

ETF5922 & ETX2250

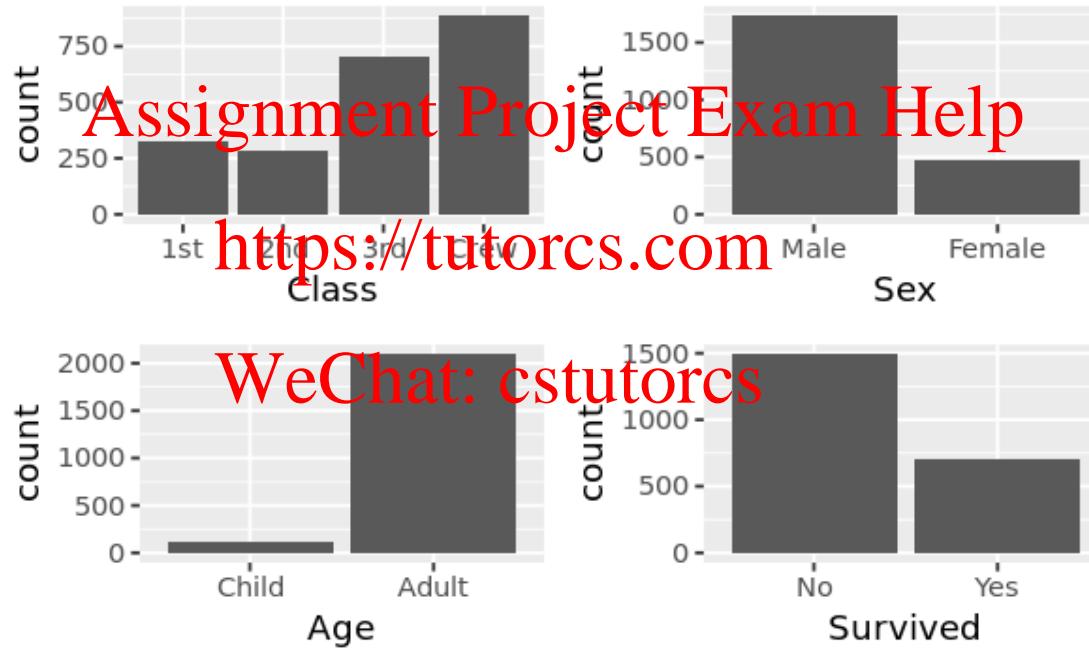
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Data Visualisation
<https://tutorcs.com>
and Analytics
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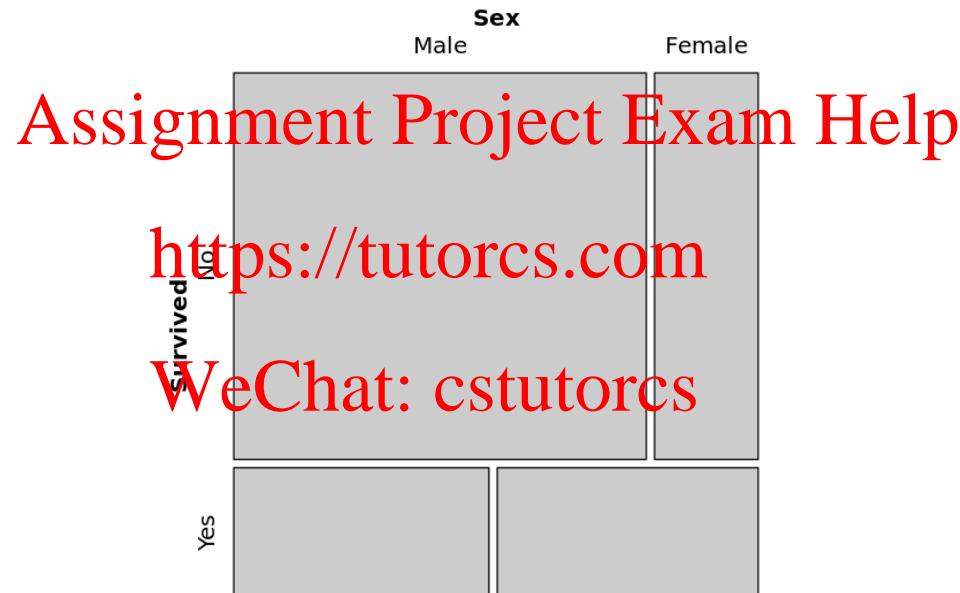
Presented by Klaus Ackermann



Categorical Variable Plotting: Bar charts



Categorical Variable Plotting: Mosaic



Good and Bad Graphics

- References:

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Steven Few: Show me the numbers

Tufte: The Visual Display of quantitative information

Cleveland: Visualising data

Robbins: Creating more effective graphs

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Tufte – Visualisations should

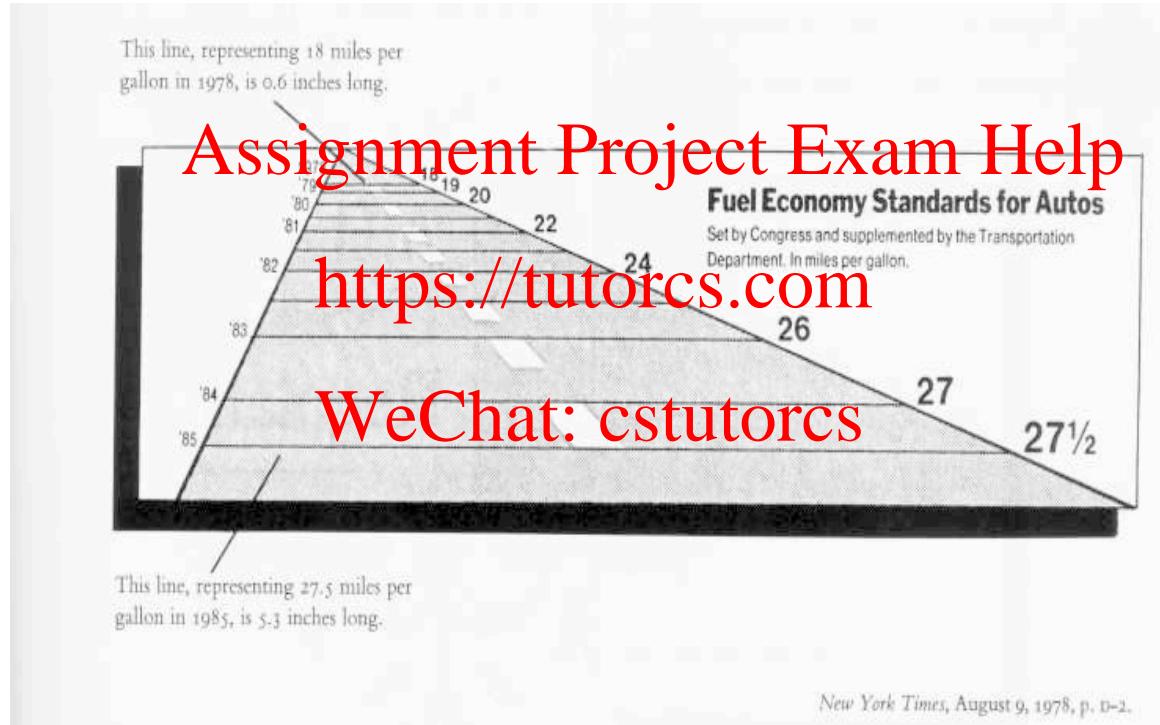
- Show the data
- Induce the viewer to think about the data
- Avoid distorting what the data have to say
- Present many numbers in a small space
- Make large data sets coherent (compact)
- Reveal the data at several levels of detail
- Serve a reasonably clear purpose
- Be closely integrated with the statistical and verbal descriptions of the data

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Avoid distorting the data



Tufte's lie factor

- Should be 1
- Calculate the factor for the fuel economy example
- 18 miles per gallon is represented by 0.6 inches
- 27.5 miles per gallon is represented by 5.3 inches

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Size of effect shown in graphic

Size of effect in data

Tufte's lie factor: Example

- Percentage difference in data:

$$\frac{27.5 - 18.0}{18.0} \times 100 = 53\%$$

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- Percentage difference in graphic:

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$$\frac{5.3 - 0.6}{0.6} \times 100 = 783\%$$

- So what is the lie factor?

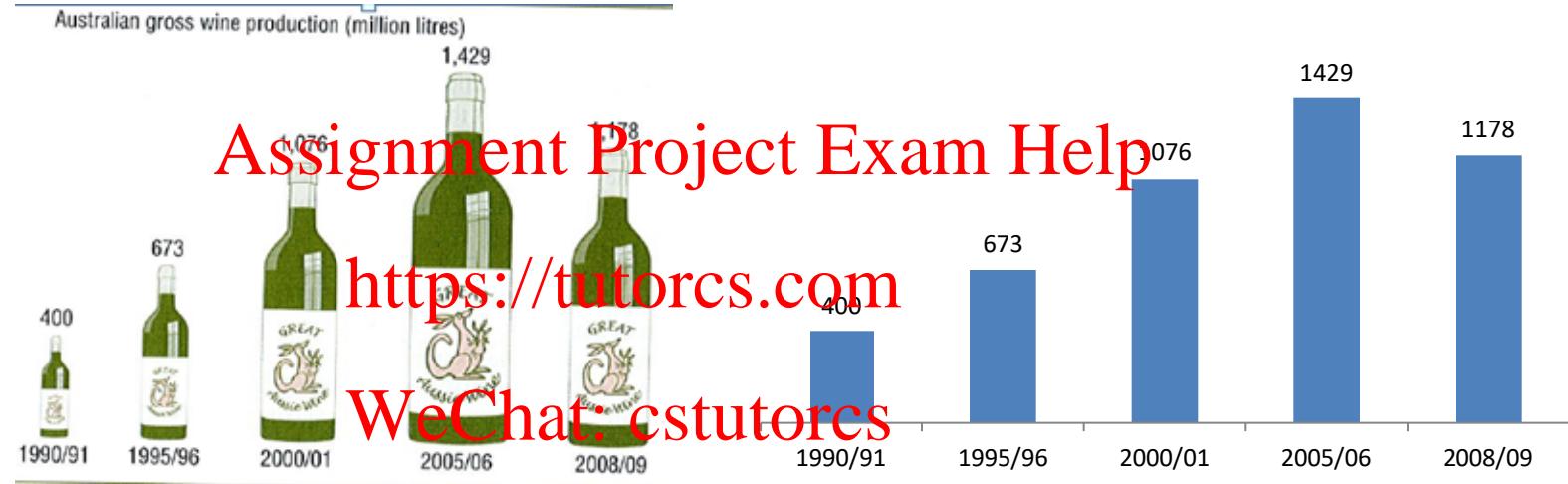
Avoid distorting the data



The heights of the bottles have been made proportional to the amount produced. The area goes up as the square and the volume, which the picture leads us to imagine, goes up as the cube of the production.

2008/9 is 3 times 1990/1 but the area is 9 times, and the volume is 27 times

What should you show ?



From
Berenson
Page 43

Source: Data from 'Australian Gross Wine Production – pdf format', Australian Wine and Brandy Corporation <www.wineaustralia.com/australia> accessed April 2012.

Data-ink ratio

- Keep the data-ink ratio high, the 3D component contains no extra information

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<http://www.sealthreinhold.com/school/tuftes-rules/>

Workshop 4



- Plotting of categorical data

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