New Assignment

- Due Tuesday.
- Should be quick once you understand the concepts.
- Lists, for loops, and string methods (today's topic).

ECS10

10/24

Loop on integers

```python
count = 0
while count < 5:
    print count
    count = count + 1
```

Count is the index variable.

Loop over integers

```python
for count in [0, 1, 2, 3, 4]:
    print count
```

Shorter with a for loop. But we might need to make a very long list.

Loop over integers

```python
for count in range(5):
    print count
```

Prettier with the range function.

Range function

```python
for count in range(5):
    print count
```

- `range(5)` is a built-in function
- Produces the list `[0,1,2,3,4]`
- `range(1,6)` produces the list `[1,2,3,4,5]`
Range function

```python
string = ""
for count in range(5):
    string = string + 'ha'
```

- Standard way to do something a fixed number of times.

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range() vs random.randrange()

- Two different functions.
- The value produced by `range()` is a list of integers.
  ```python
  intList = range(10)
  ```
- The value produced by `random.randrange()` is a single random integer.
  ```python
  randNum = random.randrange(10)
  ```

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while loop

```python
balance = 100.0
annualRate = 7.0
monthlyRate = annualRate/12.0
month = 0
while month < 12:
    balance = balance + monthlyRate/100.0*balance
    month = month + 1
```

- Effective interest rate

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for loop

```python
balance = 100.0
annualRate = 7.0
monthlyRate = annualRate/12.0
for month in range(12):
    balance = balance + monthlyRate/100.0*balance
```

- Two lines shorter than while version....
- There is no such thing as an infinite for loop!

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Recall a variable is like a box

- Name of the list -- name of the building
- Index --- which mailbox
- Every item in the list is a variable

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A list is a row of boxes

- X = 5
String operations

- Another example: breaking text up into sentences.
- How to check whether period is the last character in the word, or in the middle?

Negative indexing

- `word[-1]`
- The last character in the word

```python
word = "elephant"
print word[-3]
print word[3]
```