

Plan for 11/9 and 11/11

- **Reviewing Concepts for test**
 - Loops: index and by element
 - Strings, Lists, Sets, Dictionaries
 - List Comprehensions
- **Lab and assignment concepts**
 - While loops, Global Variables, Computer-aided Game Play
 - Image processing, RGB, simulation/random, CSV files

Reminder of APT quiz

- **How to solve it: APT Quiz style**
 - Looking at problems from last time
 - Goals in time-driven APT-solving
- **CountUp**
 - Ideas
- **Maker**
 - Ideas
- **Anonymous**

Looping by index or by element

- **Strings and lists: use either**
 - `range(len(x))` for index, can get element
- **Sets and Dictionaries: element only**
 - Loop over `d` or `d.keys()` for dictionary
 - The keys are a set, so similar to set loop
- **Which is best when choice? It depends!**
 - Can you get element from index?
 - Can you get index from element?

Questions

<http://bit.ly/101fall15-nov10-1>

Unpacking a list comprehension

```
[f(x) for x in foo if condition with x]  
[w for w in words if w.endswith('e')]  
[(w, words.count(w)) for w in set(words)]
```

> Always possible to use a loop

```
build = []  
for x in foo:  
    if condition with x:  
        build.append(f(x))
```

```
build = []  
for w in set(words):  
    build.append((w, words.count(w)))
```

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Set Concepts

● Set union, intersection, difference

- > `s.intersection(t)` is the same as `s&t`
- > `s.union(t)` is the same as `s|t`
- > `s.difference(t)` is the same as `s-t`

● Sets aren't in order during iteration

- > Convert to list, create from list
- > Sets are really, really efficient for add/search

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Questions

<http://bit.ly/101fall15-nov10-2>

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