CompSci 101
Introduction to Computer Science

Dec 6, 2016
Prof. Rodger
Announcements

• RQ done!
• Assign 8 due today
• APT 10, Assign 9 – due Friday(Monday)
• Final Exam:
  – Sec 01 Mon Dec 19 2pm, LSRC B101
  – Sec 02 Thur Dec 15 7pm, BIO Sci 111
  – Get accommodations?
  – Room for some to take final with the other section
  – Must fill out form by THIS FRIDAY, Dec 9.
Calculate Your Grade

- From “About” tab on course web page

<table>
<thead>
<tr>
<th>Activity</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labs</td>
<td>10%</td>
</tr>
<tr>
<td>Reading Quizzes</td>
<td>5%</td>
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<tr>
<td>Class/Group work</td>
<td>5%</td>
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<tr>
<td>Apts</td>
<td>10%</td>
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<tr>
<td>Programming Assignments</td>
<td>10%</td>
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<tr>
<td>APT Quizzes</td>
<td>5%</td>
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<tr>
<td>Two Midterm Exams</td>
<td>30%</td>
</tr>
<tr>
<td>final exam</td>
<td>25%</td>
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</tbody>
</table>
More on Grades

- Lecture – ignore the first two weeks (drop/add period), plus drop 4 points
- Reading Quizzes – will drop 30 points
  - Lots of problems with Sakai this semester
  - Check your grades to make sure they copied over – fill out duke oit help form if they are wrong
- Lab – drop 6 points (each lab is 4 pts)
  - 44 pts total – 38 pts is 100%
More Announcements

• Regrades for Exam 2 – submit by Fri. Dec 9
• Be a UTA for CompSci 101
  – Rewarding and Learning Experience
  – Apply: http://www.cs.duke.edu/csed/uta
• Last Lab this week

• Today:
  – More on Recursion, Regex
  – More on Sorting and analyzing it
Provide Comments on UTAs

• Lab UTAs
• Any other UTAs who helped you?

• See announcement in Sakai
  – Anonymous Feedback for course
  – Anonymous feedback on UTAs
Regex Questions

bit.ly/101f16-1206-1
Review Recursion and Regex
Dictionary Comprehension

- List comprehension - builds a new list
- Dictionary comprehension - builds a new dictionary

- Format
  
  \[ d = \{ \text{key: value for key in somelist if } \ldots \} \]
Example: From Exam 2 –
dict of Actors to list of movies: (movie in, num minutes in)

```python
def dictActorsToMovies(data):
    d = {}
    for item in data:
        if item[1] not in d:
            d[item[1]] = [(item[0],item[4])]
        else:
            d[item[1]].append((item[0],item[4]))
    return d
```
Example: Assignment 8
ReadFood: Initialize dictionary ratingsdict

• Compute number of restaurants, say n
• Create alldata – list of
[[name1, ratings1], [name2, ratings2], [name3, ratings3], …]
  [['JoJo', 'Skillet',1,'McDonalds',1,’Tandoor’,3,’PandaExpress’,3]], …

• Then create dictionary:
  ratingsdict = {person[0]:[0] for person in somelist}

• Then update dictionary by processing alldata
Sorting

• In python:
  – alist = [8, 5, 2, 3, 1, 6, 4]
  – alist.sort() OR result = sorted(alist)
  – Now alist OR result is [1, 2, 3, 4, 5, 6, 8]

• How does one sort elements in order? How does “sort” work?
Selection Sort

• Sort a list of numbers.

• Idea:
  – Repeat til sorted
    • Find the smallest element in part of list not sorted
    • Put it where it belongs in sorted order.
      • Swap it with the element where it should be

• Sort example

| Sorted, won’t move final position | ??? |
Selection Sort

• Sort the list of numbers using Selection Sort.
• The body of the loop is one pass.
• Show the elements after each pass.
• 9, 5, 1, 4, 3, 6
Code for Selection Sort

def selectsort(data):
    for i in range(len(data)):
        mindex = minindex(i)
        data[i], data[mindex] = data[mindex], data[i]
One Cookie Per Person!
Netflix - Recommender