

15-112 Fundamentals of Programming

Lecture 8

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Announcements

- Read pages 19 – 25 (Strings)
- HW1 grades are released
- HW3 has been posted

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What are we doing today?

- Lists
- List functions

Lists as sequence of values

- Variables can hold one value at a time
- Lists can hold a number of different values

Create a list

□ A simple list

myList = [1, 4, 5, 8, 12]

□ An initialized list

*myList = [0] * 5*

myList → [0,0,0,0,0]

□ Adding element to a list

*a = [0] * 5*

b = 12

a = a + [b]

a → [0,0,0,0,0,12]

Creating Lists

□ Combining two lists

myList = [1, 4, 5, 8, 12]

yourList = [3,7,4,9]

ourList = myList + yourList

→ ourList would be [1, 4, 5, 8, 12, 3, 7, 4, 9]

Accessing Elements

```
a = [2, 3, 5, 7, 11, 13]
```

```
print (a[0])      →      2
```

```
print (a[2])      →      5
```

```
print (a[-1])     →     13
```

```
print (a[-3])     →      7
```

```
print (a[0:2])    →     [2,3]
```

```
print (a[1:4])    →     [3, 5, 7]
```

```
print (a[1:6:2])  →     [3, 7, 13]
```

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Modifying Elements

```
a = [2, 3, 5, 7, 11, 13]
```

```
print (a)          →     [2, 3, 5, 7, 11, 13]
```

```
a[2] = 0
```

```
print (a)          →     [2, 3, 0, 7, 11, 13]
```

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More List Operations

❑ Slicing a List

`myList` → [1, 4, 5, 200, 12]

`print (myList[1:3])` → [4, 5]

❑ Assigning Value to a slice

`myList[1:3] = [6,6,6,6]`

`myList` → [1, 6, 6, 6, 6, 200, 12]

Finding Elements

❑ Check for list membership: using “in”

`a = [2, 3, 5, 2, 6, 2, 2, 7]`

`print ("a =", a)`

`print (2 in a)`

`print (4 in a)`

Looping over Lists

```
a = [ 2, 3, 5, 7 ]
```

```
for item in a:  
    print (item)
```

Exercise

- ❑ Write a function called `isSubset`, that takes two lists as input parameters. The function should return `True` if either list is a subset of the other.

Do you know the following about lists?

- Can you declare an empty list?
- Can you declare a list with 5 1's?
- Can you print the last element in a list?
- Can you access each element in a list using a loop?
- Can you check if an element exists in a list?