

Week 2 — Effective Visual & Reporting

STA191 Fundamentals of Data Visualization · Topic 2 · Suriyati Ujang

You found the gem in Week 1. This week is about showing it well — choosing between a table, a figure or plain text, and designing each so the message is instant.

By the end of this week you can: decide when to use a table, figure or text; apply the rules of effective reporting; design clean tables and clear figures; use a heatmap to reveal patterns in a table.

Session 1 — Table, figure or text?

2.1 A good analysis, badly reported, persuades no one

The audience never sees your effort — only the final table or chart. Effective reporting makes that final piece do the talking, quickly and honestly. Three ways to present data — text, tables, figures — each has a job; choosing the wrong one buries your message even when the numbers are correct.

2.2 How to choose

- **Plain text** — when you have only one or two numbers. A sentence is faster than a chart.
- **A table** — when you have exact values or several variables/units. Readers can look up precise figures.
- **A figure** — when you have a trend, comparison or pattern. Shape is read instantly; numbers are not.

Example — one report, three choices (Diploma intake): “Intake grew from 120 (2024) to 168 (2026)” is text; intake by programme and year is a table; total intake 2018–2026 is a line chart because the trend is the story.

2.3 Four rules of effective reporting

1. **Complementary, not repetitive** — a table and a chart should add to each other, never repeat the same numbers.
2. **Every table and figure is referenced in the text** — if you never mention it, delete it.
3. **Summarise in words, illustrate with the visual** — tell the reader what to notice.
4. **Explain the unexpected** — a surprising dip or spike needs a sentence of “why”.

Referencing phrases: “Table 1 shows...”, “As illustrated in Figure 2...”, “From Table 3, we see that...”, “Figure 4 compares...”.

Watch out: the most common student error is a table and a chart of the identical numbers, back to back — that is repetition, not reporting.

Session 2 — Designing clean tables & figures

2.4 Tables that get read

- **Combine** repetitive tables into one for easy comparison.
- **Divide** large data into clearly, accurately titled columns.
- **Declutter** — light borders or white space, never heavy gridlines.
- **Move bulky data to an appendix** if a full table overwhelms the page.

Borders should help reading, not shout. Let the data sit in the foreground.

2.5 The heatmap — a table you can see

A heatmap (highlight table) keeps the exact numbers but adds colour: darker means higher. Your eye finds the highs and lows before reading a single value — useful for spotting the leader or an improving trend across rows and columns. Always include a legend.

2.6 Figures that are clear

- Make the image clear — legible fonts, sharp lines.
- Use a legend to carry the key message and explain symbols.
- Label everything that matters — both axes, each series, key points.
- Specify details — units on every quantity, scale bars on maps.

Common mistakes: chartjunk (heavy borders, shading, 3D), figures with no units, and unreferenced visuals — each adds effort and subtracts trust.

Key terms: complementary presentation · referencing · declutter · heatmap/highlight table · legend · chartjunk

Review: (1) Best format for six programmes' exact fees? (2) A figure is never mentioned in the text — what do you do? (3) What does a heatmap add to an ordinary table?

Glossary

- **Complementary presentation** — a table and figure that add to each other, never repeating the same numbers.
- **Referencing** — pointing to every table/figure in the text; unreferenced visuals are removed.
- **Declutter** — remove heavy borders, shading and gridlines so the data stands out.
- **Heatmap (highlight table)** — a table coloured by value (darker = higher) to reveal patterns.
- **Legend** — the key explaining a figure's colours/symbols and its message.
- **Chartjunk** — decorative clutter that adds effort but no meaning.