CISC106 Honors - Fall 2017
Lab 8, due Sunday

- Strategies for success:

  1. Write tests first
  2. Design whole program on paper
  3. Code one-two lines at a time and test every addition (easy since you already wrote the tests!)
  4. If it isn't working:
     (a) Model the parameter and variable values in columns on paper and follow your code by hand.
     (b) Still don't see it? Put in a print statement that shows all, with labels, then compare to your hand version.
     (c) Still don't see it? Go to office hours and show your paper design and debug print statements
  5. It is passing all tests. Celebrate your triumph!

- Go to TA office hours!!! They are valuable. They know things. They have been there and done that.

- Make things for which the following statements are true. Draw pictures.

  1. a == b and not (a is b)
  2. a == b and a is b
  3. not (a != b) and not (a is b)
  4. alist[0] is blist[0] and not (alist is blist)
  5. alist[0] is blist[0] and not (alist is blist) and alist == blist

- Look up the seminal paper *G. Salton , A. Wong , C. S. Yang, A vector space model for automatic indexing, Communications of the ACM, v.18 n.11, p.613-620, Nov. 1975*. Read the first three pages. Then look up Vector Space Model on Wikipedia. Write two definitions, one for TF and one for IDF, then write a few sentences explaining each one in your own words.

- Do you understand slicing? Try the slicing practice sheet on the class website.

Problems for submission:

1. Write a function **vectorNorm** to compute the norm of a vector, where a vector is a list of numbers. Do not use built-in libraries. It should each be short. Choose good test cases.

2. Write a function **dotProduct** to compute the dot product of two vectors. Do not use built-in libraries. It should each be short. Choose good test cases.

3. Place five short text files (10 words each) in your local directory. Write a function that takes the arbitrary string name of a text file (.txt) as a parameter, reads the file, sorts the words, and writes a new file with modified name, e.g.

   readAndSortFiles('spam.txt') writes new file 'spamSORTED.txt'

Make a list of file names, and use a loop to call your function on every file. After saving and closing, write another loop to print all files (unsorted, sorted) on different lines. Save your shell interaction as a text file for submission, and submit with code file.

4. Review the first project document. By Tuesday 5 pm, ONE person will submit ONE teamlist of one to three names (both first and last names, correctly spelled please) on the special assignment in Canvas in a .txt file that starts and ends with two newlines, e.g.

```
file teamNames.txt:
_____________________________________


Copper Eggplant
Xenon Frankfurter

_____________________________________
```

Note that even singleton teams must register as a team or lose points.