Université Libanaise

Faculté d'Information

Br I

امتحان الفصل

للعام الجامعي 2025/2024

[redacted]

المرحلة: الاجازة

السنة المنهجية: الثالثة

الاستاذ: د.يوسف الاتات

المادة Data Visualization.

المدة: 1h00

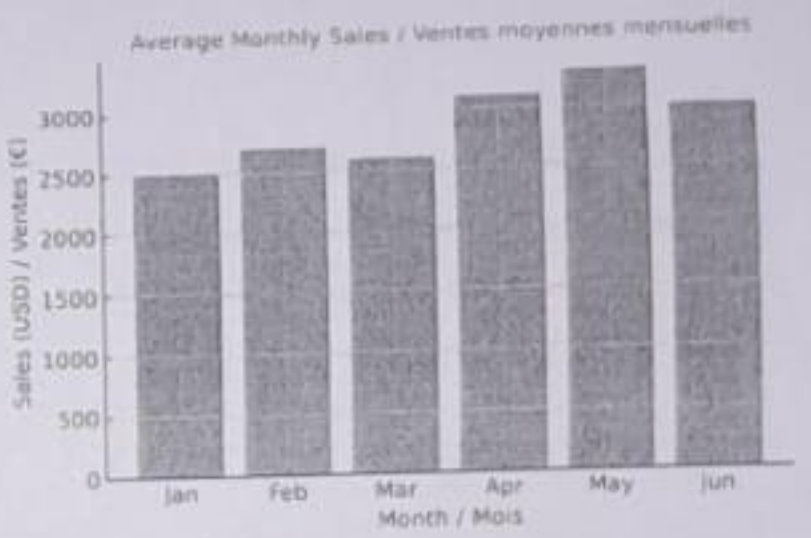
الدورة: الجزلي

Part I – Multiple Choice Questions (10 points)

Choose the correct answer for each question.

Q1. Which elementary perceptual task allows for the most accurate comparison of quantitative values?

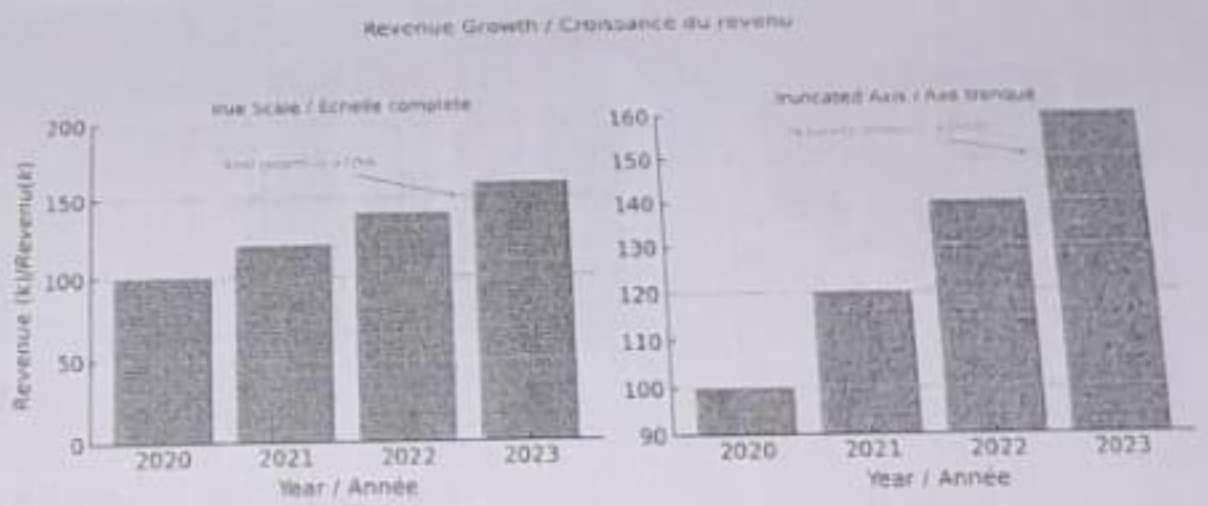
(Figure 1: Bar Chart – "Average Monthly Sales / Ventes moyennes mensuelles")



A. Decoding area
B. Decoding color saturation
C. Decoding position along a common scale
D. Decoding volume

Q2. Which of the following charts violates the *graphical integrity principle* because it exaggerates the visual effect relative to the data?

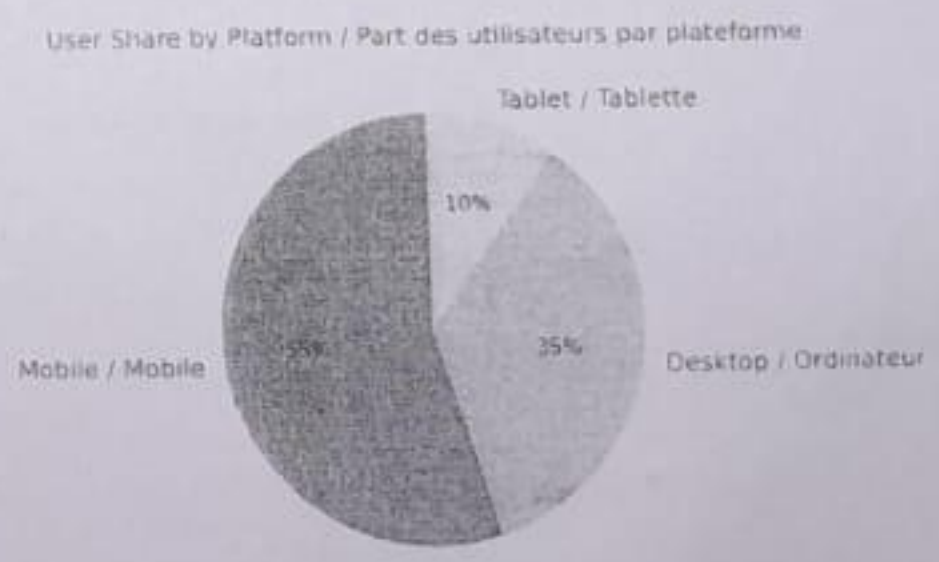
(Figure 2: Two bar charts – one normal, one with truncated y-axis "Revenue Growth / Croissance du revenu")



A. The chart with a y-axis starting at zero
B. The chart with a y-axis starting at 90 k$
C. Both charts
D. Neither chart

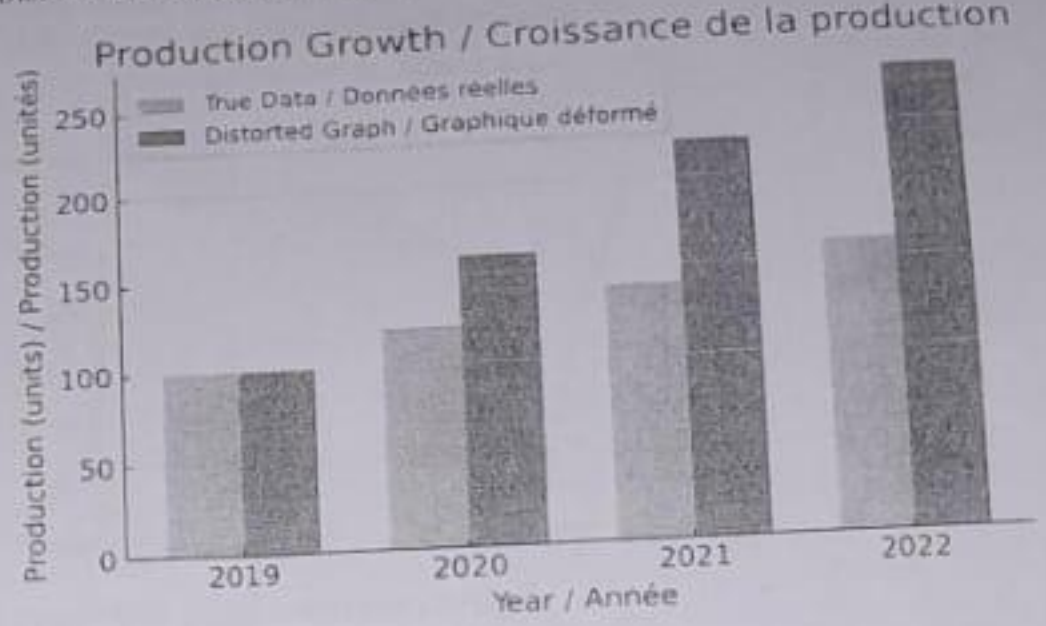
Q3. The following pie chart represents the proportion of users by platform. Which design flaw is most likely to mislead the viewer?

(Figure 3: Pie Chart – "User Share by Platform / Part des utilisateurs par plateforme")



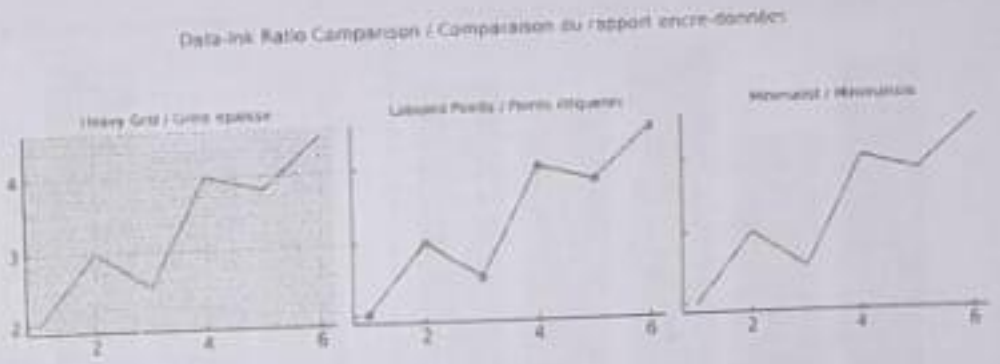
A. Using too few categories
B. Missing data labels
C. 3D perspective
D. Equal colors

Q4. What is the approximate *Lie Factor* in a chart where the actual data increases by 20%, but the bar length increases visually by 60%?
(Figure 4: Simple bar comparison – "Production Growth / Croissance de la production")



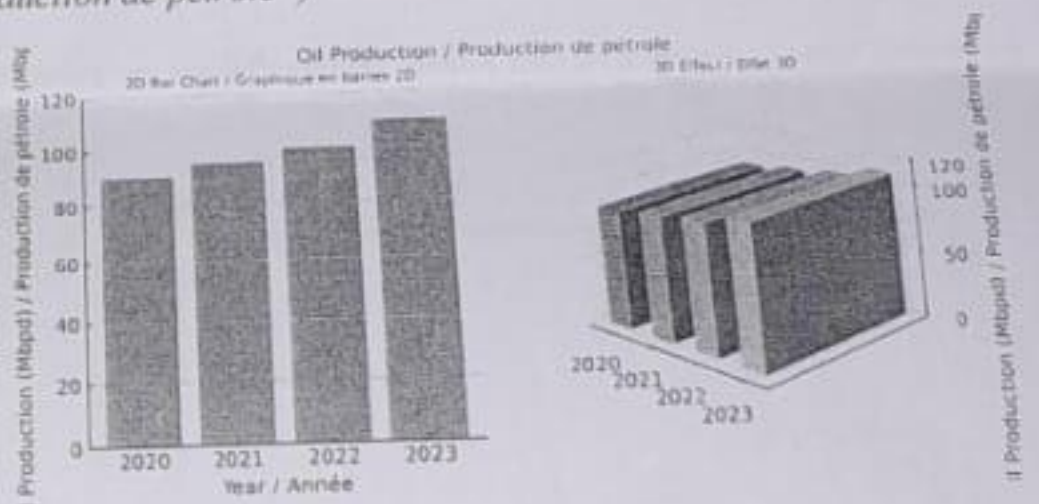
A. 0.33
B. 1.2
C. 3.0
D. 0.5

Q5. Which visualization has the highest *data-ink ratio*?
(Figure 5: Comparison of 3 versions of a line chart – cluttered, moderate, clean)



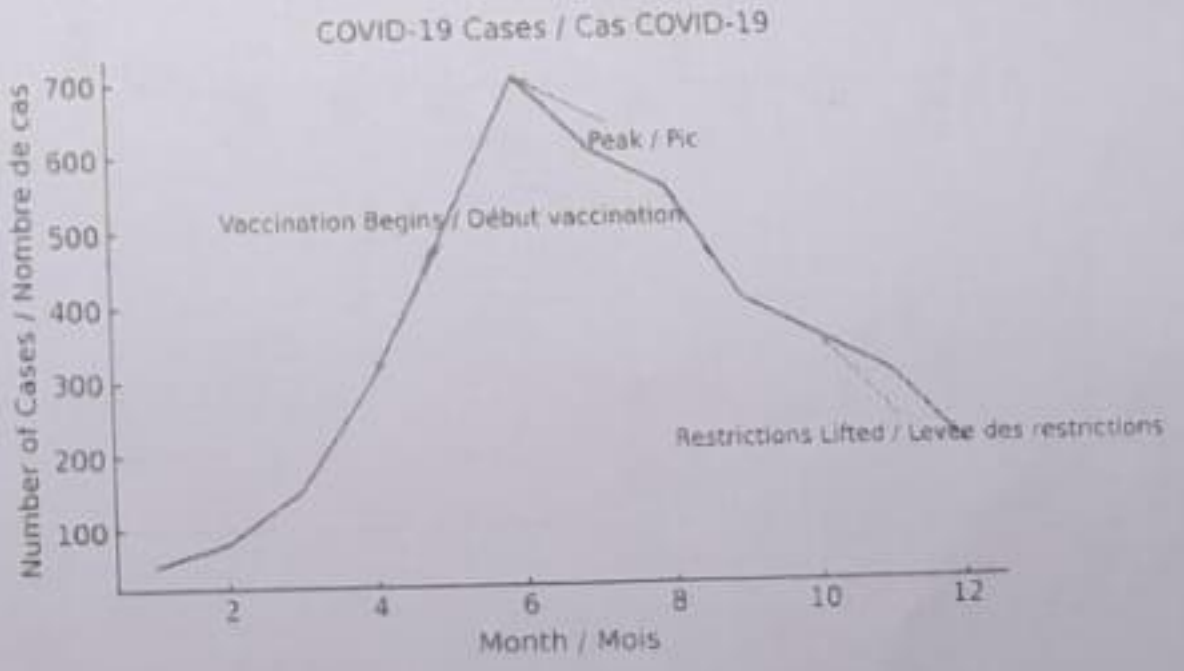
A. The one with heavy gridlines and background
B. The one with labeled points and light gridlines
C. The minimalist one with only the data lines and axes
D. The one with 3D shadows

Q6. Which chart violates the principle of graphical integrity concerning *dimensions*?
(Figure 6: 3D cylinder bars vs 2D bars – "Oil Production / Production de pétrole")



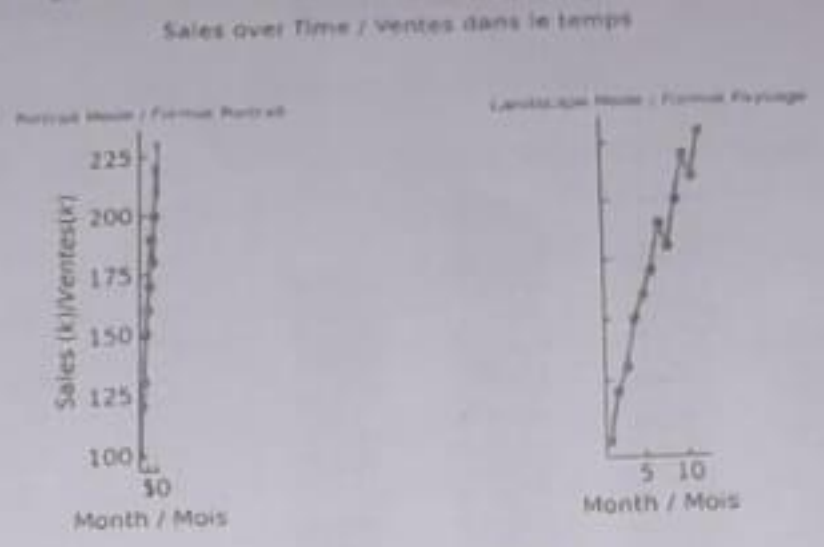
A. 3D cylinder bar chart
B. 2D vertical bar chart
C. Line chart
D. Dot plot

Q7. When annotating a time series chart, what is the main benefit of adding contextual events?
(Figure 7: Line chart with labeled events – "COVID-19 Cases / Cas COVID-19")



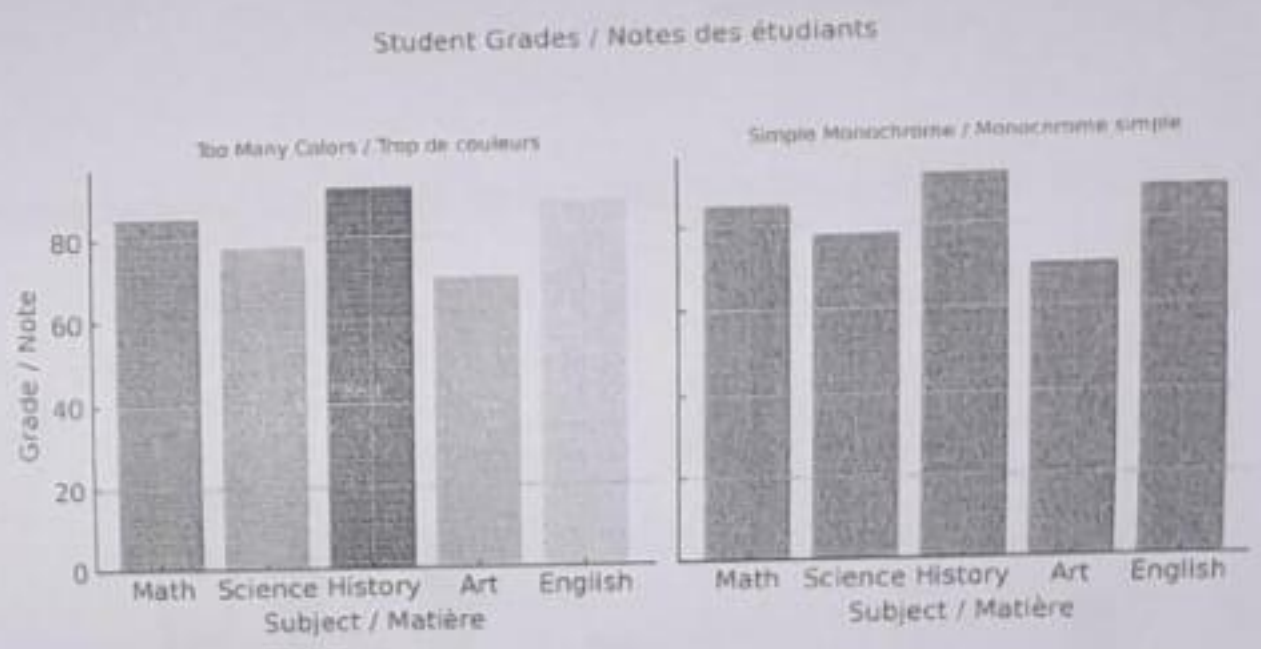
A. It decorates the graph
B. It distracts from the data
C. It helps the viewer interpret variations meaningfully
D. It reduces accuracy

Q8. According to the *proportion and scale* principle, what is the optimal orientation for most charts?
(Figure 8: Comparison – portrait vs landscape line charts – "Sales over Time / Ventes dans le temps")



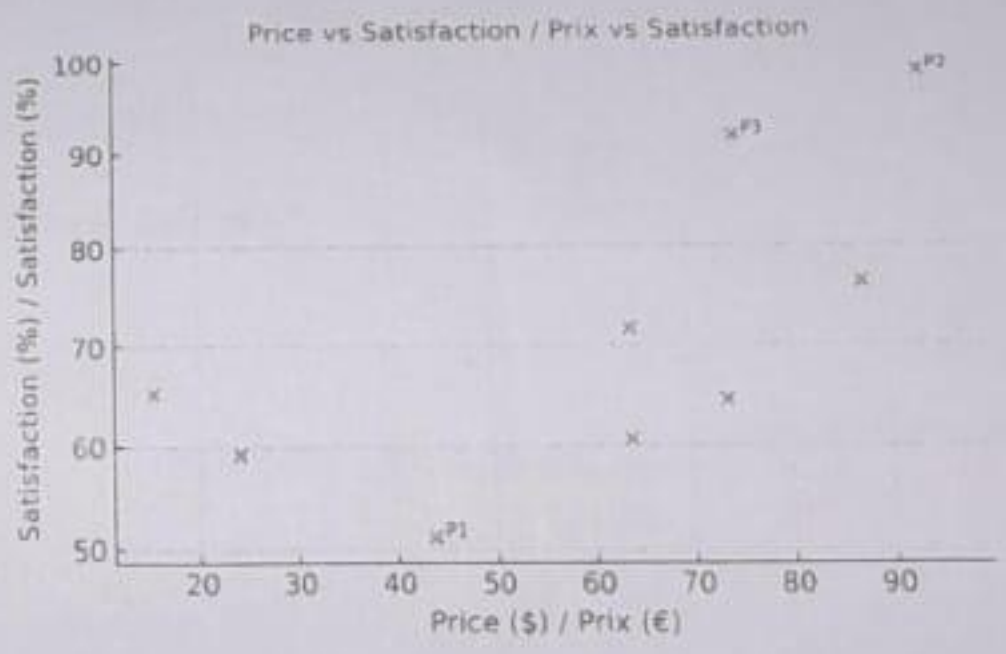
A. Square layout (1:1)
B. Portrait (taller than wide)
C. Landscape (wider than tall)
D. No consistent orientation

Q9. Which of the following design decisions *increases cognitive load* unnecessarily?
(Figure 9: Overly colorful chart vs simple monochrome chart – "Student Grades / Notes des étudiants")



A. Using many unnecessary colors
B. Reducing label text size
C. Using consistent units
D. Ordering data by category

Q10. In this scatterplot, each point shows one product's price vs satisfaction. What modification would improve readability without adding distortion?
(Figure 10: Scatterplot – "Price vs Satisfaction / Prix vs Satisfaction")

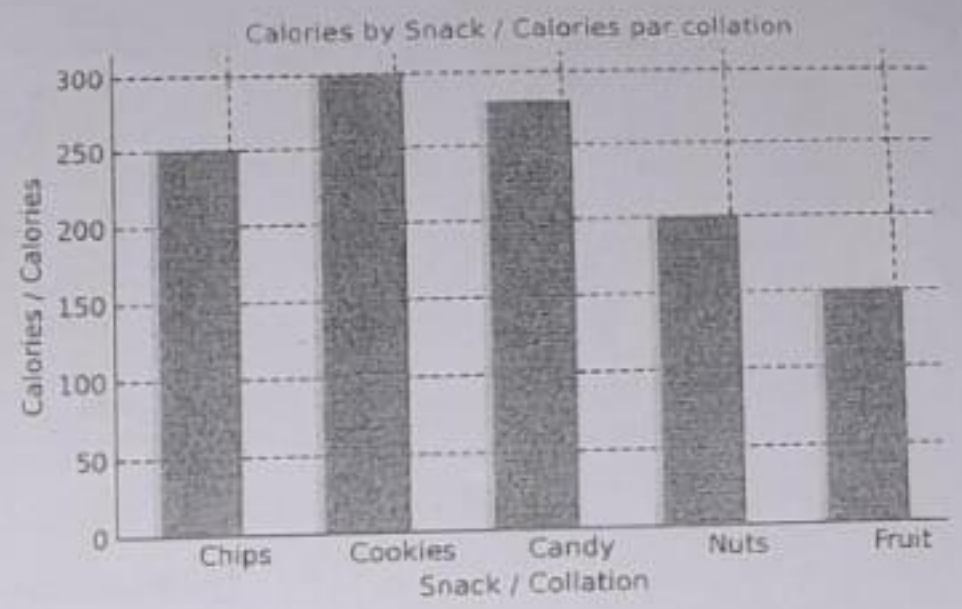


A. Add 3D effect
B. Add direct labels for key points
C. Use perspective rotation
D. Color points randomly

Part II - Short Answer Questions (5 points)

Q11. Examine the chart below. Identify one way to improve its *graphical excellence*.

(Figure 11: Bar chart with heavy background grid – "Calories by Snack / Calories par collation")



☑ **Answer:**

Q12. The chart below shows data density issues. Suggest one design change that would increase data density without losing clarity.

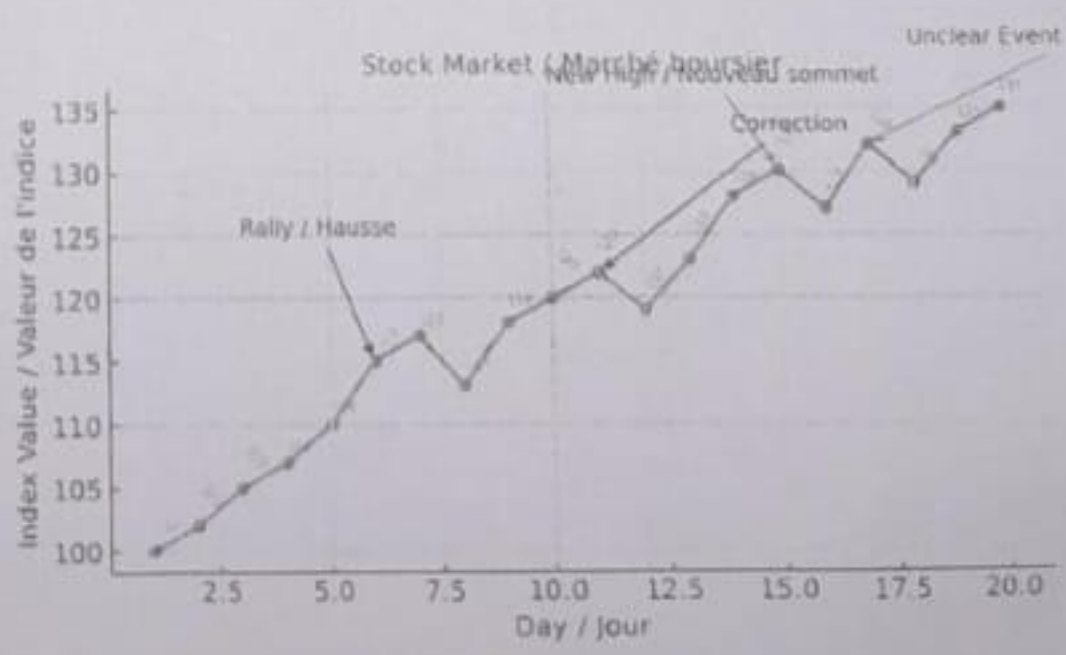
(Figure 12: Sparse bar chart – "Car Sales by Brand / Ventes de voitures par marque")

use ~~labeled points~~ instead of bar charts
Dot plot

☑ **Answer:**

Q13. What problem can arise from using too many annotations in a chart?

(Figure 13: Line chart cluttered with annotations – "Stock Market / Marché boursier")



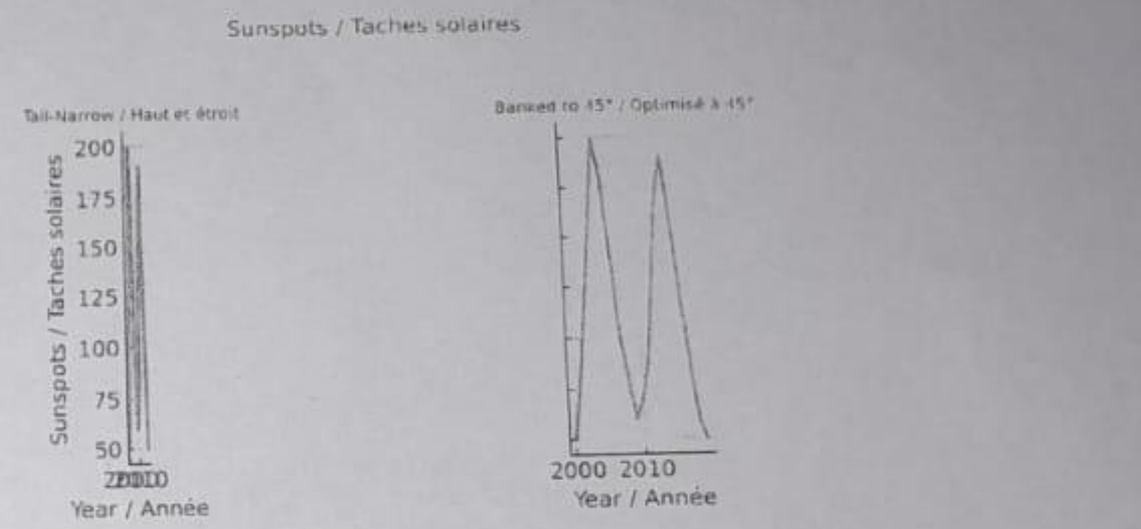
☑ **Answer:**

Q14. The following line chart was drawn with a square aspect ratio. Explain why "banking to 45°" might improve interpretation.

(Figure 14: Time series – "Sunspots / Taches solaires")

☑**Answer:**

_____



Q15. Why should 3D charts generally be avoided in data visualization?

(Figure 15: 3D bar chart vs 2D version – "Revenue Growth / Croissance du revenu")

☑**Answer:**

_____