CompSci 6
Introduction to Computer Science

Students
- Astrachan
- Sun
- Rodger
- Forbes

Ice Cream Flavors
- Chocolate
- Chocolate Chip
- Strawberry

November 1, 2011
Prof. Rodger
Announcements

• No Reading for next time, no RQ
• Apt-04 out, due Thursday

• Today
  – Writing Dictionaries/maps
  – Solving one apt EmailsCourse
Dictionaries/Maps

• Dictionaries/maps are another way of organizing data

• Keys and Values
  – Each key maps to a value
  – Some keys can map to the same value
  – Can change the value a key maps to
Example

- Each student could be mapped to their favorite ice cream flavor

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```
Implementing a Dictionary/Map

Keys map to values

• Create Empty dictionary
  somemap = {}

• Put in a key and its value
  somemap[“Forbes”] = “Strawberry”

• Get a value for a dictionary
  value = somemap[“Forbes”]
  OR value = somemap.get(“Forbes”, “default”)

• Change a value for a dictionary
  somemap[“Forbes’] = “Chocolate”
More on using a Dictionary/Map

• Get all the keys
  – listKeys = somemap.keys()

• Get all the values
  – listValues = somemap.values()

• Other methods
  – clear – empty dictionary
  – items – return (key, value) pairs
  – iteritems – return (key, value) pairs more efficiently
  – update – update with another dictionary
Change Astrachan’s value

`somemap["Astrachan"] = Coffee Mocha`
Value could be a set or list

Students
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- Sun
- Rodger
- Forbes

Ice Cream Flavors
- Coffee Mocha
- Chocolate
- Vanilla
- Blueberry
- Chocolate Chip
- Blueberry
- Banana
- Strawberry
- Coffee Mocha
Back to Popular Name Problem:

• 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
Now use a dictionary/map

• We will write three maps for practice
  – First name to count of corresponding last names
  – First name to list of corresponding last names
  – First name to set of corresponding last names

• Which map is most useful to solve this problem?
Compare

• Using two parallel lists?
• Using one dictionary/map