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)))
```

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

Questions

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