

# Week 4 Quiz

TOTAL POINTS 8

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1. When creating an overview visualization of a large dataset, it is most important to: 1 point
- ☐ Display only an important subset of the datapoints so as to not overwhelm the user
  - ☒ Display all of the data using a simple representation and axes that spread the data out as much as possible
  - ☐ Pack as many details as possible into the display to be as efficient and informative as possible
2. The process of zooming on the data plotted in a visualization, where the zoomed region then fills the entire display: 1 point
- ☐ Is an important part of Schneiderman's information visualization mantra
  - ☐ Provides focus on the zoomed portion of the data
  - ☒ Is actually a filtering operation on the display coordinates of the plotted data
  - ☐ All of the above
  - ☐ None of the above
3. The goal of the filtering step of the information visualization mantra is to: 1 point
- ☐ Remove outliers
  - ☐ Smooth noisy data
  - ☒ Display a subset
4. Which of the following benefits of a fisheye lens is **LEAST** important for data visualization? 1 point
- ☒ It allows zooming without obscuring the unzoomed data.

- ☐ It makes the data appear more interesting.
- ☐ It supports focus on detail along with the context of that detail amid the rest of the dataset.

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 provides the best histogram of the data?

1 point

- ☐ A subdivision of the image's  $(x,y)$  coordinates into regions, plotting an average pixel brightness for each region
- ☐ 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 brightness values into ranges, plotting the count of the pixels whose brightness is in each range

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?

1 point

- ☒ The average brightness of the image
- ☐ The position of the center of the image
- ☐ None of the above

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?

1 point

- ☒ An axis formed by the concatenation of the  $x$  dimension and the  $y$  dimension
- ☐ An axis formed by nesting the  $x$  dimension under the  $y$  dimension
- ☐ An axis formed by the product of the  $x$  dimension and the  $y$  dimension

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

1 point

- ☒ That the dashboard visualization presents all of the data necessary to make an informed 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

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