



Data Representation Practical (v2.3)

Introduction

In this practical we will look at figures from scientific publications, or broadcasts. Using our knowledge of data representation theory, we will discuss these figures and possible improvements that could be made to make the data visualisation more effective.

Data

All of the input data used in this practical can be downloaded from the Babraham Bioinformatics web site (<http://www.bioinformatics.babraham.ac.uk/training.html>).

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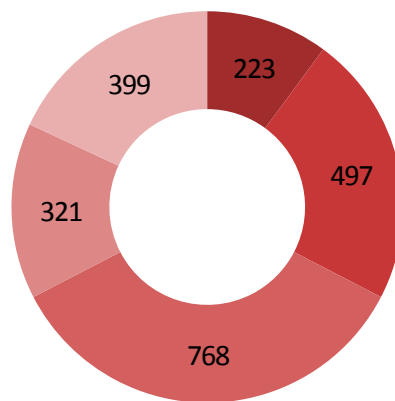
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Exercise 1 – Examples of Data Visualisation

Have a look at the Data Visualisation Checklist (on the last page of this document). Bearing these points in mind, for each figure below think about:

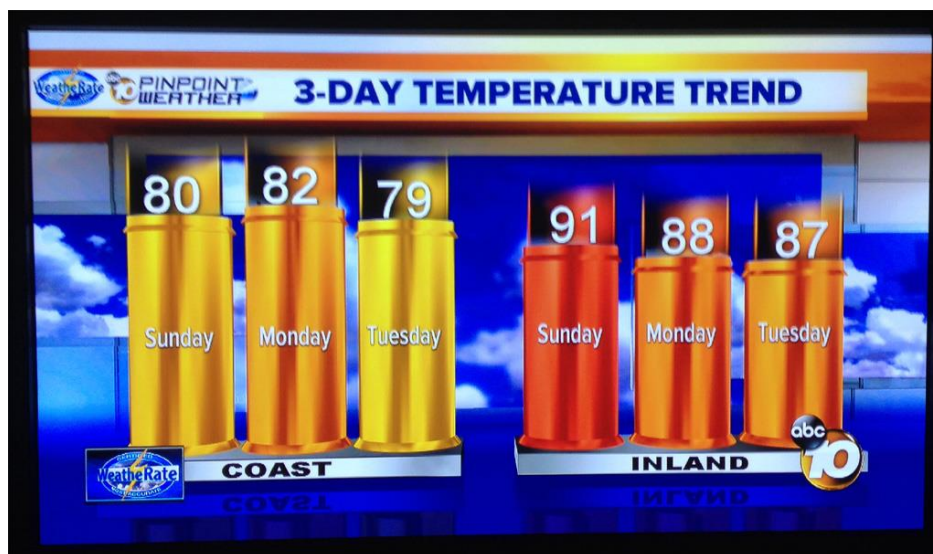
- Is this a good data representation? If not, why not?
- What message is the figure conveying?
- What changes could you make to improve the visualisation?

a) Visualisation of survey results for attributes children would like to have:

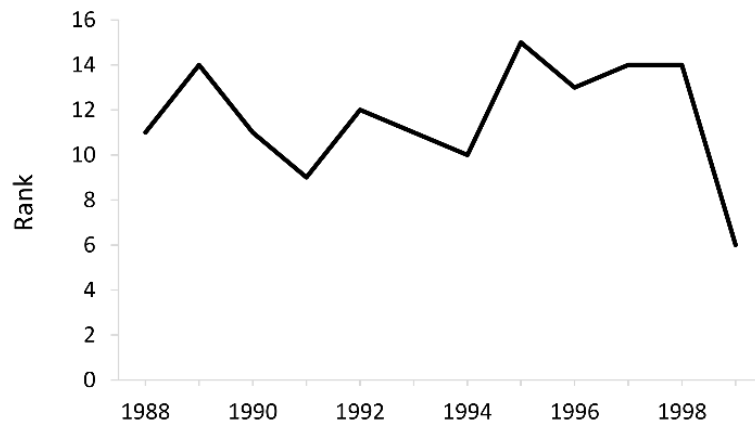


■ Agility (Quickness) ■ Endurance (Stamina) ■ Skill ■ Speed ■ Strength

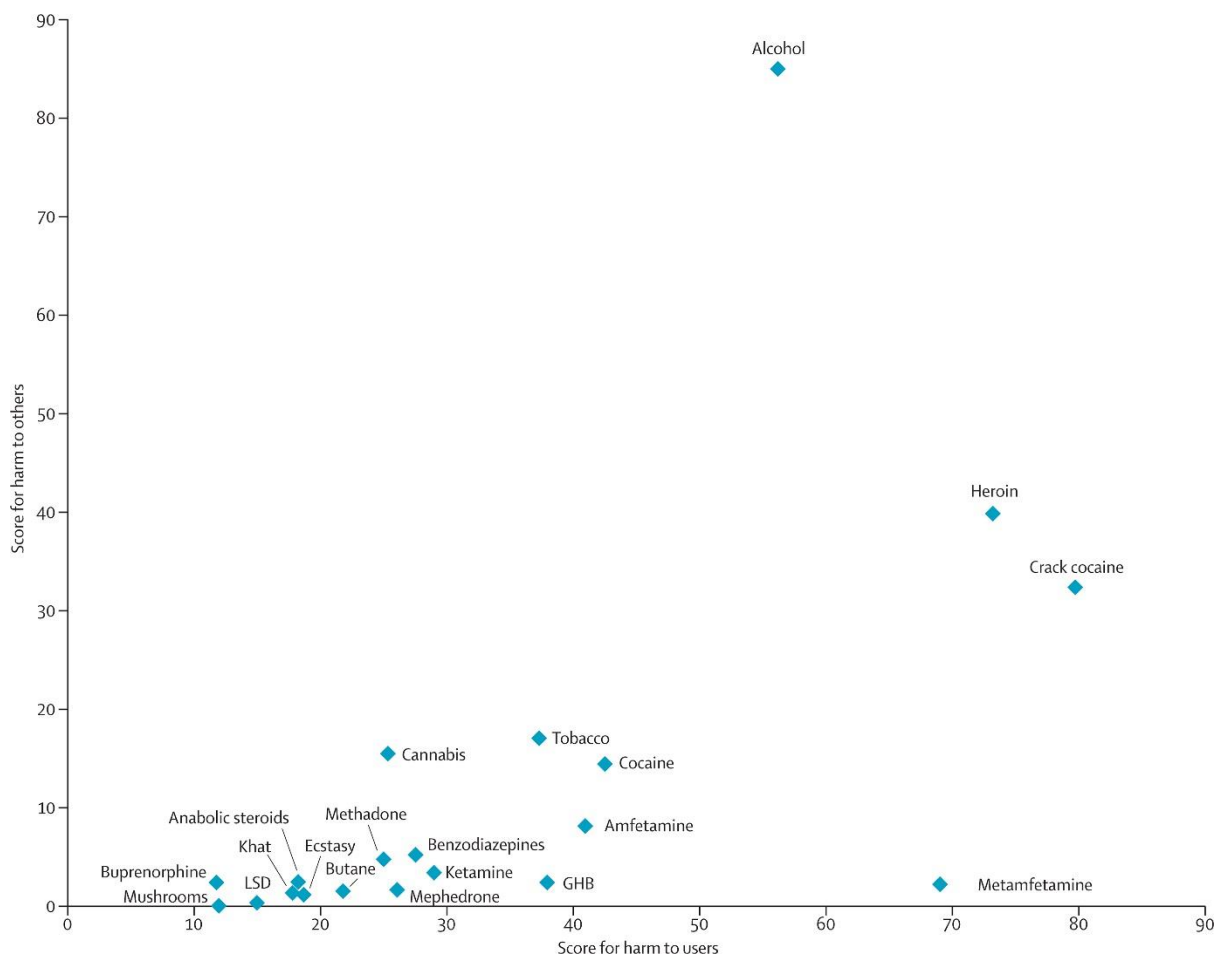
b) Broadcast image showing 3-day temperature (°F) for coastal and inland regions:



c) Visualisation showing changes in Rank of a University, as tuition fees continue to rise:



d) Visualisation showing harm scores for different drugs:



Data Visualisation “Checklist”

A good data visualisation should:

- Show/Not distort the data
- Summarise to make things clearer
- Have no unnecessary figures
- Not be 3D

What is the data visualisation showing?

Does it:

- Serve a clear purpose/have a clear message
- Link to the accompanying text and statistics
- Figures should be self-contained
- Must be understandable without additional information

Colour

- Colour should help perception
- Should not change both hue and saturation
- Should not use too many colours
- Should be no absolute reliance on colour - should ideally still work in black and white

Layout

- Is there grouping/containment?
If so does this help understanding of the data visualisation?