CS 171

Homework 1

This homework is due on *Monday, February 1st 2016 at 11:59 pm*.

In the first part of this homework you will create a simple webpage with HTML and CSS.

In the second part, you will search for different visualizations on the web and you will analyze the key aspects of what makes these visualizations *good* or *bad*, in your opinion.

This homework assumes that you have read Chapter 3 (up to page 34) in *D3 - Interactive Data Visualization for the Web* by Scott Murray. See the [CS171 Webpage](#) for access to a free online copy.

1) Web Development Basics: HTML & CSS

Data

The following table shows countries with an alarming hunger situation on the basis of the Global Hunger Index (GHI) scores from 1990, 2000 and 2014. The Index ranks countries on a 100-point scale, with 0 being the best score (no hunger) and 100 being the worst.

Country	1990	2000	2014
Central African Republic	51.9	51.4	46.9
Chad	65	52	46.4
Haiti	52.1	42.8	37.3
Madagascar	44.8	44.1	36.3
Sierra Leone	58.8	53.5	38.9
East Timor	—	—	40.7
Zambia	47	50.9	41.1

The Global Hunger Index (GHI) is designed to comprehensively measure and track hunger globally and by country and region. Calculated each year by the International Food Policy Research Institute (IFPRI), the GHI highlights successes and failures in hunger reduction and provides insights into the drivers of hunger. (IFPRI, 2015)

Design and Implementation

Please follow these instructions.

a. **Create a new HTML file** `index.html` **and a new external CSS file.**

You should give some thought to the organization of the files and folders of your web/visualization projects. Instead of dumping everything in one folder we suggest the following structure for the beginning:

```
/root
    index.html
    css/        ...folder with all CSS files
    js/         ...folder with all JavaScript files
```

b. **Include your external stylesheet in your HTML file**

c. **Add a headline to the HTML** `body`

d. **Implement the given table (Global Hunger Index) in HTML**

Please be aware of the different html tags for rows with column names and rows with actual data (i.e., table header, table row).

e. **Add several custom styles to your external CSS file**

You can choose your design parameters freely (i.e., decisions about fonts, colors or scales are up to you) but make sure to include at least:

- Custom font (e.g. Arial)
- Custom style for the headline
- Highlight column names in the table
- Alternating row colors for the table

Keeping your CSS rules separate means that you can use styles multiple times and your HTML documents remain clean and understandable.

f. **Download and include the given JavaScript file** `sorttable.js` **at the bottom of the** `body` **-Element.**

http://www.cs171.org/2016/assets/scripts/hw1/sorttable.js

This script provides some additional functionality and makes your table sortable. Over the course of the semester, you will learn more about integrating interactive components with JavaScript but for this homework it is fine if you include our given library. Example integration:

```
<script src="js/sorttable.js"></script>
```

g. **Add the class name** `sortable` **to the** `table` **-Element**

If you have implemented everything correctly you should be able to sort the columns by clicking on the column names.

h. **Add a two-column layout below the table**

You should use the empty containers in the following exercise (*Good & Bad Visualizations*) for the screenshots and descriptions.

We recommend the use of Bootstrap's grid-system. It is very flexible and will definitely be helpful for future projects: http://getbootstrap.com/css/#grid

As a general rule, only use html

tags in an html layout to display data that can be well-represented in rows and columns (i.e., tabular data). Do not use it as a general layouting device!

2) *Good & Bad* Visualizations

The use of visualization to present information is pervasive in the media. A visual representation is a powerful and effective way to make complicated and confusing information more relevant and easy to understand.

Here are some general questions to consider as you go through the next section: What is your opinion about good and bad visualizations? What are the characteristics of a good visualization and what makes a visualization bad, not understandable or communicating the wrong information?

a. **Search online for two good and two bad visualizations.**

Please choose examples from different authors/sources and put the focus on *static visualizations without interactivity*. You can use http://viz.wtf/ for inspiration, but please try to find examples from different sources.

b. **Analyze the different design choices and visual encodings.**

Add your analysis in the next step (c) to the `index.html` file.

c. **Extend your previously created** `index.html` **file and add the following for each visualization:**

- One screenshot
- Describe the design choices (type, color, scale, visual elements, ...)
- Explain why you have classified the respective visualization as good or bad. Describe the positive and negative aspects.
- Authors of visualizations try to convey a specific point of view on a given dataset. What do you think the author wanted to communicate? Can you suggest any improvements?
- Reference (i.e., link) to the source

Add this information to your two-column layout. *In one column the screenshot and in the other column the design choices, positive and negative aspects etc.*

You should also make use of the (un)ordered list in HTML. *It helps you to structure information.*

d. **Create an image slider**

Use the four screenshots from your good and bad visualizations and create a slider/carousel. It should always show a single image and automatically slide to the next image after a few seconds.

The slider should be visible above your examples.

You can use Bootstraps's carousel component, look for it here: http://getbootstrap.com/javascript/

3) Submit Homework on Vocareum

1. **Upload your homework (web development + good/bad visualizations) under 'work/hw/implementation'.** (Depending on your project structure you might have to create new directories in Vocareum. You can upload multiple files at once into the same directory)

2. Upload the completed lab under 'work/lab'

3. For DCE students, upload your lecture activities under 'work/lecture'

For your final submission you will have to:

- Click the 'submit' button Double-check your 'latest submission', check that all the visualizations are working as you expect. You can run them directly in Vocareum and look at them in a new window.
- Upload a teaser image of your homework (under 'Action'/'upload gallery thumbnail'. This teaser will show up in the classes gallery and should motivate other students to look at your solution in more detail.

After the homework deadline you will be able to:

- Look at the gallery with all other student submissions
- Give peer feedback or comments to other students (Please use proper manners and constructive criticism!)
- Give stars to other students' work (this will not influence grading!)