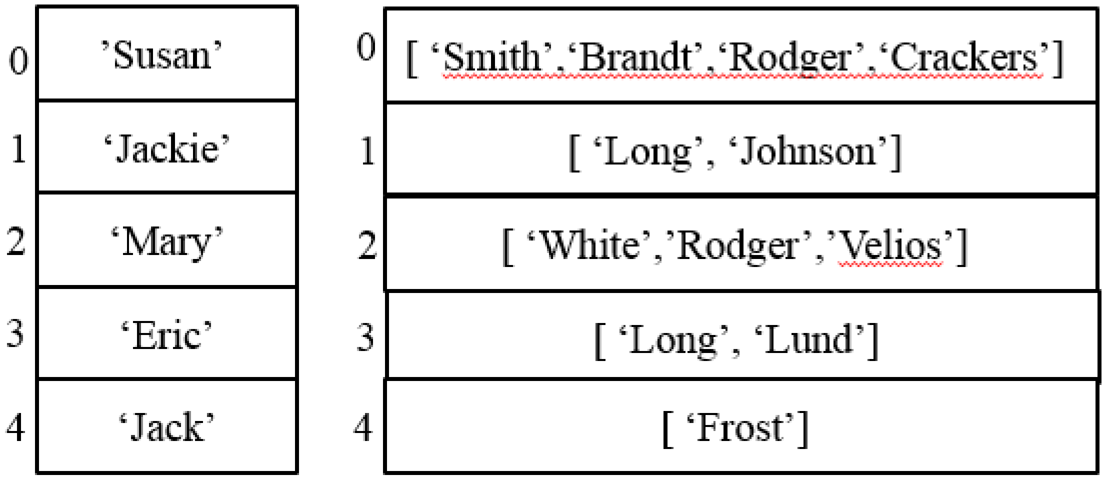
CompSci 101
Introduction to Computer Science



0	’Susan’
1	‘Jackie’
2	‘Mary’
3	‘Eric’
4	‘Jack’

0	[‘Smith’,‘Brandt’,‘Rodger’,‘Crackers’]
1	[‘Long’, ‘Johnson’]
2	[‘White’,’Rodger’,’Velios’]
3	[‘Long’, ‘Lund’]
4	[‘Frost’]

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 Morroco
- 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

www.bit.ly/101fall14-1023-01

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

	Unique First names		Corresponding Last names
0	’Susan’	0	[‘Smith’,‘Brandt’,‘Rodger’,‘Crackers’]
1	‘Jackie’	1	[‘Long’, ‘Johnson’]
2	‘Mary’	2	[‘White’,’Rodger’,’Velios’]
3	‘Eric’	3	[‘Long’, ‘Lund’]
4	‘Jack’	4	[‘Frost’]

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