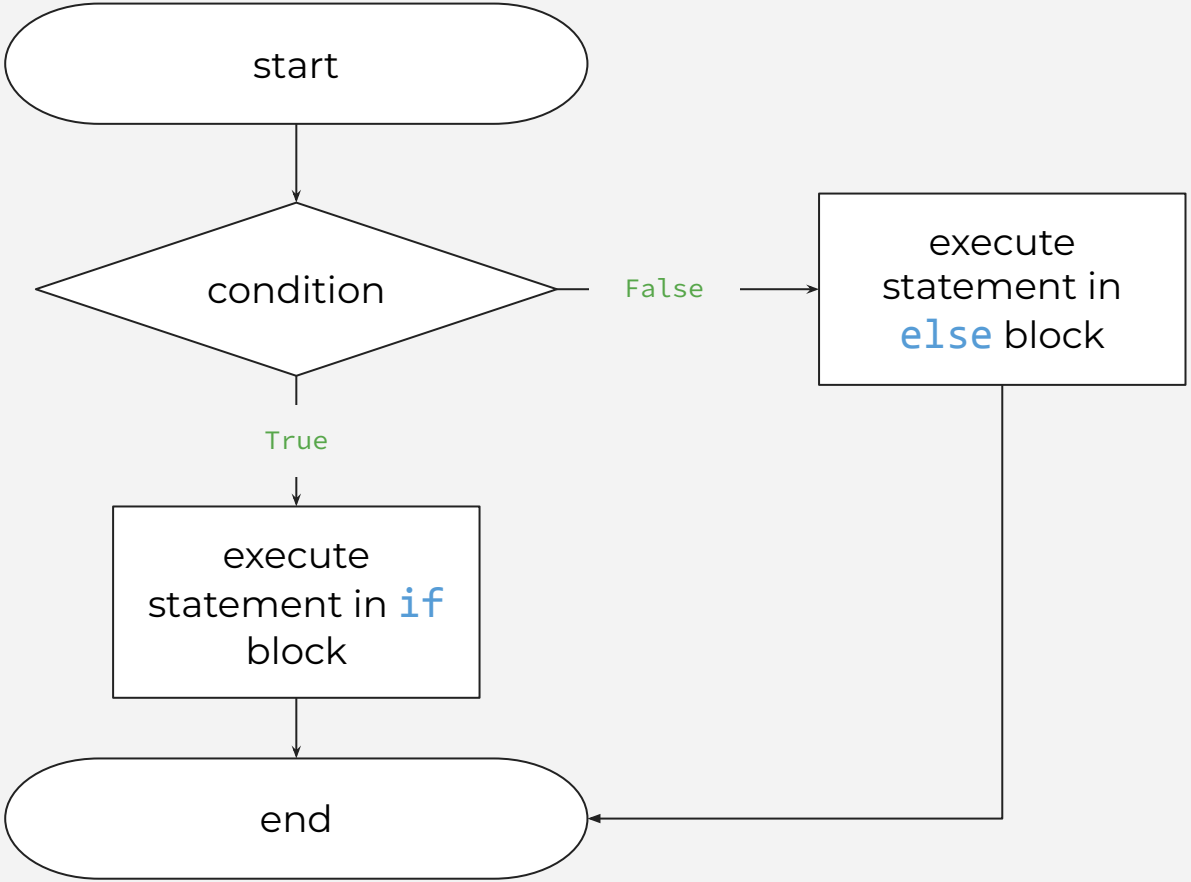
Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops



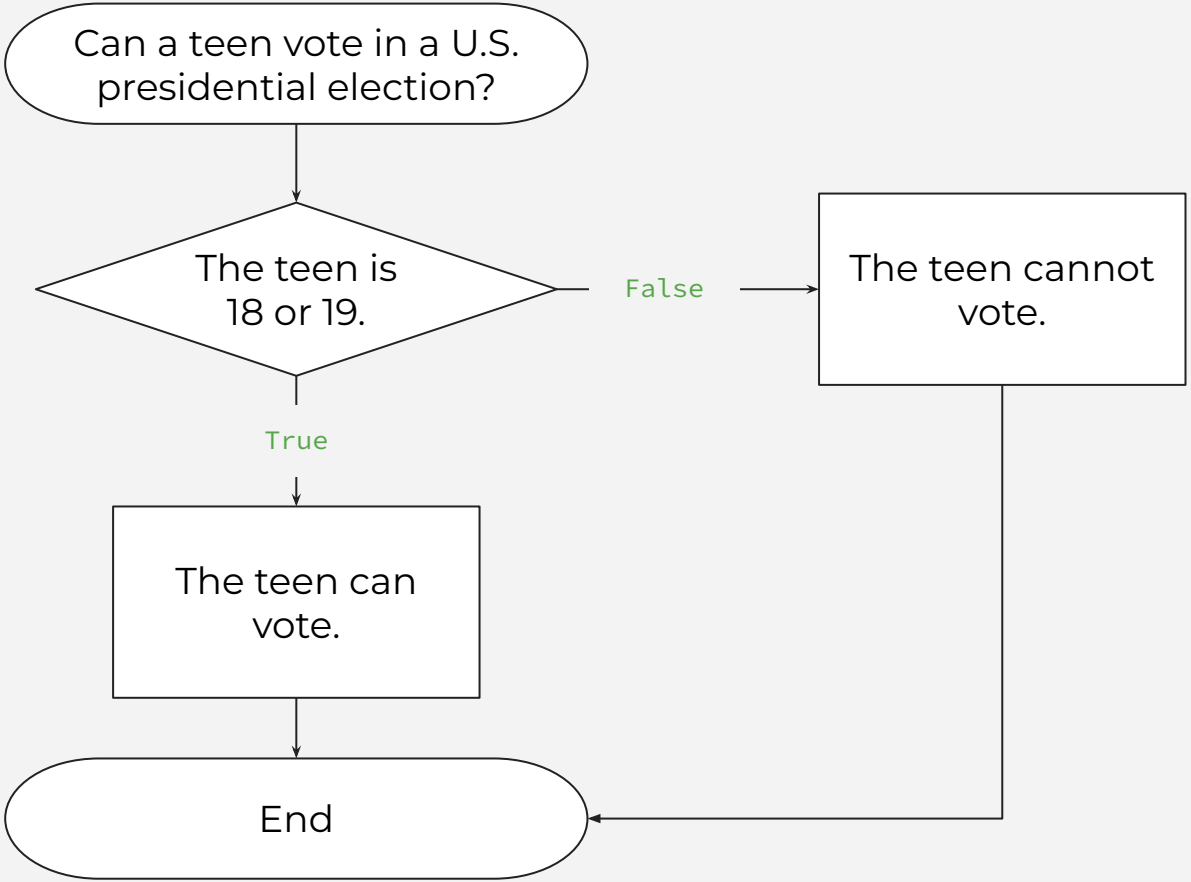
Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops



Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

> 15 human years equals the first year of a medium-sized dog's life.
>
> Year two for a dog equals about nine years for a human.
>
> And after that, each human year would be approximately five years for a dog.
>
> — American Kennel Club

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# Write a function that takes human age
# and turns it into dog age.

dog_age(-1)
Out[]: 'Not born yet!'
dog_age(0)
Out[]: 0
dog_age(0.5)
Out[]: 'Enter an integer'
dog_age('puppy')
Out[]: 'Enter an integer'
dog_age(1)
Out[]: 15
dog_age(2)
Out[]: 24
dog_age(3)
Out[]: 29
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
def dog_age(human_age):
    pass
    # hints
    # you'll use type()
    # and if/elif/else statements

# What is `pass`? It's a null statement.
# Use pass instead of a comment when your
# code could break otherwise. For example,
# you might want to define a function but wait
# to write out what the function does until you
# set up code elsewhere.
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
def dog_age(human_age):
    if type(human_age) != int:
        return 'Enter an integer'
    elif human_age < 0:
        return 'Not born yet!'
    elif human_age == 0:
        return 0
    elif human_age == 1:
        return 15
    elif human_age == 2:
        return 24
    else:
        return 24 + (5 * (human_age - 2))
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
pets = ['dog', 'cat', 'hamster']
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
pets = ['dog', 'cat', 'hamster']

for pet in pets:
    print(pet)

Out[]:
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
pets = ['dog', 'cat', 'hamster']

for pet in pets:
    print(pet)

Out[]: dog
cat
hamster
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
pets = ['dog', 'cat', 'hamster']

for pet in pets:
    print(pet)

Out[]: dog
cat
hamster
```

What's the index of each item in the `pets` list?

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
pets = ['dog', 'cat', 'hamster']
         pets[0]  pets[1]  pets[2]

for pet in pets:
    print(pet)

Out[]: dog
cat
hamster
```

What's the index of each item in the `pets` list?

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
pets = ['dog', 'cat', 'hamster']
          pets[0]

for pet in pets:
    print(pet)
```

pets[0]

```
pet = 'dog'
print(pet)
```

→

```
Out[]:
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
pets = ['dog', 'cat', 'hamster']
          pets[0]

for pet in pets:
    print(pet)
```

pets[0]

```
pet = 'dog'
print(pet)
```

→

```
Out[]: dog
```

Control flow

Conditionals (`if`...)

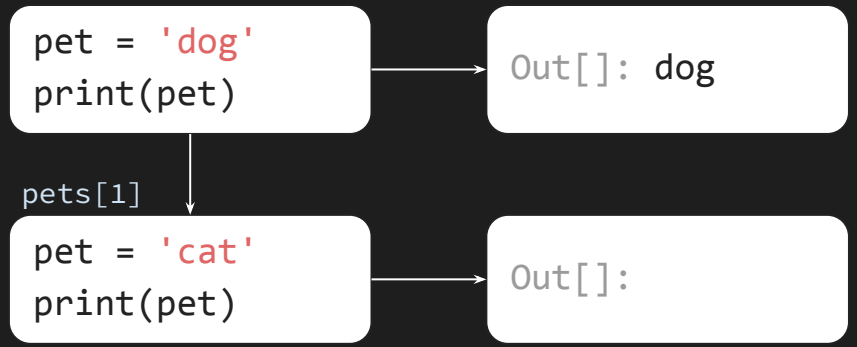
`for` loops

`while` loops

infinite loops

```
pets = ['dog', 'cat', 'hamster']
                pets[1]

for pet in pets:
    print(pet)
```



Control flow

Conditionals (`if`...)

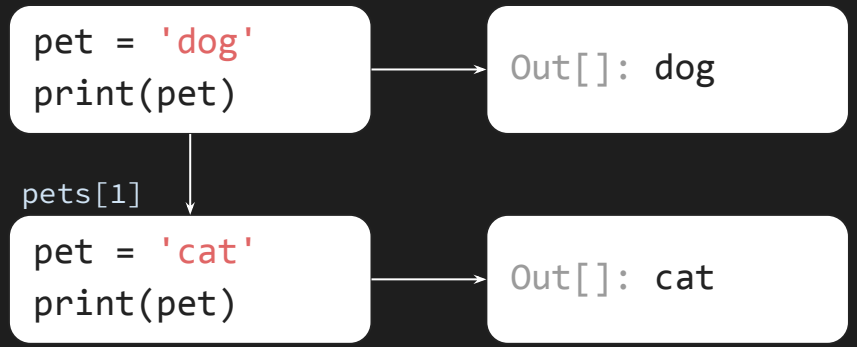
`for` loops

`while` loops

infinite loops

```
pets = ['dog', 'cat', 'hamster']
                pets[1]

for pet in pets:
    print(pet)
```



Control flow

Conditionals (`if`...)

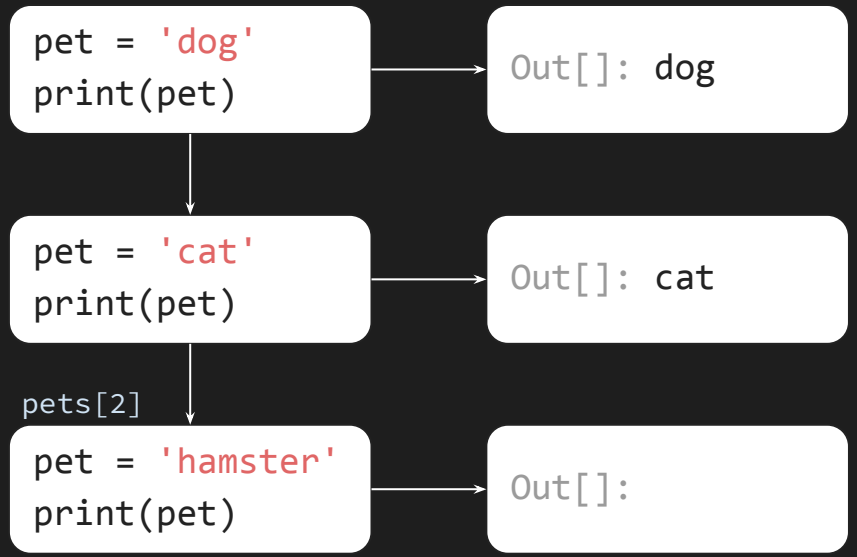
`for` loops

`while` loops

infinite loops

```
pets = ['dog', 'cat', 'hamster']
                      pets[2]

for pet in pets:
    print(pet)
```



Control flow

Conditionals (`if`...)

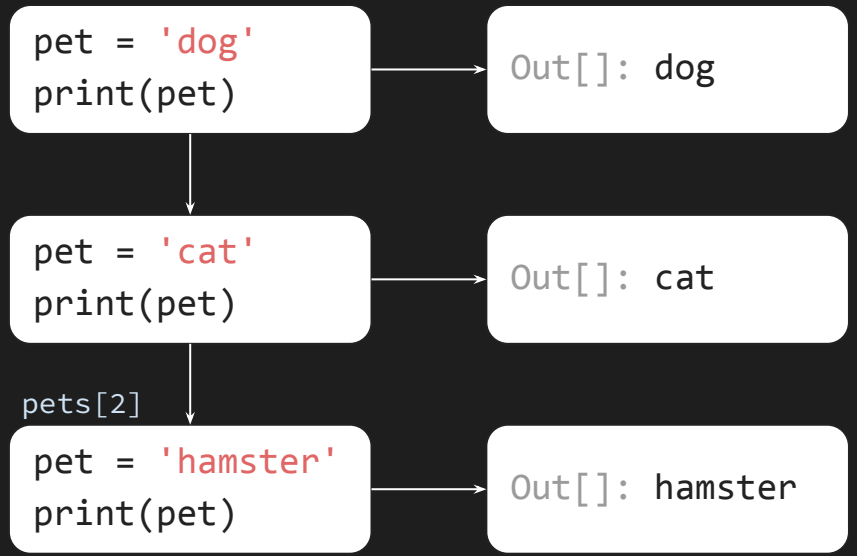
`for` loops

`while` loops

infinite loops

```
pets = ['dog', 'cat', 'hamster']
                      pets[2]

for pet in pets:
    print(pet)
```



Control flow

Conditionals (`if`...)

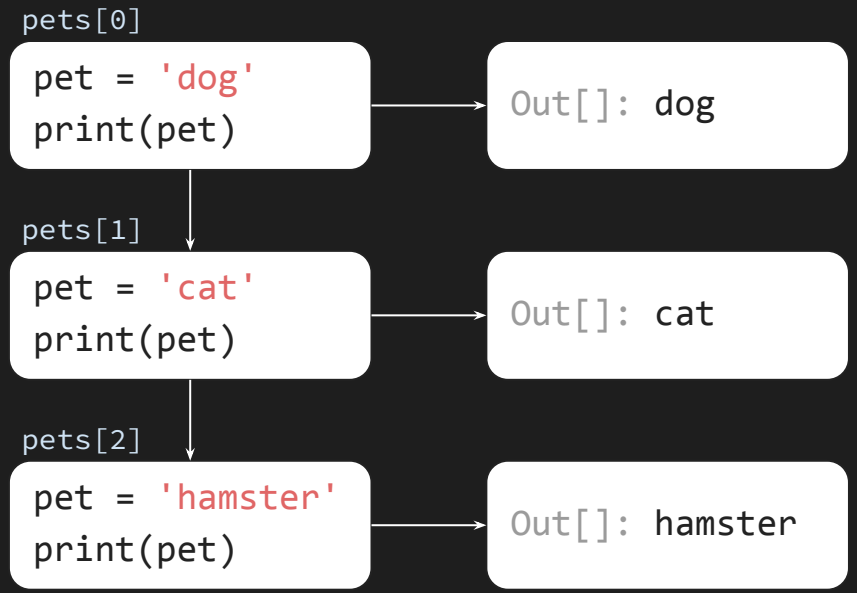
`for` loops

`while` loops

infinite loops

```
pets = ['dog', 'cat', 'hamster']
         pets[0]  pets[1]  pets[2]

for pet in pets:
    print(pet)
```



Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
pets = ['dog', 'cat', 'hamster']

for pet in pets:
    print(pet)

Out[]: dog
cat
hamster
```

Control flow

Conditionals (`if`...)

`for` loops

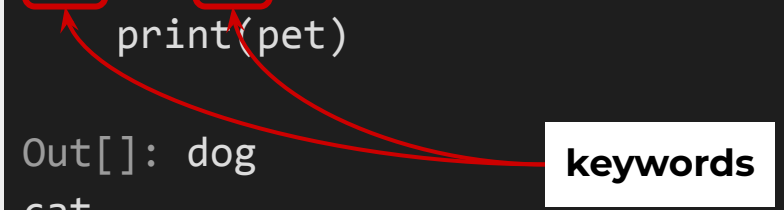
`while` loops

infinite loops

```
pets = ['dog', 'cat', 'hamster']

for pet in pets:
    print(pet)

Out[]: dog
cat
hamster
```



Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
pets = ['dog', 'cat', 'hamster']

for pet in pets:
    print(pet)

Out[]: dog
cat
hamster
```

iterator (doesn't have to be a list)

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
pets = ['dog', 'cat', 'hamster']

for pet in pets:
    print(pet)

Out[]: dog
cat
hamster
```

variable name of your choice

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# How can we add up the sum of the items in nums?

nums = [1, 2, 3, 4, 5]

for n in nums:
    pass
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# How can we add up the sum of the items in nums?

nums = [1, 2, 3, 4, 5]
sum = 0
for n in nums:
    sum = sum + n

print(sum)
Out[]: 15
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# How can we add up the sum of the items in nums?

nums = [1, 2, 3, 4, 5]
sum = 0
for n in nums:
    sum = sum + n
```

`n = 1` `n = 2` `n = 3` `n = 4` `n = 5`

Control flow

Conditionals (`if`...)

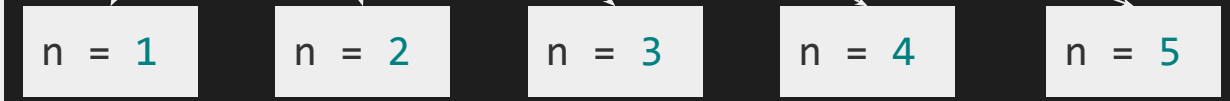
`for` loops

`while` loops

infinite loops

```
# How can we add up the sum of the items in nums?

nums = [1, 2, 3, 4, 5]
sum = 0
for n in nums:
    sum = sum + n
```



Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# How can we add up the sum of the items in nums?

nums = [1, 2, 3, 4, 5]
sum = 0
for n in nums:
    sum = sum + n
```

`n = 1` `n = 2` `n = 3` `n = 4` `n = 5`

```
sum = 0
n = 1
sum = sum + n
```

statement inside `for` loop

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# How can we add up the sum of the items in nums?

nums = [1, 2, 3, 4, 5]
sum = 0
for n in nums:
    sum = sum + n
```

`n = 1` `n = 2` `n = 3` `n = 4` `n = 5`

```
sum = 0
n = 1
sum = sum + n
print(sum)
Out[]:
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# How can we add up the sum of the items in nums?

nums = [1, 2, 3, 4, 5]
sum = 0
for n in nums:
    sum = sum + n
```

`n = 1` `n = 2` `n = 3` `n = 4` `n = 5`

```
sum = 0
n = 1
sum = sum + n
print(sum)
Out[]: 1
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# How can we add up the sum of the items in nums?

nums = [1, 2, 3, 4, 5]
sum = 0
for n in nums:
    sum = sum + n
```

`n = 1` `n = 2` `n = 3` `n = 4` `n = 5`

```
sum =
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# How can we add up the sum of the items in nums?

nums = [1, 2, 3, 4, 5]
sum = 0
for n in nums:
    sum = sum + n
```

`n = 1` `n = 2` `n = 3` `n = 4` `n = 5`

```
sum = 1
```

`sum` is outside the `for` loop!

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# How can we add up the sum of the items in nums?

nums = [1, 2, 3, 4, 5]
sum = 0
for n in nums:
    sum = sum + n
```

`n = 1` `n = 2` `n = 3` `n = 4` `n = 5`

```
sum = 1
n = 2
sum = sum + n
```

`sum` is outside the `for` loop!

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# How can we add up the sum of the items in nums?

nums = [1, 2, 3, 4, 5]
sum = 0
for n in nums:
    sum = sum + n
```

`n = 1` `n = 2` `n = 3` `n = 4` `n = 5`

```
sum = 1
n = 2
sum = sum + n
print(sum)
Out[]:
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# How can we add up the sum of the items in nums?

nums = [1, 2, 3, 4, 5]
sum = 0
for n in nums:
    sum = sum + n
```

`n = 1` `n = 2` `n = 3` `n = 4` `n = 5`

```
sum = 1
n = 2
sum = sum + n
print(sum)
Out[]: 3
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# How can we add up the sum of the items in nums?

nums = [1, 2, 3, 4, 5]
sum = 0
for n in nums:
    sum = sum + n
```

n = 1	n = 2	n = 3	n = 4	n = 5

```
sum = 3
n = 3
sum = sum + n
print(sum)
Out[]: 6
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# How can we add up the sum of the items in nums?

nums = [1, 2, 3, 4, 5]
sum = 0
for n in nums:
    sum = sum + n
```

`n = 1` `n = 2` `n = 3` `n = 4` `n = 5`

```
sum = 6
n = 4
sum = sum + n
print(sum)
Out[]: 10
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# How can we add up the sum of the items in nums?

nums = [1, 2, 3, 4, 5]
sum = 0
for n in nums:
    sum = sum + n
```

`n = 1` `n = 2` `n = 3` `n = 4` `n = 5`

```
sum = 10
n = 5
sum = sum + n
print(sum)
Out[]: 15
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# How can we add up the sum of the items in nums?

nums = [1, 2, 3, 4, 5]
sum = 0
for n in nums:
    sum = sum + n

print(sum)
Out[]: 15
```

Break

Meet back in 15 minutes

7:36 pm

Control flow

Conditionals (`if`...)

`for` loops

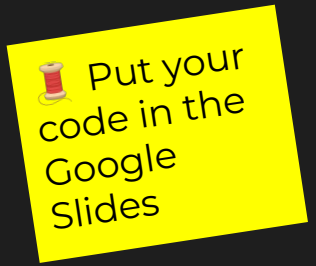
`while` loops

infinite loops

```
# loop through a dict
store = {'name': 'Berkeley General Store',
'apples': 52, 'bananas': 9, 'kiwis': 27}

for key, value in store.items():
    pass


Out[]:
I called Berkeley General Store.
They have 52 apples.
They have 9 bananas.
They have 27 kiwis.
```



Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# loop through a dict
store = {'name': 'Berkeley General Store',
'apples': 52, 'bananas': 9, 'kiwis': 27}

for key, value in store.items():
    if key == 'name':
        print(f'I called { value }.')
    else:
        print(f'They have { value } {key}.')

Out[]:
I called Berkeley General Store.
They have 52 apples.
They have 9 bananas.
They have 27 kiwis.
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# loop through a dict
store = {'name': 'Berkeley General Store',
'apples': 52, 'bananas': 9, 'kiwis': 27}

for key, value in store.items():
    if key == 'name':
        print(f'I called { store[key] }.')
    else:
        print(f'They have { store[key] } {key}.')

Out[]:
I called Berkeley General Store.
They have 52 apples.
They have 9 bananas.
They have 27 kiwis.
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

How to use `range()`

```
# increment by 1, starting from 0 to 5
# but not including 5
for n in range(5):
    print(n)

# decrement by 1, starting at 5 until 0
# but not including 0
for n in range(5, 0, -1):
    print(n)
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# Create a function that calculates the factorial
# of a number. The factorial function says to
# multiply all whole numbers from a given number
# down to 1.
# For example:
# 4! = 4 × 3 × 2 × 1 = 24

factorial(4)
Out[]: 24
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
def factorial(n):
    result = 1
    for x in range(n, 0, -1):
        result = result * x
    return result
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# While the condition is met
# continue to loop
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# While the condition is met
# continue to loop
def question():
    answer = 'n'
    while answer == 'n':
        answer = input('Do you like coding now?
        Type "y" for yes or "n" for no.')

question()
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# While the condition is met
# continue to loop
def question():
    answer = 'n'
    while answer == 'n':
        answer = input('Do you like coding now?
        Type "y" for yes or "n" for no.')

question()
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# Write a while loop that prints
# out numbers from 1 to 10
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# Write a while loop that prints
# out numbers from 1 to 10
n = 0
while n < 10:
    n = n + 1
    print(n)
```

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

Avoid infinite loops!

- `for` loops end (eventually)
- `while` loops might not end

Control flow

Conditionals (`if`...)

`for` loops

`while` loops

infinite loops

```
# What's wrong with this loop?

n = 1

while (n <= 1):
    print(n)
```

Questions?
Exercises?

Homework

https://journ233.github.io