

**Lesson 1:**  
**List Comprehensions**  
**and Paninis**  
**will begin at**  
**12:04 CDT**

Please unmute me  
(you should hear music)

# Next Steps in Python: Lunch Lessons

---

with Colby Witherup Wood  
and today's guest, Dan Turner

# Next Steps in Python: List Comprehensions

- On Zoom, unmute me ("Colby Witherup Wood") and choose Speaker View
- Two ways to access the materials:
  1. Go to [www.github.com/agithasnoname/list](https://www.github.com/agithasnoname/list). Click on the green "Clone or download" button, and then Download Zip. Open Anaconda Navigator and choose either Jupyter Lab or Jupyter Notebook. Navigate to the folder you downloaded.
  2. Go to [colab.research.google.com](https://colab.research.google.com), select GitHub, search for and select agithasnoname/list

Spice up your lunch!  
"Cheater's panini"  
recipe included in  
the GitHub repo.

Lunch Lessons  
are brought to you by  
**NUIT Research**  
**Computing**  
**Services**

Have a programming or data  
question about your research?  
**We're here to help.**  
[bit.ly/rcsconsult](https://bit.ly/rcsconsult)

# Next Steps in Python: List Comprehensions

- On Zoom, unmute me ("Colby Witherup Wood") and choose Speaker View
- Two ways to access the materials:
  1. Go to [www.github.com/agithasnoname/list](https://www.github.com/agithasnoname/list). Click on the green "Clone or download" button, and then Download Zip. Open Anaconda Navigator and choose either Jupyter Lab or Jupyter Notebook. Navigate to the folder you downloaded.
  2. Go to [colab.research.google.com](https://colab.research.google.com), select GitHub, search for and select agithasnoname/list

I'm sorry if we have any  
technical difficulties.  
We're new to this. 😊

**If you are having  
trouble opening  
the notebook on  
your own  
computer, try the  
google colab  
option.**

# What is a list?

- One of the most commonly used objects in Python
- A collection of objects
- In order
- Designated by square brackets
- Objects are separated by commas
- Great for looping through

```
food_games = ["BurgerTime", "Food Fight", "Pac-Man", "Order Up!",  
              "Cooking Mama", "Kool-Aid Man", "Pizza Tycoon"]
```

# What is a list comprehension?

- A way to make a new list and add certain items to that list in one line of code
- Replaces making an empty list and writing a for loop to append items into the empty list

# Why use a list comprehension?

- Faster to type
- Neater - turns something big and clunky into something straightforward
- Faster to run

# When should you use a list comprehension?

- If you are appending to an empty list using a for loop
- AND, the list is the only output of your for loop

# Two ways of saying the same thing:

1. For every item on the shopping list, if the item is available at the store, I will add the item to my cart.
2. I will add the item to my cart for every item on the shopping list, if the item is available in the store.



```
store_list = ["oranges", "milk", "bar soap", "pears",  
              "canned artichokes", "frozen spinach",  
              "frozen burrito", "ice cream", "peanuts"]
```

```
shop_list = ["oranges", "bread", "frozen spinach",  
             "ice cream", "toilet paper"]
```

With paper and pencil, write Python code to make a new list that only includes the items in `shop_list` that are also in `store_list`.

```
my_cart = []  
for item in shop_list:  
    if item in store_list:  
        my_cart.append(item)
```

```
my_cart = []  
for i in shop_list:  
    if i in store_list:  
        my_cart.append(i)
```

`i` is a common Python name for a variable that is only used inside a loop

```
my_cart = []  
for i in shop_list:  
    if i in store_list:  
        my_cart.append(i)
```

```
my_cart = [i for i in shop_list if i in store_list]
```

```
my_cart = []  
for i in shop_list:  
    if i in store_list:  
        my_cart.append(i)
```

```
my_cart = [i for i in shop_list if i in store_list]
```

```
my_cart = []  
for i in shop_list:  
    if i in store_list:  
        my_cart.append(i)
```

```
my_cart = [i for i in shop_list if i in store_list]
```

```
my_cart = []  
for i in shop_list:  
    if i in store_list:  
        my_cart.append(i)
```

```
my_cart = [i for i in shop_list if i in store_list]
```

```
my_cart = []  
for i in shop_list:  
    if i in store_list:  
        my_cart.append(i)
```

```
my_cart = [i for i in shop_list if i in store_list]
```



# 7 uses of list comprehension

Open up the jupyter notebook `list.ipynb` and then return to Zoom.

For each use, I will go over an example in the notebook (you can watch me on Zoom), and then you will have time to do an exercise in your own version of the notebook.

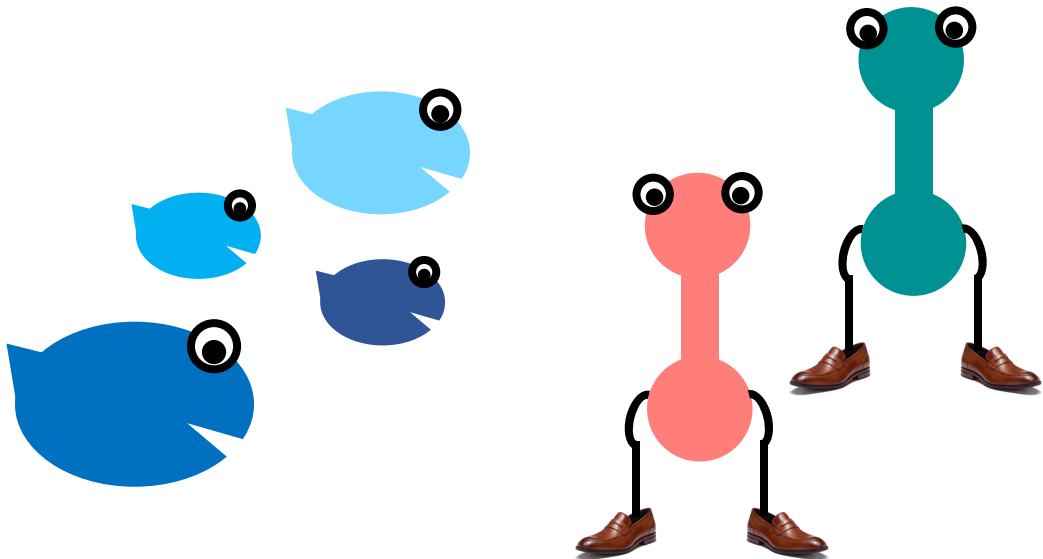
A large teal circle on the right side of the slide, containing white text.

**If you have questions at any point during the session, post them in the Zoom chat. Dan will be monitoring.**

# Next Steps in Python

Next week: `*args` and `**kwargs` and lunch

*Don't forget to register on eventbrite for each week*



**Need help  
with list  
comprehensions  
in your own  
code?**

**We're here to help.**  
[bit.ly/rcsconsult](http://bit.ly/rcsconsult)

Have any feedback or  
suggestions for other Lunch  
Lesson topics?

Have an easy lunch recipe  
that you would like to share?

[colby.witherup@northwestern.edu](mailto:colby.witherup@northwestern.edu)