Feedback — Week 4 Quiz

You submitted this quiz on **Sat 15 Aug 2015 1:14 AM PDT**. You got a score of **10.00** out of **10.00**.

Question 1

When creating an overview visualization of a large dataset, it is most important to:

Your Answer		Score	Explanation
◉ Display all of the data using a simple representation and axes that spread the data out as much as possible	✔	1.00	The goal of an overview is to allow the user to get their head around all of the data, without overwhelming the user with details.
○ Pack as many details as possible into the display to be as efficient and informative as possible			
○ Display only an important subset of the datapoints so as to not overwhelm the user			
Total		1.00 / 1.00	

Question Explanation

The goal of the overview is to allow the user to get their head around the data, choosing axes that spread the data out instead of packing as much information as possible.

Question 2

The process of zooming on the data plotted in a visualization, where the zoomed region then fills the entire display:

Your Answer	Score	Explanation
○ Provides focus on the zoomed portion of the data		

○ Is actually a filtering operation on the display coordinates of
the plotted data

○ Is an important part of Schneiderman's information
visualization mantra

◉ All of the above   ✔   2.00

○ None of the above

Total	2.00 / 2.00

Question Explanation

Zooming is part of the "Zoom and Filter" step of the mantra and provides focus on a portion of
the data, sometimes cropping away the rest of the data, in which case it acts as a filter.

Question 3

The goal of the filtering step of the information visualization mantra is to:

Your Answer	Score	Explanation
○ Smooth noisy data		
○ Remove outliers		
◉ Display a subset	✔ 1.00	Indeed, filtering allows us to focus on a subset.
Total	1.00 / 1.00	

Question Explanation

Filtering can be used for a variety of reasons, but for the purpose of visualizing large abstract
datasets, filtering is used to provide focus on a subset of the data that satisfies a query.

Question 4

Which of the following benefits of a fisheye lens is **LEAST** important for data visualization?

Your Answer	Score	Explanation
○ It supports focus on detail along with the context of that detail amid the rest of the		

dataset.

⦿ It makes the data appear more interesting.	✔ 1.00	Fisheye distortion does indeed make things look more interesting, but this is the least of its benefit for visualization.
◯ It allows zooming without obscuring the unzoomed data.		
Total	1.00 / 1.00	

Question Explanation

While all of these are indeed features of a fisheye lens, the features that make it important for visualization are that it can allow a user to focus on a zoomed subset of data without obscuring the rest of the data so that the user can see the zoomed portion in the context of the rest of the data.

Question 5

Suppose we have a dataset representing an image consisting of pixel records of the form (x,y,b) where x and y are the spatial coordinates of the pixel and b is the brightness of the pixel. Then which of the following describes a histogram of the data?

Your Answer	Score	Explanation
◯ A plot of the average pixel brightness over the y axis, of all pixels that share the same x coordinate		
◯ A subdivision of the image's (x,y) coordinates into regions, plotting an average pixel brightness for each region		
⦿ A subdivision of the image's brightness values into ranges, plotting the count of the pixels whose brightness is in each range	✔ 1.00	This indeed would plot the histogram of the image.
Total	1.00 / 1.00	

Question Explanation

The histogram of an image displays the number of pixels that share each possible brightness value, or each range of brightness values. A histogram is a count over buckets of the data values, not the data keys.

Question 6

Suppose we have a dataset representing an image consisting of pixel records of the form (x,y,b) where x and y are the spatial coordinates of the pixel and b is the brightness of the pixel. Then which of the following represents a "rollup" of the x and y dimensions of this dataset?

Your Answer		Score	Explanation
● The average brightness of the image	✔	1.00	Indeed a rollup over these two dimensions would aggregate the brightness value.
○ The position of the center of the image			
○ None of the above			
Total		1.00 / 1.00	

Question Explanation

A rollup aggregates a data value over one or more dimensions. In this case the data value is the brightness, and it is a measure over the x and y dimensions.

Question 7

Suppose we have a dataset representing an image consisting of pixel records of the form (x,y,b) where x and y are the spatial coordinates of the pixel and b is the brightness of the pixel. Which axis definition would we **NOT** use if we wanted to plot the pixel brightness at a unique axis location for every pixel in the image?

Your Answer		Score	Explanation
● An axis formed by the concatenation of the x dimension and the y dimension	✔	1.00	This axis would first plot for each x coordinate the average brightness over the y coordinates, then for each y coordinate the average brightness for each x coordinate.
○ An axis formed by the product of the x dimension and the y dimension			
○ An axis formed by nesting the x dimension			

under the y dimension

Total	1.00 / 1.00

Question Explanation

For an image, either axis created by the product of x and y or the nesting of x under y would plot a brightness for every x,y combination within their appropriate ranges. Nesting would avoid including in the axis any x,y pair that did not have a brightness associated with it, but for an ordinary image, every x,y combination has a brightness associated with it. So either of these choices would plot each pixel brightness at a unique location, whereas the concatenation axis would produce two plots, one rolled up (aggregated) by the y dimension and one rolled up (aggregated) by the x dimension.

Question 8

When designing a dashboard visualization, what should the primary concern be?

Your Answer		Score	Explanation
⦿ That the dashboard visualization presents all of the data necessary to make an informed decision	✔	1.00	A dashboard should provide a collection of visualizations needed to make a decision.
○ That the dashboard visualization engages the user to motivate further study of the data			
○ That the dashboard provide a simple overview of all the data, without any distracting details			
Total		1.00 / 1.00	

Question Explanation

The goal of making a good dashboard is providing the necessary information to make a good decision. A good dashboard does not need to be intriguing, and it should not be oversimplified and lack necessary details. By getting into the head of the user, you can better predict and design a dashboard that will provide the necessary data for the decision.

Question 9

Is visualization still fun?

Your Answer		Score	Explanation
⦿ Yes	✔	1.00	
◯ No			
◯ It's complicated.			
Total		1.00 / 1.00	

Question Explanation

I hope visualization is indeed fun, and congratulations for your hard work through this course!

⦿ Yes	✔	1.00
◯ No		