DATA101 Comprehensive Long Quiz - Set C (Answer Key)

50-Point Assessment Document (Answer Key)

DATA 101: Data Visualization

DE LA SALLE UNIVERSITY

Long Quiz (50 points)

Name: _____ ID: _____ Date: _____

Instructions: Complete all questions. Use only one answer per matching item. Keep responses legible.

1) MULTIPLE ANSWERS (2 PTS)

For distribution comparison across groups, select all valid methods.

- A) Match binning strategy across groups before first-pass visual claims.
- B) Use median-only charts when tails are central to interpretation.
- C) Report n and scale choices in interpretation notes.
- D) Prefer violin over histogram by default for small n.
- E) Use log or Box-Cox transforms when skew is severe and interpretation remains d

Answer: A, C, E.

2) MATCHING (1 PT)

Match each goal to the first table-based view choice.

- Detect group medians and trend shifts over time.
- Detect heavy-tailed spread shifts.
- Detect rank changes only for top 5 entities.

- i) Small multiples + trend/quantile panel.
- ii) Distribution glyph (violin/box with CI or whiskers).
- iii) Focused slope/ranker chart after top-k filtering.

Answer: 1→i, 2→ii, 3→iii.

3) SHORT ANSWER (2 PTS)

A stakeholder asks for "fastest changing cohorts" using a dataset with huge within-grc single preprocessing guard should precede your chart choice?

Answer: Stabilize sampling intervals and align all observations to an explicit time basis irregular intervals) so slope/rank calculations are comparable across cohorts.

4) RANKING (1 PT)

Rank these tasks by the degree of information loss if forced into a single chart from mo

- A) Compare two cohorts’ medians by month.
- B) Show outlier bursts for each cohort.
- C) Compare within-cohort variance and spread change.
- D) Identify the fastest-growing and fastest-declining entities.

Answer: 1) C, 2) B, 3) D, 4) A.

5) MCQ (2 PTS)

An ops room needs shared state and role-specific views. Best first-pass composition?

- A) Duplicate full dashboard for each role.
- B) Keep only one global chart with all controls open.
- C) Overview strip + diagnostic modules + action lane, with progressive disclosure.
- D) Separate pages and no shared interactions.

Answer: C.

6) MULTIPLE ANSWERS (1 PT)

Which changes reduce dashboard ambiguity?

- A) Centralized scale registry for metric semantics.
- B) One state store shared across coordinated views.
- C) Hide infrequent actions under advanced controls.
- D) Separate unrelated filters per view by default.
- E) Reuse a single tooltip format across every module.

Answer: A, B, C, E.

7) MATCHING (1 PT)

Match each pattern to intended outcome.

- Overview then decision lanes.
- Hide/show controls by intent.
- Operative cockpit with synchronized interactions.

- i) reduce cognitive split between context and action.
- ii) preserve shared analytical continuity.
- iii) reduce visual noise and protect first load speed.

Answer: 1→i, 2→iii, 3→ii.

8) SHORT ANSWER (2 PTS)

A dashboard has 5 KPIs, 4 actions, and 8 filters but users complain about fatigue. Spe
versus hidden controls.

**Answer: Keep high-signal KPIs + current state/time horizon visible; expose secondary
drawers and reveal deeper diagnostics only after user intent or drill state so working se
default.**

9) MCQ (1 PT)

You need community structure + bridge detection on 25k sparse nodes for executives.

- A) Node-link only, no edge weight.
- B) Matrix only, no ordering.
- C) Hybrid node-link overview + matrix for dense clusters.
- D) Treemap of degree counts only.

Answer: C.

10) MULTIPLE ANSWERS (1 PT)

Select all valid reasons to add a matrix view alongside node-link.

- A) Dense/near-complete regions create entangled edge crossings.
- B) Need to inspect block structure and co-membership.
- C) Need intuitive path tracing at first pass for stakeholders.
- D) Need to inspect asymmetry and edge direction.
- E) Need to keep node labels always visible without hover.

Answer: A, B.

11) SHORT ANSWER (2 PTS)

For directed-signed graphs, which fields are required and how should polarity and stre
encoding?

Answer: Use source, target, weight, and sign/polarity (plus optional time/type fields); e
hue/arrow orientation and strength via line width/opacity/brightness so channels do nc
magnitude.

12) MATCHING (1 PT)

Match task and graph layout.

- Report allocation share by branch.
- Highlight bridge nodes and cut-edges.
- Inspect dense community blocks quickly.

- A) Node-link primary + matrix secondary.
- B) Treemap primary + node-link secondary.
- C) Matrix primary + node-link secondary.

Answer: 1→B, 2→A, 3→C.

13) RANKING (1 PT)

Order interaction priorities for a live graph brief from highest to lowest: 1) Community t
slider, 3) Link strength legend, 4) Animated force transition.

Answer: 1) Degree filter slider, 2) Community toggle, 3) Link strength legend, 4) Animat

14) MCQ (1 PT)

You compare incidence in uneven counties with many low-population areas. Best base

- A) Raw counts in choropleth classes.
- B) Per-capita rates with explicit normalization and binning rationale.
- C) Bubble map only.
- D) Equal-area projection with no distance claims.

Answer: B.

15) MULTIPLE ANSWERS (2 PTS)

Which are high-risk pitfalls in spatial interpretation?

- A) MAUP from boundary changes.
- B) Ecological inference.
- C) Ignoring symbol overlap scaling in overlays.
- D) Using CVD-safe colors only.
- E) Ignoring projection distortion when discussing distance.

Answer: A, B, C, E.

16) SHORT ANSWER (2 PTS)

You publish a choropleth plus symbol map on the same indicator. State one essential p

Answer: Verify denominators/time frame and scale semantics are aligned so color class
magnitudes map the same underlying quantity and do not imply contradictory ordering

17) MCQ (2 PTS)

For publication-quality vector slides and precise labels in a PDF workflow, which defau
strongest?

- A) PNG only.
- B) GIF animations.
- C) SVG exports from charts that support it.
- D) Screenshot-only outputs.

Answer: C.

18) MULTIPLE ANSWERS (1 PT)

Select all that are valid reasons to prefer HTML over raster outputs.

- A) Need built-in hover tooltips and interaction.
- B) Need lightweight, fully static printing at 300 DPI.