Beginning Web Programming

- Or maybe Web Programming for Beginners
- Alternative to ECS 30
- More on handling data and putting it on the Web
  - Improve your programming skills
  - Learn a bit about a variety of current Web technologies

Goal

- Get to the point where you can build a simple application that runs over the Web.
- Example Web applications:
  - Banner
  - Expedia
  - Amazon
  - Google
  - Facebook
  - ...

Web application

- What is the difference between a Web page and a Web application?

- You view a Web page in your browser at a fixed moment in time.
- Web application changes what you see, either by producing new Web pages, or by changing the Web page as you interact with it. You need a movie to get a picture of a Web app. A Web app may involve many Web pages.
Web application

- How it works
  - Collection of programs
  - Some run in the Web browser, on your computer
  - Some run on a Web server
  - Pass information back and forth via internet
  - Generate new Web pages or alter existing Web pages to change what the user sees
  - Often involves a database on the server side

This is pretty complicated

- To build a Web app, you need lots of languages...
  - Web pages – HTML5 and CSS
  - Browser programs – Javascript and JQuery
  - Server-side programs – Lots of different Web app frameworks
    - PHP
    - Ruby on Rails
    - ASP.net
    - node.js – Javascript
    - Django – Python
    - Many others...

Nobody knows all of this

- Once you know some of it, the part you need for your next project becomes easier.
- We’ll go through a selection of tools:
  - Object-oriented Python
  - HTML5 and CSS
  - Javascript
  - Django-Python server framework
- This will be enough to make some working Web apps

Web application

Python 2

- We’ll use Python 2, rather than Python 3.
- It’s what is installed on the Linux machines we’ll be using as Web servers.
- So let’s use Python 2 right from the start.
- You can have both Python 2 and Python 3 installed on your computer.

Course mechanics

- This is a four-unit course
- You can take it with permission of the instructor
- I will drop students who have credit for, or are taking, ECS 40
- Several programming projects
- Midterm, final – open book, open notes, programs
- Online texts
First Assignment

- Write a Python program that helps the user turn this dataset into...
- Tools to communicate a data set
  - Learn some HTML by writing a program to make a Web page.
  - Start using the Google Visualization API to make the charts.
- Using classes and objects in Python
  - Django uses object oriented Python.
  - Javascript is also object oriented, and learning about objects first in Python will make it easier (I hope).
  - It is a good idea to learn object oriented programming since it makes it easier to write large programs that work, with parts that can be reused.

Classes

- We know Python allows us to add new functions.
- A class is like a new data type.
- In this program we create and use Chart and Web page classes.

Get started

- Go to course Web page.
- Install Python 2 on your computer.
- Read Chapter 13 in “Think like a Computer Scientist”