Week 4 Quiz

LATEST SUBMISSION GRADE

100%

1.Question 1

The hourglass model for structuring effective business presentations suggests you should:

- begin your presentation with motivating context and end with your business recommendation
- begin your presentation with your agenda and end with a story
- begin your presentation with your agenda and end with a summary of what you covered
- (•) begin and end your presentation with motivating context

Correct

Correct! The model resembles an hourglass because it suggests that you start your presentation with the big picture, narrow in to some details, and then come back out to the big picture again at the end of the presentation. Many people forget this last step, but it is very important, because the first and last things you say are the things your audience is most likely to remember, and are the things that are most likely to leave a lasting impact.

2.Question 2

Beginning your business presentation in the middle of the plot of a motivational story can sometimes be an effective way to lead into your business recommendation.

- (•) True
- False

Correct

Correct! Beginning your business presentation in the middle of the plot of a motivational story can create a sense of momentum and expectation for what will come next, which can sometimes be an effective way to lead into your business recommendation.

3.Question 3

Business analysts are required to storyboard their presentations before making slides.

- True

- (•) False

Correct

You're right! Based on my own experience, I strongly recommend that you storyboard your presentations to clarify the logic of your hypotheses and assertions, illustrate gaps in your logic, streamline the slide-preparation process, and provide a mechanism for receiving feedback and working with a team; however, storyboarding is not required in most data analyst roles.

4.Question 4

According to the psychology literature, if the business recommendation you are going to make in a business presentation is likely to be controversial, you should order the stem of your presentation hourglass so that the:

- ( ) strongest story point is presented first.
- ( ) least complicated story point is presented first.
- (•) least controversial point is presented first.
- ( ) most emotional story point is presented first.

Correct

Correct! People are more likely to be persuaded by an argument if you get them into a general feeling of agreement first, so starting with your least controversial point will get your audience used to saying "yes" before you present them with something to which they might want to say "no."

5.Question 5

As a data analyst, you can avoid the logical fallacy of overgeneralization by:

- ( ) insisting that you are given a very large data set to analyze.
- ( ) selecting a small, unbiased sample.
- ( ) ensuring the data you work with is a selected subset with a strong data story.
- (•) none of the above

Correct

You're right! None of these items can ensure that the effects you observe will generalize to all other types of data.

6.Question 6

To test whether a certain advertising campaign would work, an analytics team sorts their customer list from lowest to highest customer ID number, and then sends their advertisement to the first 1000 customers on the list. The rest of the customers did not receive any advertisements that week. When analyzing the results of the campaign one week later, the analytics team realized that there was a previously unknown pattern in the customer ID numbers: the lower the customer number, the longer the person had been a customer. Thus, the customers who received the advertisement were the individuals who had been customers with the company the longest. The analytics team decided the test was invalid and needed to be repeated. The reason for their decision was that analyzing the results in their current form would result in the following logical fallacy (or fallacies):

- (•) Over-generalization
- ( ) Inferring causation from correlation
- ( ) Lack of controls
- ( ) All of the above
- ( ) None of the above

Correct

Correct! Although the team was correct to evaluate the causal power of the advertisement on purchasing using a test, the testing group used was systematically different from the control group used (the rest of the customers) in ways other than whether or not they received an advertisement. All of the customers in the testing group would have been customers longer than the customers in the control group, so it would have been impossible to differentiate whether any observed differences in purchasing between the two groups were due to the advertisement, or due to how long customers had interacted with the company.

7.Question 7

When two variables are correlated, one variable does not cause the other variable.

- ( ) True
- (•) False

Correct

You're right! Although a correlation between two variables does not mean one variable *must cause* the other variable, it still *permits the possibility* that one variable causes the other.

8.Question 8

When tests can’t be run, which of the following can data analysts do to assess the degree of confidence one should have in the nature of a correlation between two variables? **Choose all that apply.**

- [x] Attempt to replicate the effect by examining whether the correlation on which you are basing your business recommendation exists in other data sets or contexts.

Correct

Correct! As we saw in the graphs of spurious correlations, just because a correlation is very strong, doesn’t mean that it will be observed again or represents a causal relationship.

- [ ] Infer that if the observed effect is extremely large or obvious, it is likely real.
- [x] Assess whether there are additional variables that can explain the relationship.

Correct

Correct! As we saw in the graphs of spurious correlations, just because a correlation is very strong, doesn’t mean that it will be observed again or represents a causal relationship.

- [x] Identify different but complementary ways to use the same data set to assess the causal relationship about which you are hypothesizing.

Correct

Correct! As we saw in the graphs of spurious correlations, just because a correlation is very strong, doesn’t mean that it will be observed again or represents a causal relationship.

9.Question 9

Which charts should you **NOT** use often in business presentations? **Choose all that apply.**

- [ ] Line charts
- [x] 3D charts

Correct

Correct! Bar charts and line charts are very effective, and pie charts can be effective when they display small numbers of categories. Scatter plots are too complicated for general audiences, and 3D charts tend to be misleading.

- [ ] Bar charts
- [ ] Pie charts that highlight 4 or fewer categories

☑ Scatter plots

Correct

Correct! Bar charts and line charts are very effective, and pie charts can be effective when they display small numbers of categories. Scatter plots are too complicated for general audiences, and 3D charts tend to be misleading.

10.Question 10

When you want to represent very detailed and nuanced information about continuous variables, given humans' ability to perceive relative differences along different kinds of visual attributes, which of the following attributes should you exploit in your visualizations? **Choose the best 2 options.**

☐ Color

☐ Volume

☐ Area

☑ Position

Correct

Humans are best at perceiving difference in position.

☑ Length

Correct

Humans are best at perceiving difference in length.

11.Question 11

If you are in a situation where you MUST use colorbars to represent detailed information about a continuous variable, you should:

○ use colorbars that only have gradations from one color to a second color so that the audience isn't distracted by excess color.

○ use colors that are very bright so that they can easily be detected.

◉ use a gray scale that goes from black to white.

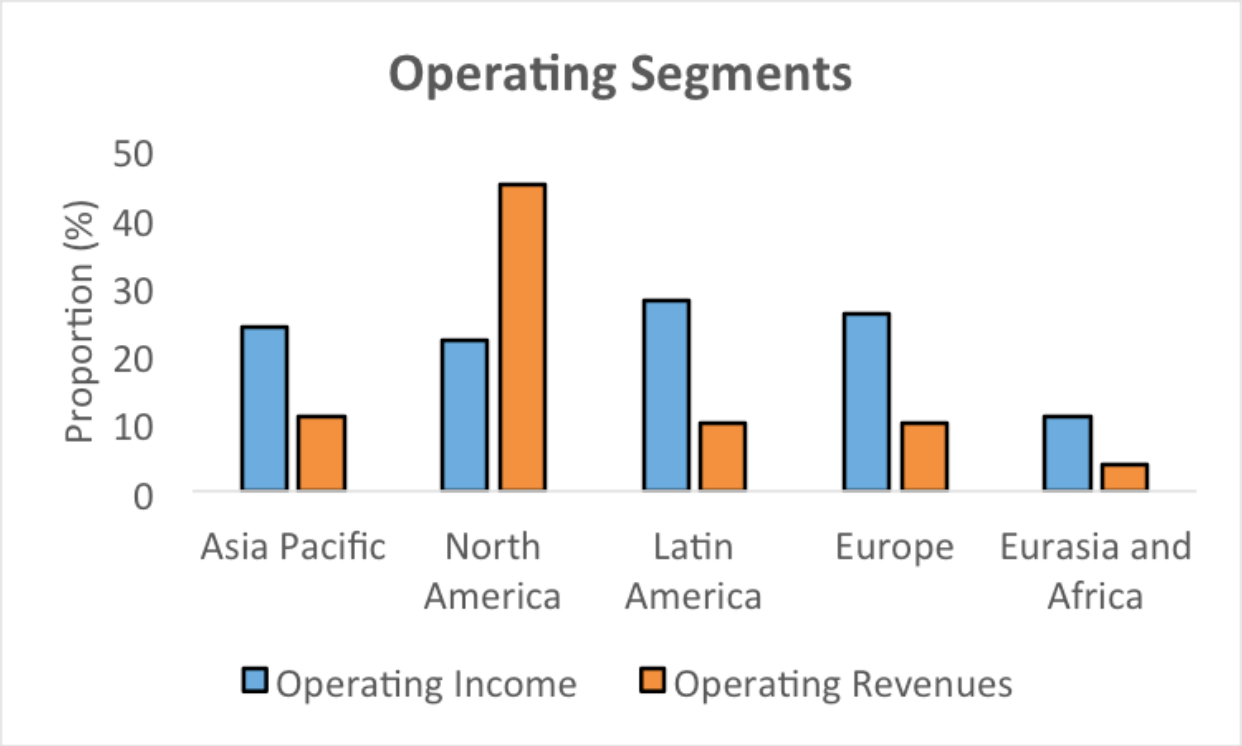
○ use a colorbar that color-blind people can perceive.

Correct

Correct! Black to white scales tend to have more even transitions than do color scales, so what you perceive as 1 unit of change in color is more likely to represent 1 unit of physical distance along a grayscale colorbar than a multi-colored colorbar.

12.Question 12

Which of the following would be the two **LEAST** effective changes you could make, to revise this graph so that it more effectively told a story? **Choose 2.**



☑ Add a text box to point out which bars you care about

Correct

A text box could help a little, but your eyes still won't be able to refrain from continuing to look at the other data.

☑ Take the borders off the bars

Correct

Although taking the border off the bars is a good idea for increasing the data-ink ratio, it will not help clarify a story much in this case because there is so much extra data in the visualization.

☐ Change to gray the bars on which you don't want to focus, and keep colored the bars on which you do want to focus.

☐ Reduce the amount of data on the graph so that only the factors you wanted to highlight are on the graph

13.Question 13

Data-ink refers to:

◉ the ink that represents the actual data in a graphic.

○ all the ink on a slide.

○ the color of the ink used to represent data.

○ the ink that is used to make the borders of the data in graphs.

Correct

Edward Tufte, a statistician and political scientist who became a pioneer in data visualization, coined the term when he began using the phrase "Maximize the data-ink ratio."

14.Question 14

It's a good idea to apply the rule of thirds to: **(Choose all that apply)**

☑ Transition slides

Correct

Data slides should display the data in the center of the slide and thus do not follow the rule of thirds.

☑ Slides illustrating stories

Correct

Data slides should display the data in the center of the slide and thus do not follow the rule of thirds.

☑ Soft break slides

Correct

Data slides should display the data in the center of the slide and thus do not follow the rule of thirds.

☑ Slides meant to catch your audience's attention

Correct

Data slides should display the data in the center of the slide and thus do not follow the rule of thirds.

- [ ] Slides containing data

15.Question 15
Effective presentation techniques include:

- keeping a physically open posture by keeping your arms away from the front of your body
- facing your audience and looking at different people in the room
- being natural in your movements
- refraining from looking down or reading your slides.
- (•) all of the above

Correct

Correct! All of these techniques will greatly improve how your presentation is received.

16.Question 16
A hospital was having problems with the amount of time employees with direct care responsibilities were absent from work. Due to the high levels of absenteeism, patient satisfaction was declining, 20% of patient-related work was not getting done, and 47% of non-patient work was not getting done. At the advice of a consulting company, the hospital implemented a positive incentive system that would allow all employees to convert up to 24 hours of unused sick time into additional pay or more vacation days in order to reduce absenteeism. After 6 months of implementing the program, the hospital analysts calculated that absentee rates declined an average of 11.5 hours per employee, and concluded that the program was successful in this company. Did the hospital analysts commit any logical fallacies when arriving at their conclusion, and if so, which fallacy (or fallacies)?

- (•) Lack of controls
- Overgeneralization
- Inferring causation from correlation
- None of the above
- All of the above

Correct

Correct! Without a control group who was not entered into the positive incentive system, it is impossible to know whether the decrease in absenteeism was due to the change in policy or due to other collections of unmeasured factors in the environment (like lower overall sickness due to seasonal changes, for example). The fallacy of overgeneralization was NOT committed because the

analysts concluded that the program worked in this company, and did not make claims about whether or not the program would work in other places. The fallacy of inferring causation from correlation was NOT committed by the hospital analysts either, because they never made an explicit claim about causation.