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')
```

Ⓐ 'abc'

Ⓑ ['abc']

Ⓒ ['a', 'b','c']

Ⓓ []

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)
```

Ⓐ   [2, 4]

Ⓑ   [6, 8]

Ⓒ   [2, 6]

Ⓓ   [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)
```

Ⓐ   [2, 4]

Ⓑ   [6, 8]

Ⓒ   [2, 6]

Ⓓ   [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)
```

  A   1: [5,10,15] 2: [5,10,15]

  B   1: [6,11,16] 2: [6,11,16]

  C   1: [5,10,15] 2: [6,11,16]

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

Ⓐ 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]
```

- Ⓐ 'b'

- Ⓑ 'd'

- Ⓒ 'f'

- Ⓓ '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

```python
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']
```

Ⓐ 'alma mater'

Ⓑ ['alma mater']

Ⓒ 'aaae'

Ⓓ ['a', 'a', 'a', 'e']