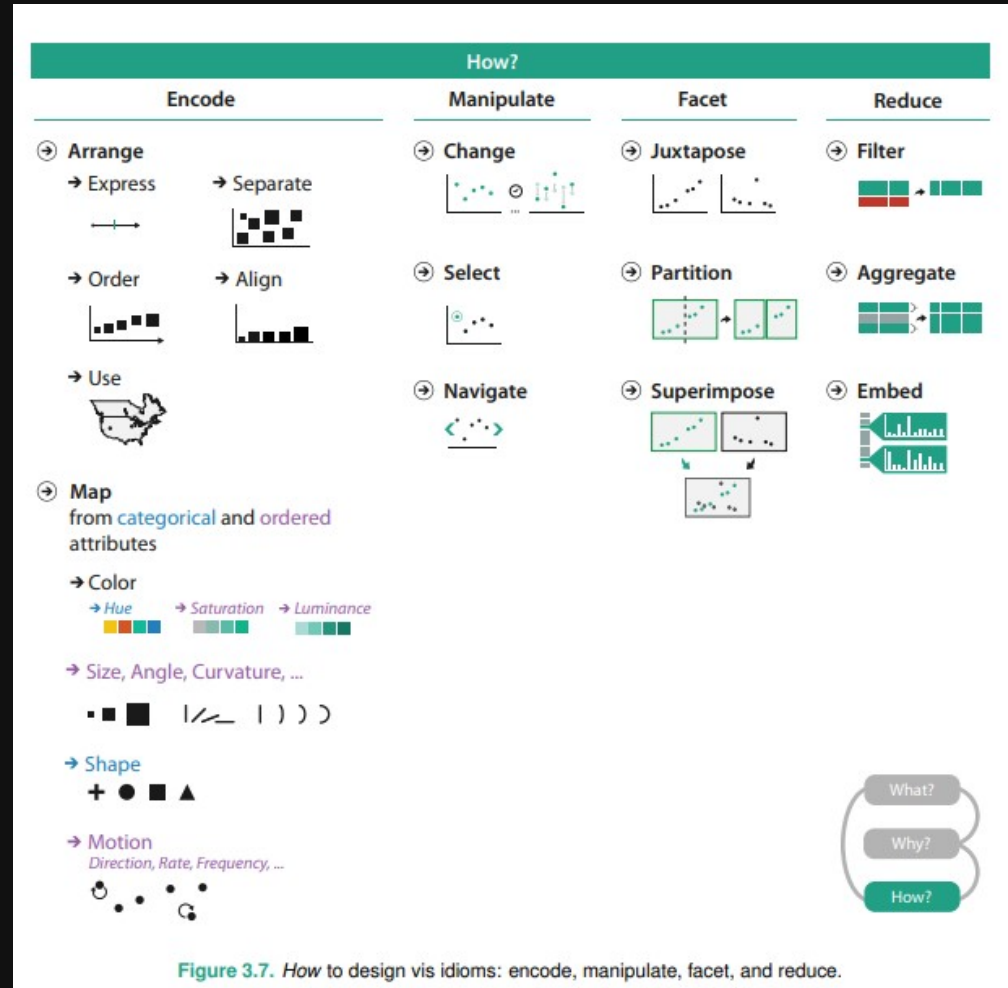


8a: Chart types

Tabular data

Recap: How to design viz idioms



Recap: Data Types

- Tabular data
- Networks
- Geographic / spatial
- Fields
- Hierarchical

Tabular data

Arrange Tables

→ Express Values

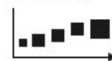


→ Separate, Order, Align Regions

→ Separate



→ Order



→ Align



→ 1 Key *List*



→ 2 Keys *Matrix*



→ 3 Keys *Volume*



→ Many Keys *Recursive Subdivision*



→ Axis Orientation

→ Rectilinear



→ Parallel



→ Radial



→ Layout Density

→ Dense



→ Space-Filling

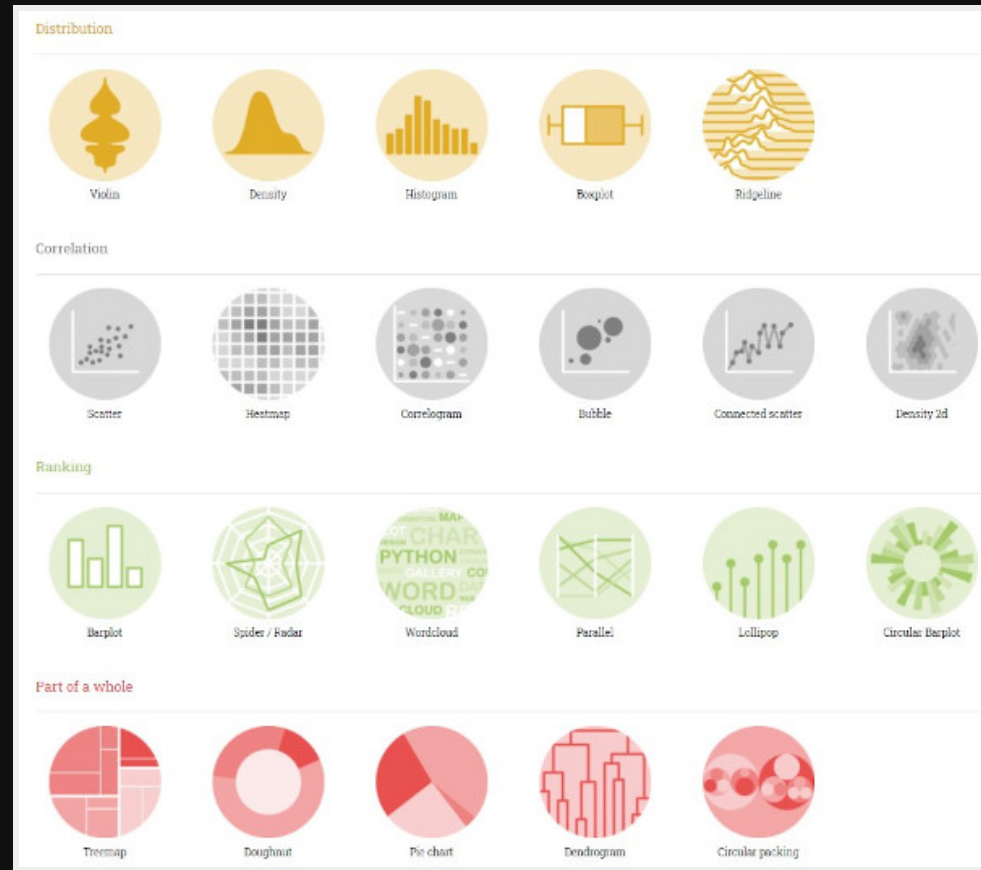


Tabular data 2

Carpark Number	Timestamp	Lot Type	Total Lots	Lots Available	Utilization
HE12	2021-01-26T17:06:10	C	91	4	96%
HLM	2021-01-26T17:06:00	C	583	179	69%
RHM	2021-01-26T17:06:10	C	322	143	56%
BM29	2021-01-26T17:06:21	C	97	8	92%
Q81	2021-01-26T17:06:12	C	96	12	88%
FR3M	2021-01-26T17:06:17	C	228	140	39%

D3 Graph Gallery

But there are other ways to categorize charts.



D3 Graph Gallery, by Yan Holtz
Data to Viz

Idiom: Bar Chart

What: Data	1 quantitative value attribute, 1 categorical key attribute
How: Encoding	Encode bar marks, express value attribute with aligned vertical position, separate key attribute with horizontal position
Why: Task	Task lookup and compare values
Scale	Key attribute: Up to hundreds

D3 Graph Gallery - Barplots

Idiom: Stacked Bar Chart

What: Data	Multidimensional table: 1 quantitative value attribute, 2 categorical key attributes
How: Encoding	Bar glyph with length-coded subcomponents of value attribute for each category of secondary key attribute (typically using color as an identity channel). Separate bars by category of primary key attribute.
Why: Task	Part-to-whole relationship, lookup values, find trends.
Scale	Key attribute (main axis): dozens to hundreds of levels. Key attribute (stacked glyph axis): several to one dozen

D3 Graph Gallery - Stacked Barplots

Recap: which viz?





Part-of-whole relationship: [D3 Graph Gallery - 100% Stacked Barplots](#)

Idiom: Pie Chart

What: Data	Table: one quantitative attribute, one categorical attribute
How: Encoding	Encode Area marks (wedges) with angle channel; radial layout
Why: Task	Part-to-whole relationship
Scale	One dozen categories

D3 Graph Gallery - Pie Chart

Idiom: Stacked Area / Streamgraph

What: Data	Multidimensional table: one quantitative value attribute (often counts / amount), one ordinal key attribute (often time), one categorical key attribute
How: Encoding	Use derived geometry to show layers across time, layer height encodes counts.
Why: Task	Show holistic view, part-to-whole relationship, trends.
Scale	Key attributes (time): up to hundreds of time points. Key attributes (each area): several to one dozen

D3 Graph Gallery - Stacked Area

Example: Budget 2020

Idiom: Scatterplot

What: Data	Table: 2 quantitative value attributes
How: Encoding	Express values with horizontal and vertical spatial position and point marks.
Why: Task	Task Find trends, outliers, distribution, correlation; locate clusters.
Scale	Items: Hundreds

D3 Graph Gallery - Scatterplot

You can add in a 3rd quantitative attribute (size of mark). You can also add in categorical attributes (color, shape of mark).

Example: [Using a d3 voronoi grid for better interactive experience](#), Visual Cinnamon (Nadieh Bremmer)

Idiom: Heatmap

What: Data	Table: two categorical key attributes. One quantitative value attribute
How: Encoding	Encode length channel along radial spokes; radial layout
Why: Task	Find clusters, outliers, summarize
Scale	Items: Up to a million. Categorical attribute levels: hundreds. Color quantitative attribute levels: 3 to 11

D3 Graph Gallery - Heatmap

Example: [ActiveSG Gym Tracker](#)

Idiom: Scatterplot Matrix

What: Data	Table with a whole bunch of attributes
How: Encoding	Scatterplots in 2D matrix alignment
Why: Task	Find correlation, clusters, outliers
Scale	Attributes: Up to a dozen. Items: up to hundreds

D3 Graph Gallery - Scatterplot Matrix / Correlogram

Reading: [Correlogram - variations, data-to-viz](#)

Idiom: Radar

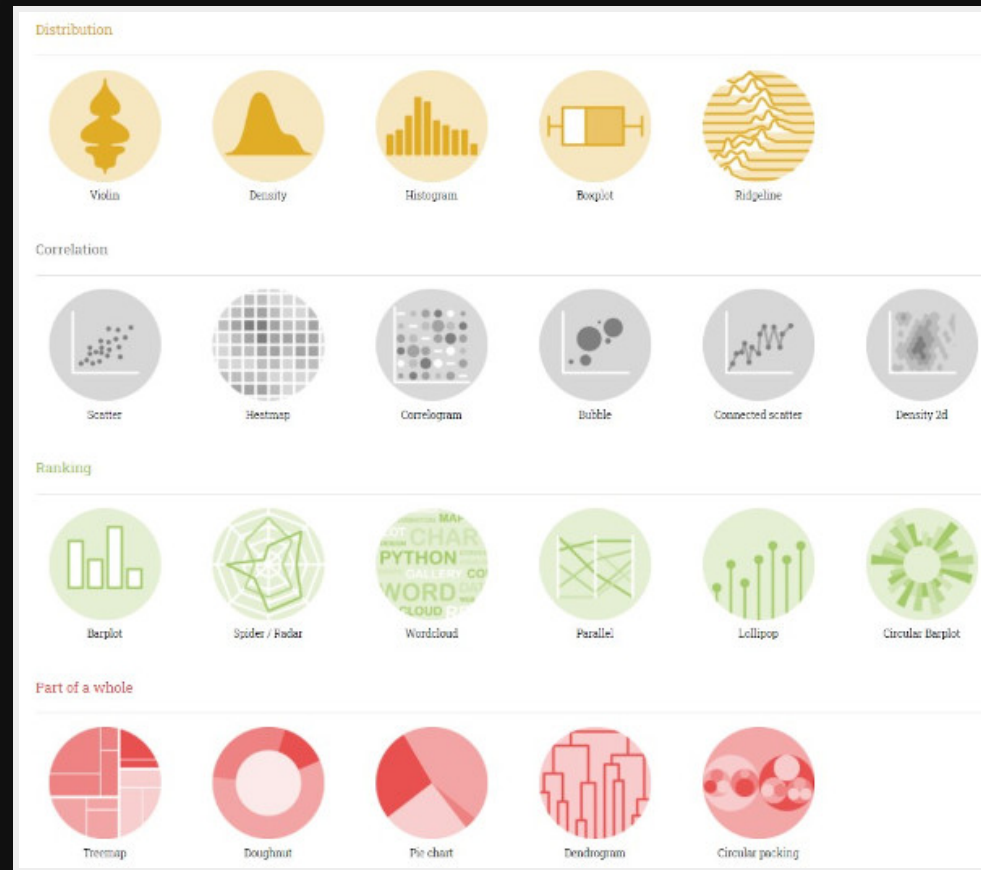
What: Data	Table with 3 to 12 quantitative attributes. 1 categorical key attribute (color)
How: Encoding	Scatterplots in 2D matrix alignment
Why: Task	Comparison, find outliers
Scale	Quantitative attributes: 3 to 12. Categorical key attribute: 2 to 5 (the less the better)

D3 Graph Gallery - Radar

Example: [MCI radar](#)

A quick walkthrough:

Other charts - tabular data



D3 Graph Gallery, by Yan Holtz

TR Examples

Area to Boxplot: Modified boxplot explorable

Area Chart counterexample: Value Since Inception Explorable

Questions?



Chi-Loong | V/R