## CompSci 101
### Introduction to Computer Science

<table>
<thead>
<tr>
<th>0</th>
<th>Susan</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jackie</td>
</tr>
<tr>
<td>2</td>
<td>Mary</td>
</tr>
<tr>
<td>3</td>
<td>Eric</td>
</tr>
<tr>
<td>4</td>
<td>Jack</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>0</th>
<th>['Smith', 'Brandt', 'Rodger', 'Crackers']</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>['Long', 'Johnson']</td>
</tr>
<tr>
<td>2</td>
<td>['White', 'Rodger', 'Velios']</td>
</tr>
<tr>
<td>3</td>
<td>['Long', 'Lund']</td>
</tr>
<tr>
<td>4</td>
<td>['Frost']</td>
</tr>
</tbody>
</table>

October 23, 2014

Prof. Rodger
Events of Interest coming up

• ACM International Programming Contest
  – Sat. Nov. 1 – looking for volunteers to help
  – Top 3 teams – go to finals in Morocco

• Hacking and Hackathons Demystified – Ladies in Tech Unite
  – Thursday, Oct 23, Allen Bldg (TONIGHT)
    6:30pm

• HackDuke.com – Hackathon Nov. 15-16
Announcements

• Reading for next time TBA
  – RQ 12 to be posted
• Hangman due next Thursday
• APT 6 is due on Tuesday

• Finish lecture notes from last time
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 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
Expanding the Problem

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

See popular.py