**Question 1.1**

**What are the differences between the DOM as shown by the**[**DOM inspector**](http://en.wikipedia.org/wiki/DOM_Inspector)**and the HTML source code?**

*DOM is Document Object Model, which is a programming interface for HTML,XML and SVG documents. It provides a structured representation of the documents, in the DOM, there are table, caption and tbody tags, and there are tr tags whose class is “row”, all these mentioned tags and classes do not exit in HTML source code;In the HTML source code, we see HTML and Javascripts(D3) written between the tags.*

**Why would you use the DOM inspector?**

*We can use DOM inspector to inspect, browse and edit the Document Object Model of HTML or XML based documents. In DOM, documents hae a logical struction which his very much like a tree that closely resembles the documents it models, thus it provides a quick look of the documents structure.*

**When is the HTML source useful?**

*DOM is Document Object Model, which is a programming interface for HTML,XML and SVG documents. It provides a structured representation of the documents; the DOM of the page containing table is a tree model representing HTML, and we see HTML and Javascripts(D3) written between the tags; the HTML is a markup language, and this table.html file we see has a table which represents the associated DOM in text.*

**Question 1.2**

**What piece of software generates this table? Where are the original data stored?**

*This piece is generated in Javascript D3, and the original data is stored in countries\_2012.jason file.*

**Question 2.1:** **Would you filter other columns from the table the same way? E.g. would you use checkboxes or any other HTML widget?**

*In this case since we only have 5 continents to filter with, checkboxes is a good choice, but say if we filter other columns like country names which is of hundreds, a drop down menu widget makes it easier to filter with.*

**Question 3.1:** **Could you aggregate the table using other columns? If you think yes, explain which ones and how you would group values. Which HTML widgets would be appropriate?**

*Yes, for example aggregate by same life\_expectancy group, divide the life zone evenly into say 20 semi groups, a dropdown menu widget would be appropriate.*

**Question 4.1** **What does the new attribute years hold?**

*The years hold that country’s gdp, export value, population, etc of each year from 1995 to 2012.*

**Question 5.1** **What are the pros and cons of using HTML vs. SVG? Give some examples in the context of creating visualizations.**

*SVG images are defined in XML. As a result, every SVG element is appended to the Document Object Model (DOM) and can be manipulated using a combination of JavaScript and CSS.*

*Also I can attach an event handlers to a SVG element or update its properties based on another document event.* HTML canvas*, on the other hand, is a simple graphics API. Hence, there's no way to alter existing drawings or react to events. If you want to update the HTML image, you have to redraw it.*

**Question 7.1** **Give an example of a situation where visualization is appropriate, following the arguments discussed in lecture and in the textbook (the example cannot be the same as mentioned in either lecture or textbook).**

<http://map.ipviking.com/>

*URL above shows Norse map, which is a 'dark intelligence' and it has a 'live' map of global cyber attacks , also it has an interactive cyber threat map, both update in real-time. This is a teffific visualization to inform people, communicate, the status of hacking attacks, orignins, destinations, densities, etc.*

**Question 7.2** **Which limitations of static charts can you solve using interactivity?**

*In static charts, once you’d like to update an old chart, or create a new one, you have to run the application and create new images over and over again. That’s not flexible. That’s also not usable — e.g. if you’d like to update your chart live, and interativity can help user solve these problems and also allow user to choose to see what they want to see by having filter, aggregation, range bars, etc widgets.*

**Question 7.3** **What are the limitations of visualization?**

*Visualization is not a good application when well defined questions on well defined dataset, decisions needed in minimal time.*

*Also visualiztion rely on human evaluation to extract insight and knowledg; methods that don’t rely solely on tribal knowledge, personal experience or best guesses. The more severe limitation of visualization is it can only represent two or three dimensions before the amount of information is overwhelming. Thus, while it is certainly a good test for small samples, it is not a sustainable method to gain insight into large volumes of shifting data.*

**Question 7.4** Why are data semantics important for data?

*Data sementics has real world meaning , and it can be interpreted meaningfully without human intervention. By representing the real world within data sets, semantic data allow machines to interact with worldly information without human interpretation.*

**Question 7.5** Which relationships are defined for two attributes of (a) quantitative, (b) categorical, or (c) ordinal scale?

**Question 7.6** **Which visual variables are associative (i.e., allow grouping)?**

*Position,size,value,color,orientation,texture,motion*

**Question 7.7** **Which visual variables are quantitative (i.e., allow to judge a quantitative difference between two data points)?**

*Position,size*