ECS 89

4/9

Announcements

- First program due Tuesday
- Start, if you have not already!
- Jesse will answer questions tomorrow – it would be good to have some questions by then!
- Friday, my special office hours: 12-2

- Where should you be by now?
  - Reading in data, putting out lines with report function
  - Generating Web page without a chart
  - Starting today, get data to charts, then into page

Collaboration vs Cheating

- Collaboration:
  - You should discuss the programs with each other
  - You should look at examples of similar programs
- But…
  - You are expected to turn in your own work
  - This means you type in every line yourself, without looking at, or cutting and pasting, someone else's program
  - You can look at someone else's program; but you should understand it, and then go off and write your own, when you're not looking at it

Last time

- HTML
- Creates page elements (headings, paragraphs, images, anchors, body…)
- Taxonomy (break up into kinds):
  - Block-type
    - Paragraph, image, h1, h2, h3
  - Inline
    - Anchor, bold text
- Browser by default starts blocks on new lines

Flexibility

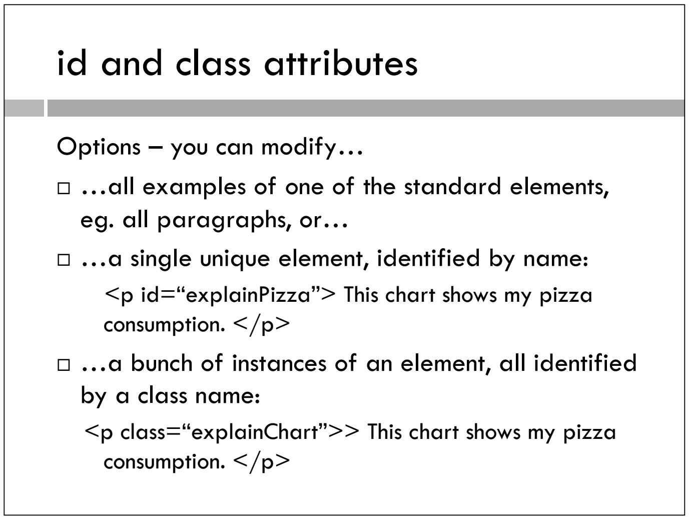
Today…

- Want to create new kinds of elements, or customize existing ones
- Javascript and CSS will provide flexibility
- How to hook up elements to Javascript or CSS?

Modifying elements

- CSS tells browser to modify elements' appearance
- Javascript can modify elements with arbitrary code

- Browser's point of view: It's a program
- It has a lot of built-in modification functions (CSS)
- You can add your own modification functions (Javascript)



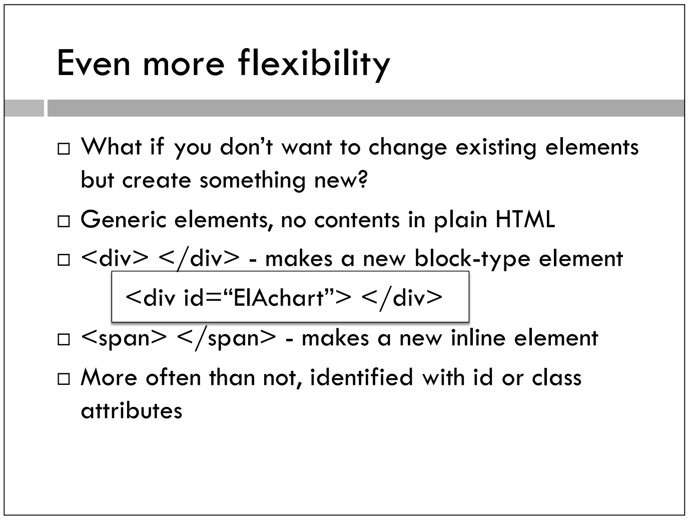
id and class attributes

Options – you can modify…

- …all examples of one of the standard elements, eg. all paragraphs, or…
- …a single unique element, identified by name:

  <p id="explainPizza"> This chart shows my pizza consumption. </p>
- …a bunch of instances of an element, all identified by a class name:

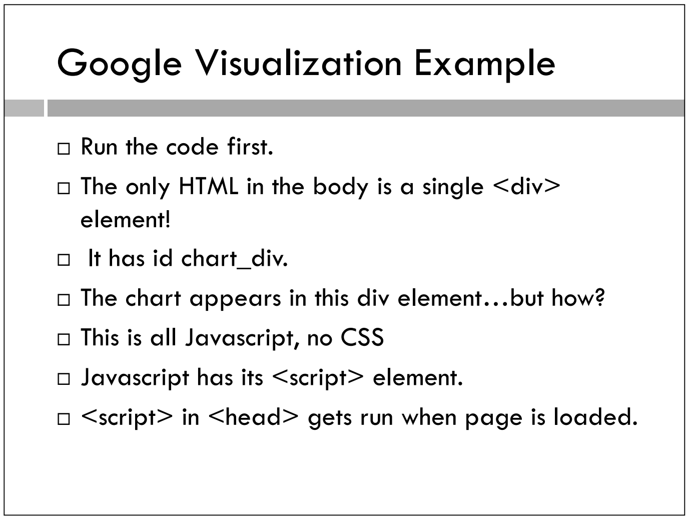
  <p class="explainChart">> This chart shows my pizza consumption. </p>



Even more flexibility

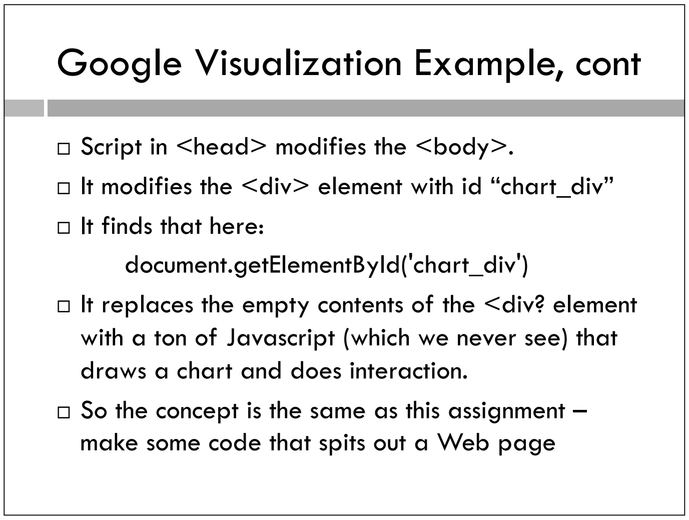
- What if you don't want to change existing elements but create something new?
- Generic elements, no contents in plain HTML
- <div> </div> - makes a new block-type element

  <div id="EIAchart"> </div>
- <span> </span> - makes a new inline element
- More often than not, identified with id or class attributes



Google Visualization Example

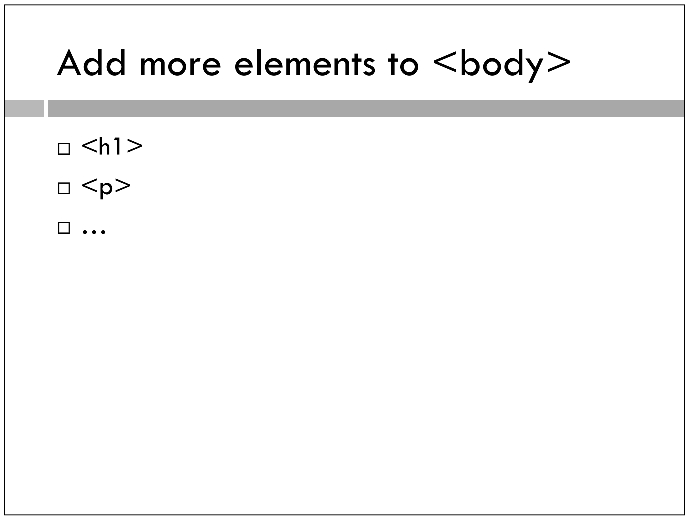
- Run the code first.
- The only HTML in the body is a single <div> element!
- It has id chart_div.
- The chart appears in this div element…but how?
- This is all Javascript, no CSS
- Javascript has its <script> element.
- <script> in <head> gets run when page is loaded.



Google Visualization Example, cont

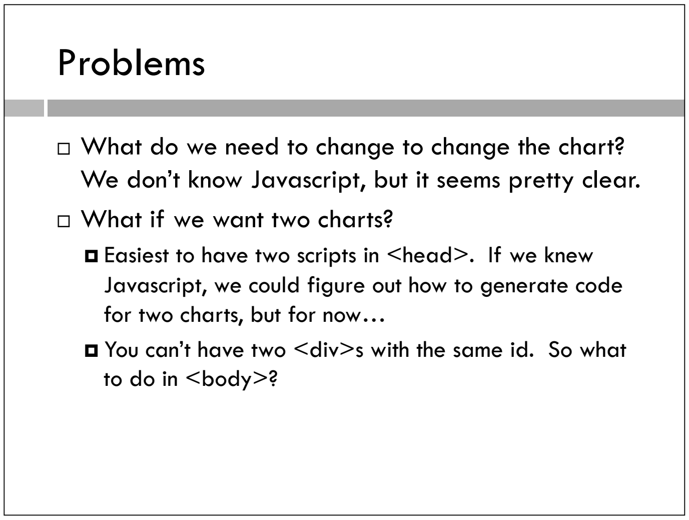
- Script in <head> modifies the <body>.
- It modifies the <div> element with id "chart_div"
- It finds that here:

  document.getElementById('chart_div')
- It replaces the empty contents of the <div? element with a ton of Javascript (which we never see) that draws a chart and does interaction.
- So the concept is the same as this assignment – make some code that spits out a Web page



Add more elements to <body>

- <h1>
- <p>
- …



Problems

- What do we need to change to change the chart? We don't know Javascript, but it seems pretty clear.
- What if we want two charts?
  - Easiest to have two scripts in <head>. If we knew Javascript, we could figure out how to generate code for two charts, but for now…
  - You can't have two <div>s with the same id. So what to do in <body>?

Solution

- Use the unique string you have:

```
<div id=“West”> </div>
<div id=“Northeast”></div>
```