GitHub URL: https://nbetro5.github.io/fit3179-dv2/

Domain: The domain of this visualisation is new car sales in Australia in recent years. Datasets have been split by year, state, make and country of origin to produce visualisations.

Who: The audience of this visualisation is the average Australian.

Why: This visualisation aims to give insight into the evolution of the Australian market in recent times. Of particular interest is the recovery after COVID and the growth of electric and hybrid vehicles. This visualisation allows users to **explore** the changes in the market and **analyse** the emerging trends over the past few years.

What: Data sourced from the Federal Chamber of Automotive Industries (FCAI) (https://www.fcai.com.au/). Reports are published monthly and were collated into a complete set for multiple years, an example of the most recent report can be found here: https://www.fcai.com.au/new-vehicle-sales-remain-strong-in-september/

Additional data was also sourced from the Australian Bureau of Statistics https://www.abs.gov.au/

How: A choropleth map was chosen to show the sales by each state, as it was appropriate to represent data for each region. Additionally, normalising this data by population made sense to see which states' population purchased the most cars, so a choropleth was appropriate for this purpose. The choropleth map was custom-built by taking open-source geojson data to form the map itself and linking this with the vehicle sales data for each state within the Vega-Lite spec. A line chart was used to show the yearly sales data as it was most appropriate to show the change over time. A stacked bar chart was used to show the breakdown by powerplant as this was effective at showing a part-of-whole relationship and provided a unique idiom to the donut charts used later. A bar chart was used to show the categorical brand data and the quantitative sales data. Finally, donut charts were used to show another part-of-whole relationship, this time relating to the country of origin of vehicles.

IDEAS

Author: Nathan Petros
Date: 13/10/2025
Sheet: 1
Task: Planning / Brainstorm

DATASETS

1. Yearly Total Sales
2. Top 10 Most Popular Brands
3. Sales by Brand (Top 10) → Quantity (i) / Share (ii)
4. Sales by Powerplant (Combustion / EV / Hybrid) → Quantity (i) / Share (ii)
5. Country of Origin
6. Sales by State
7. Monthly Sales
8. Australia's Proportion in Global Sales
9. Top 10 Models

IDIOMS

A) Bar Chart

B) Line Chart

C) Choropleth Map

D) Pie Chart

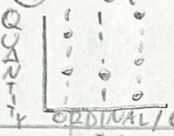
E) Proportional Symbol Map

F) Arc Chart

G) Donut Chart

H) Stacked Bar Chart

I) Dot Plot



K) Clustered Bar Chart

FILTER

7) Monthly Sales ✗
- Too similar to 1) yearly sales
- Not as compelling
- Not as much publicly available data

F) Arc Chart ✗
- Maybe too basic
- Other idioms do a better job of showing part-of-whole relationship

8) Australia's Proportion in Global Sales ✗
- Very small proportion so might be challenging to present.
- Doesn't fit well with other datasets in terms of storytelling

CATEGORISE

DATA OVER TIME
1) Yearly Sales → A, B
2) Top 10 Brands → H
3) Top 10 Models → A, K

GEOGRAPHICAL
5) Country of Origin → C
6) Sales by State → E

CATEGORIES
3) Sales by Brand → D, G
4) Sales by Powerplant → I, K

COMBINE + REFINE

- 4) Has a suitable amount of categories to be shown effectively with K
- 1) Could be shown effectively with B
- C works well with clearly defined geographical regions like in 5)
- A ranking like 2) could be delivered well using H

QUESTIONS

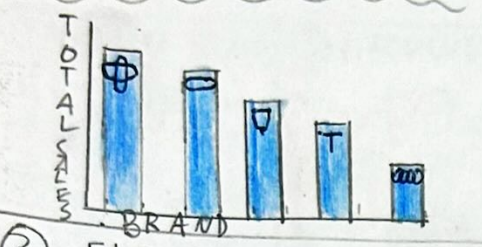
- Would normalising 6) per capita be more interesting? → Look into both options and compare.
- Could data over time be implemented in a map without adding too much complexity? → Investigate interactivity options
- Does using E make the dataset clear? → Yes if size channel well-implemented.

LAYOUT

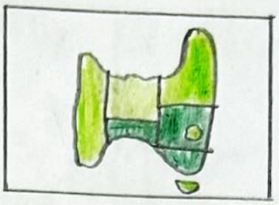
Title: Partitioned Poster Draft
Sheet 2
Author: Nathan Petros
Date: 13/10/2025
Task: Design Partitioned Poster

AUSSIE CAR SALES
BY THE NUMBERS

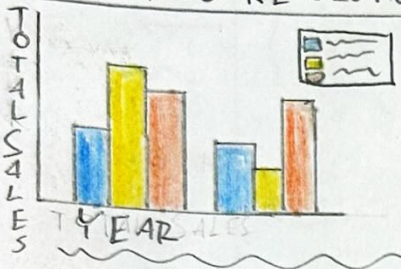
① POPULARITY CONTEST



② BIG-BUYING STATES

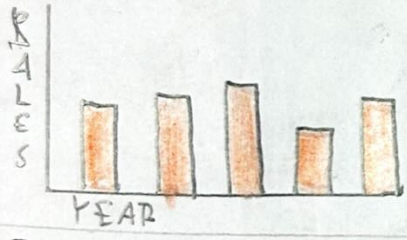


③ ELECTRIC REVOLUTION?

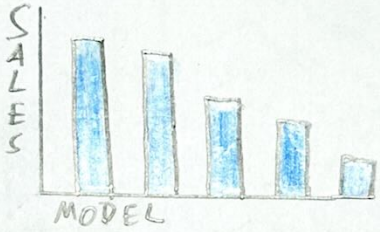


④ FROM AROUND THE WORLD

⑤ YEAR BY YEAR



⑥ POPULAR MODELS



① Bar Chart
- X-Axis: Brands (Top 10)
- Y-Axis: Sales
- Can possibly label points

② Choropleth Map
- Saturation: Sales
- Good space for annotations

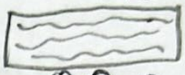
③ Clustered Bar Chart
- X-Axis: Year
- Y-Axis: SALES
- Colour Hue: Powerplant

④ Pie Chart
- Angle: % of Total Sales
- Colour: Country
- Annotations could be useful

⑤ Bar Chart
- X-Axis: Year
- Y-Axis: Sales

⑥ Bar Chart
- X-Axis: Model
- Y-Axis: Year
- Can potentially annotate with rankings + other info.

OPERATION
- Tooltips to give data points for each chart.



- Charts ①, ②, ④, ⑥ will have a slider to change the year.

- Can toggle to show/hide annotations.

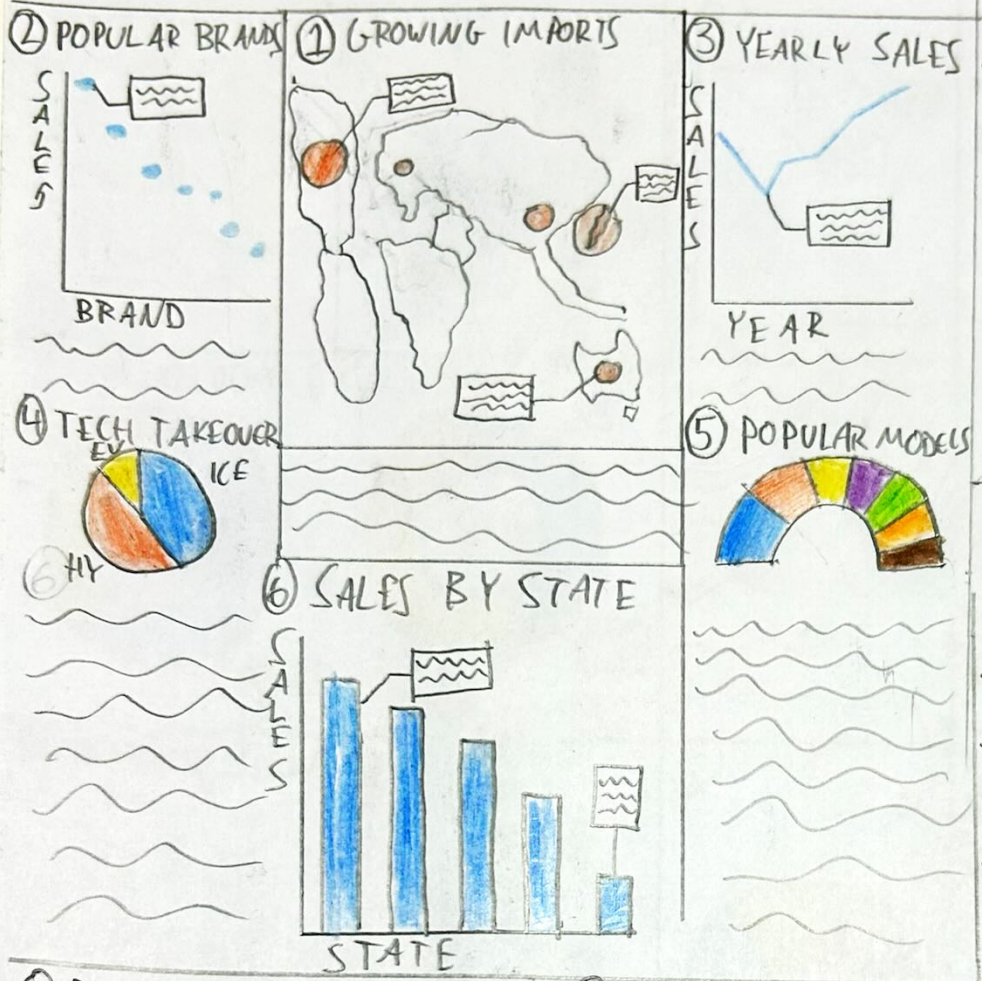
FOCUS
- No central focus, all plots equally important in visual hierarchy.
- Sub-headings aim to draw viewers attention to the story told by each plots.

DISCUSSION
⊕ Includes all datasets from Sheet 1.
⊕ Good level of interactivity, rich user experience.
⊕ Easy to read visualisations
⊖ Lack of central focus could be overwhelming for viewers.
⊖ Logos could be chartjunk in chart ①
⊖ Not a lot of variety in idio
⊖ Limited annotation space

LAYOUT

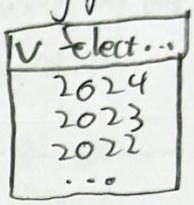
Title: Annotated Chart Draft
Date: 13/10/2025
Author: Nathan Botros
Task: Design Annotated Chart
Sheet 3

THE CHANGING LANDSCAPE OF AUSTRALIAN CAR SALES



OPERATION

- Annotations change depending on year selected
- Dropdown box to filter charts by year:



FOCUS

- Larger central charts attract viewers attention and highlight most important data
- Annotations lead viewers to key points of information.
- Layout provides clear sight lines.

① Proportional Symbol Map
- Symbol location: Country of origin
- Symbol size: Sales from country
- Could potentially use arrows as symbols to show flows.

② Dot Plot
- X-Axis: Top 10 Brands
- Y-Axis: Sales by brand
- Annotations for points of interest.

③ Line Chart
- X-Axis: Year
- Y-Axis: Sales in Year

④ Pie Chart
- Colour: Powerplant
- Angle: Share of Sales
- Labels for each category

⑤ Arc Chart
- Colour: 10 Most popular models.
- Angle: Share of Sales

⑥ Bar Chart
- X-Axis: State
- Y-Axis: Sales

DISCUSSION

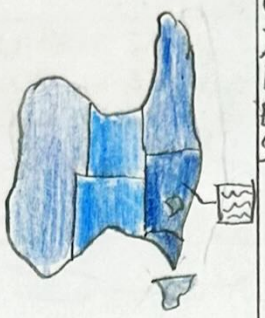
⊕ Good variety of visuals
⊕ Annotations reduce whitespace
⊕ Plenty of room for paragraphs and explanation.
⊖ Layout could be tricky to implement
⊖ Lots of empty space in map, only a few countries in dataset.
⊖ Chart ② could be better represented with a bar chart.

LAYOUT

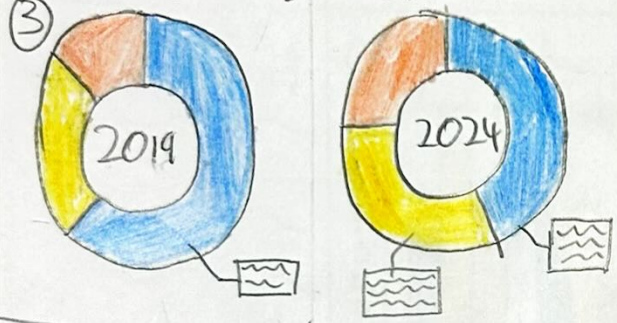
Title: Comic Style
Date: 13/10/2025
Author: Nathan Bates
Task: Design Layout
Sheet 4

AUSTRALIAN CAR SALES EXPLAINED

MARKET EVOLUTION



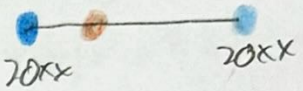
TECHNOLOGY EVOLUTION



BRAND EVOLUTION

OPERATION

- Annotations can be toggled/hidden by the user.
- Active filter for years controlled by the user via a slider



FOCUS

- Layout follows left-to-right sight lines, then down the page.
- Sub-headings aid with narrative and give narrative input.

① Choropleth Map
- Saturation: Sales per capita in each state / territory.

② Line Chart
- X-Axis: Year
- Y-Axis: Total Sales in Australia
- Dotted line representing Sales data before COVID.

③ Donut Charts
- Colour: Powertrain
- Angle: Share of sales
- Side by side of 2 different years

④ Bar chart
- X-Axis: Top 10 Brands
- Y-Axis: Units sold

⑤ Arc Chart
- Colour: Country of origin
- Angle: Share of Sales

DISCUSSION

(+) Clear layout, not much whitespace, good breathing space for plots.
(+) Clear storytelling
(+) Good level of interactivity
(−) No central focus could be confusing
(−) Data in ③ could be more appropriate for a stacked bar chart
(−) Colour variety required for different categories.

LAYOUT

(Comic style from Sheet 4)

Title: Final Design Sheet
Author: Nathan Botros
Date: 13/10/2025
Sheet 5
Task: Design Final Visualisation

THE CHANGING LANDSCAPE OF CAR SALES
EXPLAINING THE AUSSIE MARKET

Choropleth from Sheet 2/4

HOW HAVE SALES EVOLVED IN AUSTRALIA?

Line chart from Sheet 3

SALES

YEAR

HOW HAVE THE CARS EVOLVED?

Clustered Bar Chart from Sheet 2

UNITS SOLD

YEAR

Bar chart from Sheet 4

UNITS SOLD

BRAND

Donuts from Sheet 4 but with Country data

WHERE ARE THE CARS FROM?

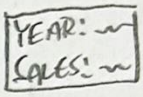
OPERATION

FILTERS

- Where relevant, plots can be filtered by year using a slider.

TOOLTIPS

- Each plot will have tooltips to give further information.



DETAILS

- Dependencies: Vega-Lite capability, Excel for data tabulation, VS Code environment for vega specs and HTML doc
- Time and effort:
  - ~1 hour to clean and tabulate data
  - ~2 hours for idioms
  - ~1-2 hours for HTML doc
  - ~1 hour for troubleshooting
- Requirement: Size adjusts automatically for screen size, charts and annotations need to be readable.

FOCUS

- Subtitles as questions aid in telling the narrative.
- No central focus, each plot equally important.
- Clear grid layout prevents clutter
- Annotations provide extra information and emphasise points of interest.