Module4 Model Question Bank

Comparison Plots

1. **Explain the uses of line charts and provide a practical example of how a line chart can be used to compare stock prices over time.**
   [Level 2: Understanding]
2. **Discuss the design practices for creating effective bar charts and explain what common pitfalls should be avoided.**
   [Level 2: Understanding]
3. **Describe the radar chart and explain its uses with an example. How does it differ from other comparison plots?**
   [Level 3: Applying]

Relation Plots

4. **Illustrate the use of scatter plots in identifying relationships between two variables. Provide an example using a dataset of your choice.**
   [Level 3: Applying]
5. **Compare and contrast scatter plots with marginal histograms and bubble plots. In what scenarios is each most effectively used?**
   [Level 2: Understanding]
6. **Explain the concept of a correlogram and describe how it can be used to visualize relationships between multiple variables.**
   [Level 2: Understanding]
7. **Discuss the design practices for heatmaps and provide an example of how a heatmap can be used to display the correlation between different features in a dataset.**
   [Level 3: Applying]

Composition Plots

8. **Explain the appropriate use of pie charts and provide an example of a situation where a pie chart might be misleading.**
   [Level 2: Understanding]
9. **Describe the differences between stacked bar charts and stacked area charts. Provide examples of when each would be appropriately used.**
   [Level 3: Applying]
10. **Discuss the advantages and limitations of Venn diagrams in visualizing data. Provide an example of a practical application.**
    [Level 2: Understanding]

Distribution Plots

11. **Explain the use of histograms in data visualization. How do histograms differ from bar charts? Provide an example to illustrate your point.**
    [Level 2: Understanding]

12. **Describe density plots and their advantages in displaying data distributions. Provide a practical example of their use.**
    [Level 3: Applying]
13. **Explain the purpose of box plots in statistical analysis. Provide an example of how box plots can be used to compare the distribution of scores between two groups.**
    [Level 2: Understanding]
14. **Discuss the use of violin plots and how they provide more information than box plots. Provide an example to illustrate their use.**
    [Level 3: Applying]

Geoplots

15. **Describe the uses and design practices for dot maps. Provide an example of how a dot map can be used to represent population density in different regions.**
    [Level 2: Understanding]
16. **Explain the concept of a choropleth map and provide a practical example of its use in visualizing economic data.**
    [Level 3: Applying]
17. **Discuss the design practices for connection maps and provide an example of how they can be used to show flight routes between cities.**
    [Level 2: Understanding]

General Visualization Practices

18. **Identify and explain the common design practices for creating effective visualizations. How do these practices improve the interpretation of data?**
    [Level 2: Understanding]
19. **Provide an example of how to choose a suitable visualization for a given dataset. Discuss the factors that influence this decision.**
    [Level 3: Applying]
20. **Summarize the key points that make a good visualization. How can these principles be applied to improve the clarity and effectiveness of a visual presentation?**
    [Level 2: Understanding]