

ES 2: Critical thinking with Python

aka, Introduction to Computing for Engineers

Steven Bell

28 January 2025



Getting a handle on lists

With a group, write down what you know about Python lists

What's the difference between a list and a string or an int?

Making lists

Codio exercise: "In-class work (lists)"

Indexing lists

Codio exercise

Indexing lists

Single element: `values[3]`

From the back: `values[-1]`

Slice: `values[1:5]`

Analyzing code

```
favorite_numbers = [0, 1]
favorite_numbers.append(2.71828)
favorite_numbers.append(3.14159)
favorite_numbers.append("j") # Math people call it "i"...

print(len(favorite_numbers))
print(favorite_numbers[4])
```

Analyzing code

```
repetitive = ["Pete", "repeat"]  
repetitive.append(repetitive[1])  
repetitive.append(repetitive[1])  
repetitive.append(repetitive[1])  
print(repetitive)
```

Analyzing code

This one's a trick...

```
languages = ["German, Turkish, Spanish, Arabic"]  
print(languages[1])
```


Something "weird" about lists

```
mammals = ["bear", "squirrel"]
```

```
animals = mammals
```

```
animals.append("shark")
```

```
print(animals)
```

```
print(mammals)
```

steven.bell@tufts.edu

sbell@ece.tufts.edu

Office hours:

Wednesday 10-11:30am

Friday 3:30-5:30pm

Halligan 112

Using lists and loops

Write code to make a list of the first 20 Fibonacci numbers

1 1 2 3 5 8 13 ...

Challenge: write code to make a list of all the prime numbers up to 100

Bonus: list comprehensions