CPSC 436V, Foundations 3

Out: Thu Jan 30 2020. Due: Wed Feb 5 2020, 6pm.
Submit through Canvas, as a file in PDF format.

1 Table Alternatives (24%)

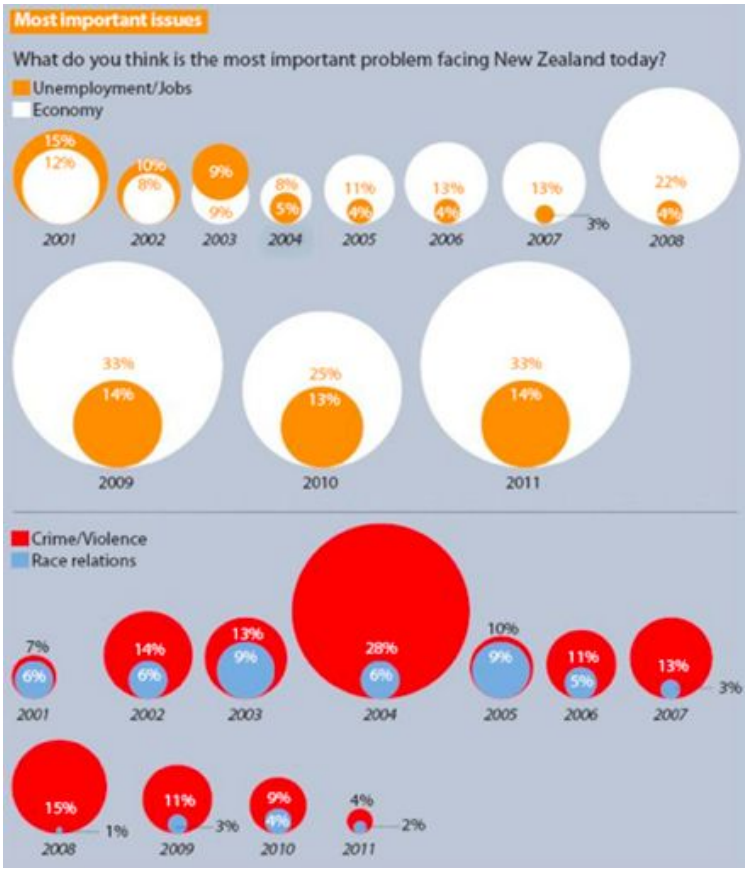
1.1 Sketch two ways to visualize each of the two tables below (four sketches in total). Each sketch should include all of the items and attributes for that table. You may use a single view for each table, or multiple views.
1.2 Analyze each of your sketches according to whether it is suitable given the characteristics of the data in terms of readability and perception (including expressiveness & effectiveness), and information density.

	Age	Best 100 m	Furthest Jump	Sex
Amy	16	13.2	5.2	F
Basil	18	12.4	4.2	F
Clara	14	14.1	2.5	F
Desmond	22	10.01	6.3	M
Charles	19	11.3	5.3	M

	BPM T1	BPM T2	BPM T3
Amy	90	130	150
Basil	70	110	109
Clara	60	140	141
Desmond	84	100	108
Charles	81	110	130

2 New Zealand Table (36%)

Consider this visual encoding from a newspaper:

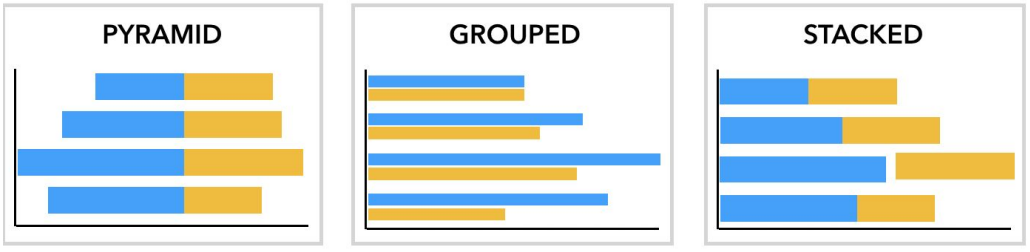


Answer the following questions:
2.1 What could be the goals of the designer for questions that this visualization answers, in both domain-specific & abstract language?
2.2 What data is represented in this visualization? Be specific.
2.3 How is each data type visually encoded (marks/channels)?
2.4 Can you read the data precisely? Is the visual encoding appropriately chosen?
Hint: how would this work without numeric labels?

2.5 Develop two alternative designs to visualize this data. You're welcome to discuss this question with your peers, but you should sketch your own two solutions. Indicate which design you think is better, and briefly provide your rationale.

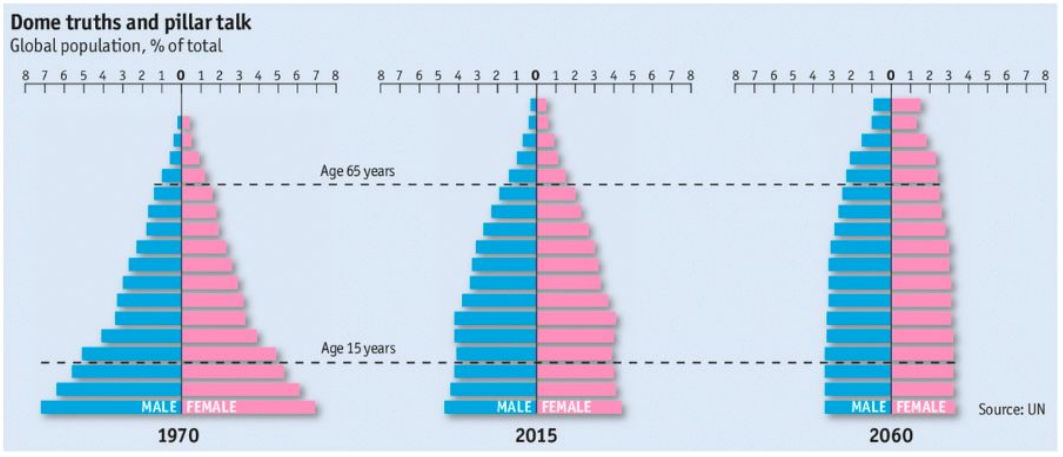
3 Bar Chart Types (40%)

For the Programming Assignment 2, you need to implement an interactive visualization in D3 that lets users choose between different chart types interactively: **pyramid chart**, **grouped bar chart**, and **stacked bar chart**.

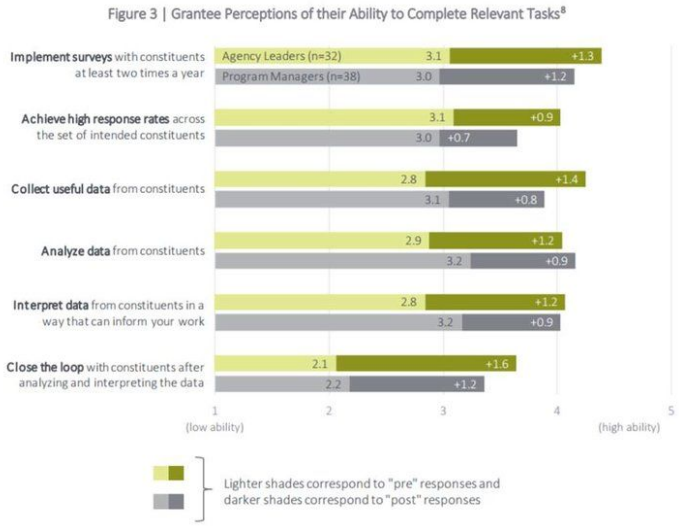


Examples:

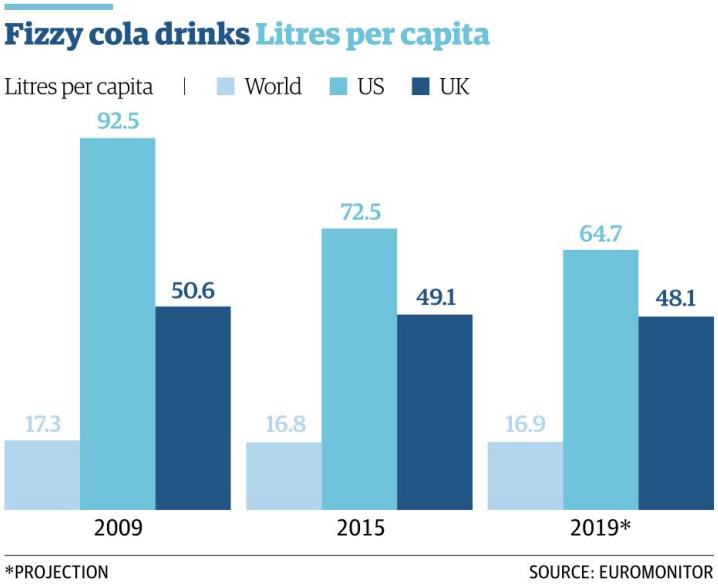
- Pyramid: https://www.economist.com/news/2014/11/13/the-world-reshaped



- Use cases for stacked bars (including examples of when not to use): http://www.storytellingwithdata.com/blog/2017/11/22/use-cases-for-stacked-bars



- Grouped bars examples: https://datavizproject.com/data-type/grouped-bar-chart/



Discuss the advantages and disadvantages of each chart type in terms of

- 3.1 Tasks
- 3.2 Supported data sources
- 3.3 Scalability (in terms of both items, and number of levels for attributes)
- 3.4 Readability (according to perceptual criteria, such as marks/channels analysis)