

## Topic 3: Lists, Strings, and Tuples

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# Announcements

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Due tommorow night:

- ➊ **PrairieLearn:** Homework 3 (Part 1), Post Reading 3 (Part 2)
- ➋ **zyBooks:** Topic 3 (Part 2) - Participation

# Strings

# Poll Question: String Len

What is the value of `my_str_length` after the following code has run?

```
1 my_str = "le chat"  
2 my_str_length = len(my_str)
```

- ☐ A 6
- ☐ B 8
- ☐ C 7
- ☐ D 5

# Poll Question: String Concatenation

What is the value of x in the following expression?

```
1 x = "New" + "York"
```

- ☐ A TypeError
- ☐ B "New""York"
- ☐ C "New+York"
- ☐ D "New York"
- ☐ E "NewYork"

# Poll Question: Negative Indexing

What is the result of the following segment of code?

```
1 x = "ABCDE"  
2 print(x[-3])
```

- ☐ A IndexError
- ☐ B 'A'
- ☐ C 'B'
- ☐ D 'C'
- ☐ E 'D'

# Poll Question: Changing Strings

What is the value of `str1` after the following segment of code executes?

```
1 str1 = "urbana"  
2 str1[0] = "e"
```

- ☐ A SyntaxError
- ☐ B IndexError
- ☐ C TypeError
- ☐ D 'erbana'
- ☐ E 'eurbana'



# Lists

# Poll Question: Indexing with Lists

What is the result of the following code?

```
1 l = [1, 2, 3, 4]
2 x = l.pop(1)
3 y = l.pop(1)
4 z = l.remove(1)
5 print(x, y, z)
```

- ☐ A 2 3 None
- ☐ B None None 4
- ☐ C 2 3 4
- ☐ D IndexError

# Poll Question: Max Function

```
1 x = max("hello")  
2 print(x)
```

- ☐ A e
- ☐ B o
- ☐ C ValueError
- ☐ D TypeError

# Poll Question: Appending

What is the the value of `x` after the following code runs?

```
1 x = [1, 2, 3]
2 x = x.append(4)
```

- ☐ A [1, 2, 3, 4]
- ☐ B AttributeError
- ☐ C [1, 2, 3, [4]]
- ☐ D None

# Poll Question: Appending

What does `list1` contain after the code above executes?

```
1 list1 = [1, 2]
2 list1.append([3, 4])
```

- ☐ A [1, 2]
- ☐ B [1, 2, 3, 4]
- ☐ C [1, 2, [3, 4]]
- ☐ D [[1, 2], [3, 4]]

# Poll Question: Extending

What is the result of the following code if the user types in `hello` and `world`?

```
1 x = list(input())  
2 y = list(input())  
3 x.extend(y)
```

- ☐ A ["hello", "world"]
- ☐ B ["h", "e", "l", "l", "o", "w", "o", "r", "l", "d"]
- ☐ C [["hello"], ["world"]]
- ☐ D [["h", "e", "l", "l", "o"], ["w", "o", "r", "l", "d"]]

# Poll Question: Changing Lists

After the following code executes what gets outputted to the screen?

```
1 list1 = ["a", 5, "c", 234, ["hello", "world"]]
2 list1[4] = "Hello, World!"
3 print(list1)
```

- ☐ A ['a', 5, 'c', 234, "Hello, World!"]
- ☐ B TypeError
- ☐ C SyntaxError
- ☐ D ['a', 5, 'c', 234, ["hello", "world", "Hello, World!"]]
- ☐ E ['a', 5, 'c', 234, ["Hello, World!"]]

# Poll Question: Mutability

How many objects are created?

```
1 x = [1, 2, 3, 4]
2 y = x
3 y += [1, 2]
4 x += [1]
```

- ☐ A 1
- ☐ B 2
- ☐ C 3
- ☐ D 4



# Poll Question: Max Function

Given the following list which of the following function calls will find the largest element?

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

- ☐ A `max(x)`
- ☐ B `maximum(x)`
- ☐ C `x.max()`
- ☐ D `x.maximum()`

# Poll Question: Max Function

What will be outputted to the screen when the following code runs?

```
1 x = max(["hello", "this", "is", "a", "test"])
2 print(x)
```

- ☐ A "hello"
- ☐ B "this"
- ☐ C "a"
- ☐ D "test"
- ☐ E ValueError

# Poll Question: Max Function

```
1 x = max(["hello", "this", "is", "a", "test"])
2 print(x)
```

- A "hello"
- B "this"
- C "is"
- D "a"
- E "test"

# Poll Question: Index Function

```
1 x = ["hello", "this", "is", "a", "hello"]  
2 y = x.index("hello")  
3 print(y)
```

A 0

B 4

C 5

D 1

# Poll Question: Function

Which of the following is the correct way to count the number of 1s in the list `x` and store the result in a variable `y`?

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

☐ A `y = count(x, 1)`

☐ B `y = x.count(1)`

# Tuple

# Poll Question: Tuple Creation

Which of the following is an invalid way to make a tuple?

- ☐ A `x = tuple(1, 2, 3, 4)`
- ☐ B `x = tuple([1, 2, 3, 4])`
- ☐ C `x = tuple("1234")`
- ☐ D `x = (1, 2, 3, 4)`

# Poll Question: Tuple Creation

What gets printed to the screen?

```
1 x = tuple("1234")  
2 print(x)
```

- ☐ A ("1", "2", "3", "4")
- ☐ B (1, 2, 3, 4)
- ☐ C ("1234")
- ☐ D (1234)



# Poll Question: Modify Tuple

What is the result of the following code?

```
1 x = (1, 2, 3, 4)
2 x[1] = 5
3 print(x)
```

- ☐ A (5, 2, 3, 4)
- ☐ B (1, 5, 3, 4)
- ☐ C TypeError
- ☐ D SyntaxError

# Poll Question: Creating Tuples

What is the result of the following code?

```
1 x = (1, 2, 3, 4)
2 y = (1, 2)
3 z = x + y
4 print(z)
```

- ☐ A ((1, 2, 3, 4), (1, 2))
- ☐ B (1, 2, 3, 4, 1, 2)
- ☐ C [(1, 2, 3, 4), (1, 2)]
- ☐ D TypeError

# General Syntax and Function Review

Syntax for creation:

- ➊ `()` → For creating tuples.
- ➋ `[]` → Creating lists.

Conversion/creation functions:

- ➊ **`tuple()`** → Takes a string, list, or set and converts it to a tuple.
- ➋ **`list()`** Takes a string, set, or tuple and converts it to a list.

# Order and Mutability

	Ordered	Mutable
String		
List		
Tuple		

# Reminders

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