

# Lists

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# Reminders

# Reminders

- Signup for the quiz or submit a conflict request
- Homework 6 is due Friday
- The grace period for homework 7 ends Friday
- Practice quiz is up, be sure to attempt it before the actual quiz

# Lists

# Poll Question: List Tracing

What is the result of the following code segment

```
1 A = [2, 3, 5]
2 B = A
3 B[0] = 100
4 C = B + A
5 print(C)
```

- ☐ A [2, 3, 5, 100, 3, 5]
- ☐ B [100, 3, 5, 100, 3, 5]
- ☐ C [102, 6, 10]
- ☐ D [2, 3, 5, 2, 3, 5]

# Poll Question: List Function

What is the value of x?

```
1 x = list('abc')
```

- ☐ A 'abc'
- ☐ B ['abc']
- ☐ C ['a', 'b', 'c']
- ☐ D []

# List Methods

Use `help(list.<method name>)` for information on a given method:

- `L.append(elem)` → Add element to the end of L.
- `L.extend(lst)` → Add all elements of `lst` to the end of L.
- `L.insert(index, elem)` → Insert element at index of L pushing other elements forward.
- `L.pop()` → Remove and return the element at the end of L.
- `L.pop(index)` → Remove and return the element at index of L.
- `L.remove(elem)` → Remove first occurrence of element from L.
- `L.sort(elem)` → Sort the elements of L.

# Poll Question: List Functions

What is the value of `a` after this code is run?

```
1 a = [2, 4, 6, 8]
2 a.remove(4)
3 a.pop(2)
```

- ☐ A [2, 4]
- ☐ B [6, 8]
- ☐ C [2, 6]
- ☐ D [2, 8]



# Poll Question: List Functions

What is the value of `a` after this code is run?

```
1 a = [2, 4, 6, 8]
2 a.pop(2)
3 a.remove(4)
```

- ☐ A [2, 4]
- ☐ B [6, 8]
- ☐ C [2, 6]
- ☐ D [2, 8]

# Poll Question: List Slicing/Indexing

```
1 A = [1, 2, 3]
2 B = A
3 C = A[:]
4 B[1] = "pirate"
5 C[2] = "scurvy"
```

- ☐ A [1, 2, 3]
- ☐ B [1, "pirate", 3]
- ☐ C [1, "pirate", "scurvy"]
- ☐ D ["pirate", "scurvy"]

# Poll Question: More List Functions

Which will cause `x = [1, 2, 3, 4]`

```
1 x = [1, 2]
```

- ☐ A `x.append([3, 4])`
- ☐ B `x += [3, 4]`
- ☐ C `x.extend([3, 4])`
- ☐ D A and B
- ☐ E A and C
- ☐ F B and C

# Poll Question: Loops

What will this output?

```
1 A = [5, 10, 15]
2 for i in range(len(A)):
3     A[i] = A[i] + 1
4 print("1: ", A, end=" ")
5
6 A = [5, 10, 15]
7 for e in A:
8     e = e + 1
9 print("2: ", A)
```

- Ⓐ 1: [5,10,15] 2: [5,10,15]
- Ⓑ 1: [6,11,16] 2: [6,11,16]
- Ⓒ 1: [5,10,15] 2: [6,11,16]
- Ⓓ 1: [6,11,16] 2: [5,10,15]

# Poll Question: Removal Functions

We want a program that removes all spaces form strings. Which is correct?

```
1 #A
2 def space_remove(s):
3     for c in s:
4         if c == " ":
5             c = ""
6 #B
7 def space_remove(s):
8     new_s = ""
9     for c in s:
10        if c != " ":
11            new_s = new_s + c
12 #C
13 def space_remove(s):
14     for i in range(len(s)):
15         if s[i] == " ":
16             s[i] = ""
```

- ☐ A
- ☐ B
- ☐ C
- ☐ A and B
- ☐ A and C
- ☐ B and C

# Poll Question: Nested Lists

What is the result of x?

```
1 my_list = [  
2     ['a', 'b', 'c'],  
3     ['d', 'e', 'f'],  
4     ['g', 'h', 'i']  
5 ]  
6 x = my_list[1][2]
```

- ☐ A 'b'
- ☐ B 'd'
- ☐ C 'f'
- ☐ D 'h'

# Poll Question: Tracing

What is the value of `x`.

```
1 x = [v*v for v in ['1', '2', '3']]
```

- ☐ A ['11', '22', '33']
- ☐ B ['1', '2', '3']
- ☐ C [1, 4, 9]
- ☐ D TypeError

# List Comprehensions

```
1 # Basic list comprehension
2 [expression for value in sequence]
3
4 # Conditional list comprehension with if
5 [expresssion for value in sequence if condition]
6
7 #Conditional list comprehension with if-else
8 [expresssion if condition else <default> for value in
   sequence]
```

- Doesn't enable any new functionality
- *Syntactic Sugar*: Makes code more efficient to write



# Poll Question: List Comprehension

What is the value of `y`.

```
1 y = [c for c in 'alma mater' if c in 'aeiou']
```

- ☐ A 'alma mater'
- ☐ B ['alma mater']
- ☐ C 'aaae'
- ☐ D ['a', 'a', 'a', 'e']