Day 3

Review

- Lists and slice notation
    A[1:5]
    A[5:1:-1]
    A[:10]
    A[10:]
- Splitting strings
    x = 'a b c d e f'

    print(x.split())
    ['a', 'b', 'c', 'd', 'e', 'f']

    print(x.split('c'))
    ['a b ', ' d e f']

Review

- Iteration

```
for i in [1, 2, 3]:
    print(i)


while (x < 10):
    print(x)
    x = x + 1
```

Sorting

- *sorting*
    ```
    x = [1, 2, 8, 3, 9, 6, 3]
    x = sorted(x)
    print(x)
    ```

    [1, 2, 3, 3, 6, 8, 9]

    ```
    x = [['b', 4], ['a', 6], ['a', 7]]
    x = sorted(x)
    print(x)
    ```

    [['a', 6], ['a', 7], ['b', 4]]

Reading and writing files

- Files can be opened and closed using *open()* and *close()*
- When a file is opened for writing we can "seek" through it and read lines from it
- A variable pointing to an open file (a file handle) can be iterated over

```
f = open('myfile.txt')
for line in f:
    print(line)
```

Reading and writing files

- A file that is open for writing can written to using write()

  f = open('myfile.txt', 'w')
  f.write('this is a line in a file**\n**')
  f.close()

- Removing '\n' from a string
  x = 'this string has a newline at the end\n'
  print(x.split(' '))
  ['this', 'string', 'has', 'a', 'newline', 'at', 'the', 'end\n']

  x = x.rstrip()
  print(x.split(' '))
  ['this', 'string', 'has', 'a', 'newline', 'at', 'the', 'end']

Exercises 8

Exercises 9

- Adding things to a list

```
mylist = []
for i in [1, 2, 'qwerty', 'x', 10]:
    mylist.append(i)
print(mylist)
```

[1, 2, 'qwerty', 'x', 10]

Importing modules

- Modules are "libraries" of reusable code that you can load using "import"

- Many modules exist

- We will be using "*ucscgenome*" as an example of how to obtain sequence data

```
pip install ucscgenome
```

```
import ucscgenome genome = ucscgenome.Genome("sacCer3")
sequence = genome["chrIV"] print(sequence[100:110])
```