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Data Visualization and Data Science Assignment Report

Part I Q&A

● Picking apart a visual

➢ What is the intended message?

Generally, the picture shows us the most 20 generous countries around the world with some related information about different countries in separated descriptions.

➢ What are the dimensions displayed?

Countries	Money donations	Volunteering	Helping strangers	Top10	Top9	Asian countries	Affluent countries
Australia	76	36	67	1	1	0	1
Canada	64	42	67	1	1	0	1
Ireland	79	37	66	1	1	0	0
New Zealand	66	38	68	1	1	0	0
Netherlands	73	34	51	1	1	0	1
US	57	42	71	1	1	0	1
Indonesia	71	41	43	1	1	1	1
UK	72	26	56	1	1	0	1
Iran	51	24	70	1	1	1	0
Paraguay	48	42	71	1	0	0	0
Denmark	70	23	54	0	0	0	0
Liberia	12	53	81	0	0	0	0
Turkmenistan	30	58	56	0	0	1	0
Sri Lanka	42	43	55	0	0	1	0
Qatar	53	17	71	0	0	1	0
Finland	50	27	57	0	0	0	0
Philippines	32	44	58	0	0	1	0
T & T	44	30	62	0	0	0	0
HK	64	13	56	0	0	1	0
Oman	39	22	72	0	0	1	0

From the restoration of primary original data, we can see that 'Money donations', 'Volunteering' and 'Helping strangers' are **numerical dimensions**. 'Countries' can be assumed as **geo-spatial dimension** to some extent, mostly it also makes sense if one classify it into the **categorical dimension**. The other four are obviously the **categorical dimensions** with dummy variables.

➢ What are the marks used?

Rectangular pyramids: used to represent the data of Money donations, Volunteering and Helping strangers. **Cuboids**: used to represent the countries. **Triangles:** used to represent the average participation in giving. (From small additional chart.)

Rectangles on different faces of cuboid: used to denote some properties of each country.

➢ What are the channels used?

Color hue: used to separate different kinds of charity behavior, label the specific

country (Asian/Affluent…), distinguish two years (2007 and 2011)

Texture pattern: used to differentiate the Top 10 and Top 9 countries from others

Height/Volume: used to compare the size of data (pyramids), the rank of countries (cubes) **Area of the shape**: used to indicate the different percentage of participating in charity behavior directly through the vision

- Critique itself
➢ What is good/bad?

Pros: Use limited space to convey rich enough information to the audience. The color is bright and easy to distinguish, and there're many novel forms of expressions.

Cons: The composition of the whole graph is too messy, the audience are not able to get the key point from it directly. We can't know the exact principle of sorting, either. The comparison of numerical dimensions between different countries is not obvious. Some patterns, to be specific, like texture patterns of top 10 and top 9 are hard to perceive, adopting contrast color will be much better…

➢ How could message be made stronger?

In order to highlight the rank (top 20), the permutation of countries should be put into order in good way (although we don't know the calculation and weighing method), and the whole page needs to be simplified.

➢ Which additional dimensions would be helpful to add?

There's enough necessary information in the graph. If possible, calculating the GDP per head to decide which countries are affluent instead of total amount will be a helpful extra dimension.

Part II Improved Image