Announcements

- For next time, Reading and RQ14
- APT 6 due today, APT 7 out
- Assignment 6 out soon!

Alice programming language
alice.org, Alice version 2.4

Nested Loop
Problem: Longest Name


Given a list of names (one word only) and a letter (assume names start with capital letter, and letter is capital)

names = ['Helen', 'Bob', 'Bart', 'Hugh']

1) Find the longest name that starts with that letter
2) Find the position of the longest name that starts with that letter

See longestName.py, DO NOT use enumerate’

Enumerate

• An iterator, generates a sequence
• Generates tuples of (index, item)
• Used with for loop to get both index and item
• for (index,item) in enumerate(somelist):
  – You get both at the same time!
• Redo find position of longest name with iterator
Problem: Popular Name

• Given a list of names, determine the most popular first name and print that name with all of its last names.
• Input: Names are always two words, names are in a file. If multiple names are on the same line they are separated by a “:”
• Output: Most popular first name, followed by a “:”, followed by corresponding last names separated by a blank

Example Input File with 5 lines
Susan Smith:Jackie Long:Mary White
Susan Brandt
Jackie Johnson:Susan Rodger:Mary Rodger
Eric Long:Susan Crackers:Mary Velios
Jack Frost:Eric Lund

Corresponding Output
Susan: Smith Brandt Rodger Crackers

One way to solve

• Create a list of unique first names
• Create a list of lists of last names that are associated with each first name

Example – two lists

<table>
<thead>
<tr>
<th>Unique First names</th>
<th>Corresponding Last names</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 ‘Susan’</td>
<td>0 [ ‘Smith’, ‘Brandt’, ‘Rodger’, ‘Crackers’]</td>
</tr>
<tr>
<td>1 ‘Jackie’</td>
<td>1 [ ‘Long’, ‘Johnson’]</td>
</tr>
<tr>
<td>2 ‘Mary’</td>
<td>2 [ ‘White’, ‘Rodger’, ‘Velios’]</td>
</tr>
<tr>
<td>3 ‘Eric’</td>
<td>3 [ ‘Long’, ‘Lund’]</td>
</tr>
<tr>
<td>4 ‘Jack’</td>
<td>4 [ ‘Frost’]</td>
</tr>
</tbody>
</table>
Now can we solve the problem?

- Compute those two lists that are associated with each other
  - List of unique first names
  - List of corresponding last names
- Compute the max list of last names
- Now easy to print the answer.
- See popular.py

Look at the code for popular.py

- Which datafile is read in?
- What format is namelist in?
- Write the code for uniqueFirstNames

Write the code:

- uniqueLastNames

- correspondingLastNames

- printFirstWithLasts

Finish

maxnum = max([len(item) for item in lastNames])
print maxnum
lastIndex = [index for (index, v) in enumerate(lastNames) if len(v) == maxnum]
print "first name with most last names is:"
Expanding the Problem

- Suppose we want to read from multiple data files
  - names1.txt, names2.txt, names3.txt

See processFiles in popular.py