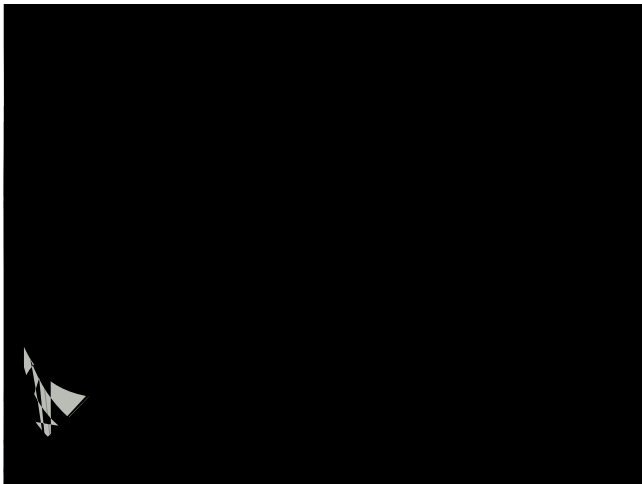


Distance Metrics

Mark Voorhies

5/22/2013

Expression profiling pipelines



RnaSeq pipelines

Fun with logarithms

In log space, multiplication and division become addition and subtraction:

$$\begin{aligned}\log(xy) &= \log(x) + \log(y) \\ \log(x/y) &= \log(x) - \log(y)\end{aligned}$$

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Also, we can change of the base of a logarithm like so:

$$\log_A(x) = \log(x) / \log(A)$$

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- Think about appropriate inputs and outputs for your functions

Adding data to a list:

```
mylist = []  
mylist.append(3)  
mylist += [4,5,6]
```

List tricks

Adding data to a list:

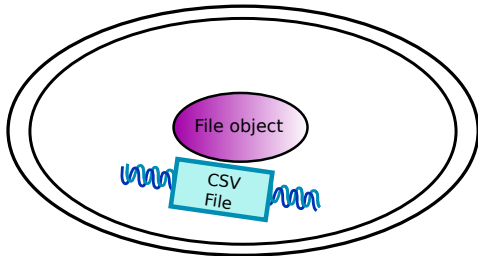
```
mylist = []  
mylist.append(3)  
mylist += [4,5,6]
```

Lists of lists:

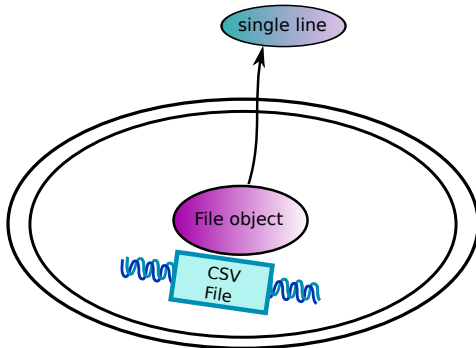
```
matrix = [[ 1, 2, 3, 4],  
          [ 5, 6, 7, 8],  
          [ 9,10,11,12]]
```



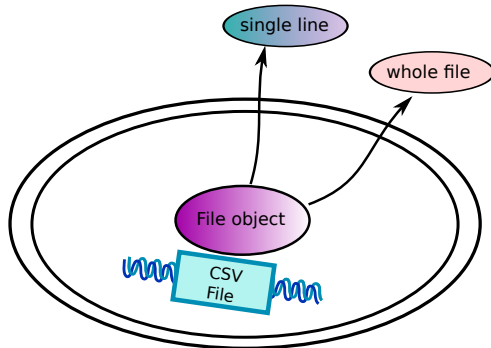

```
open("supp2data.csv")
```



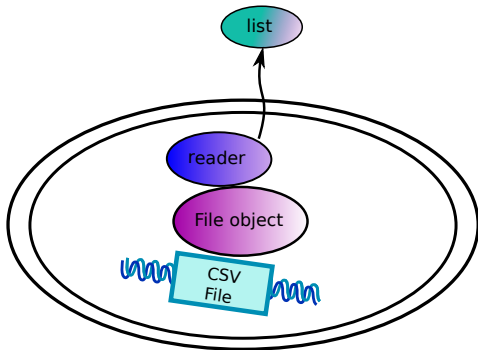
```
open("supp2data.csv").next()
```



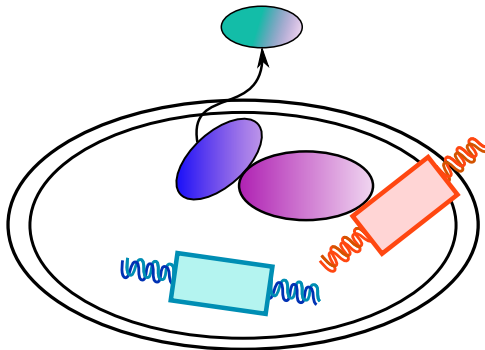
```
open("supp2data.csv").read()
```




```
csv.reader(open("supp2data.csv")).next()
```



```
csv.reader(urlopen("http://example.com/csv")).next()
```



Homework

- 1 Write a function to calculate all pairwise Pearson correlations for the yeast expression profiles.
- 2 Save the results of your pairwise correlation calculation in the CDT format described in the JavaTreeView manual.
- 3 Read PNAS 95:14863
- 4 Try the first two problems, replacing the Pearson correlation with the distance metric from the PNAS paper or with one of the distance metrics from the Cluster3 manual.