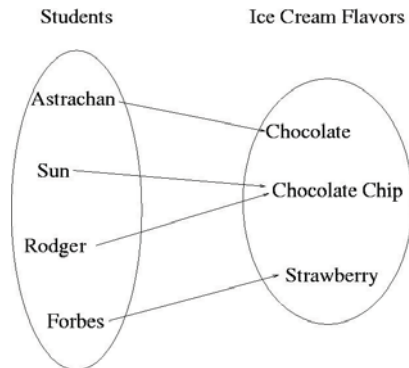


CompSci 6

Introduction to Computer Science



November 1, 2011

Prof. Rodger

Announcements

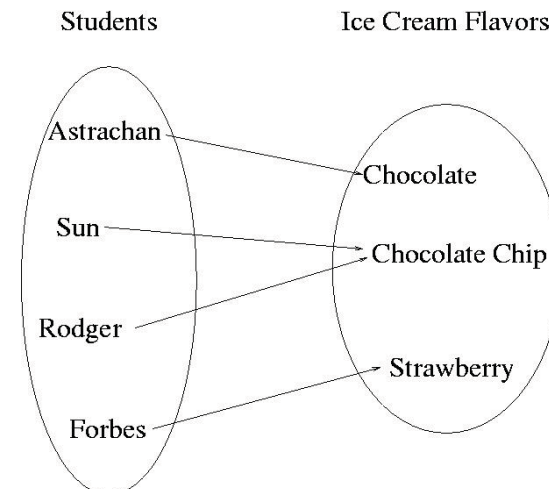
- No Reading for next time, no RQ
- Apt-04 out, due Thursday
- Today
 - Writing Dictionaries/maps
 - Solving one apt EmailsCourse

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



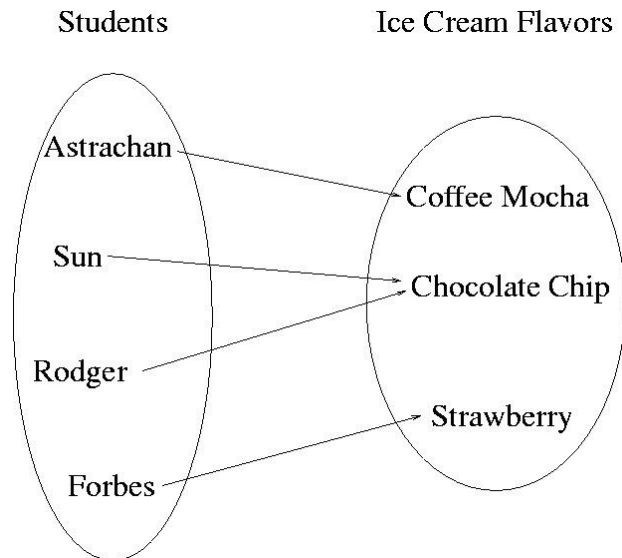
Implementing a Dictionary/Map

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"`

Change Astrachan's value

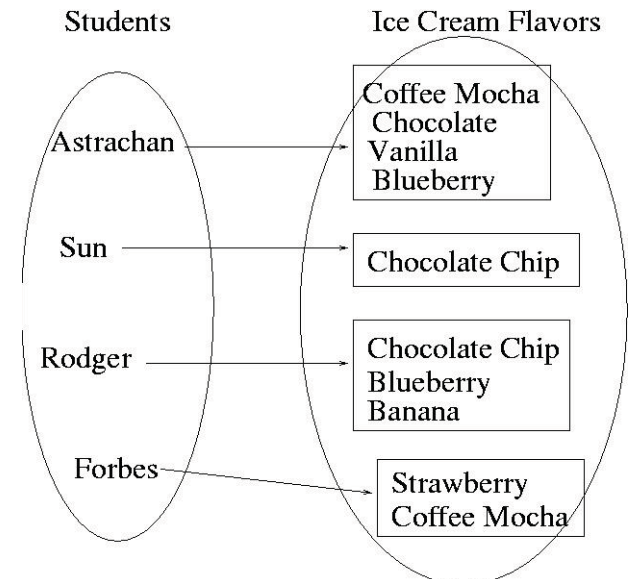
`somemap["Astrachan"] = Coffee Mocha`



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

Value could be a set or list



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