Information Visualization

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time allowed: **2h**
no document allowed except a sheet of paper with hand-written notes.

instructions:
Please answer all the questions. If there is any ambiguity in the questions, explain your hypotheses.

Question 1 (5pts)
Given a set of graphical marks, their **positions**, **sizes**, **shapes**, **values** (from light to dark), and **colors** (hue) are among the visual variables available to encode information according to Bertin. Explain the kinds of judgments that can be made when different levels are present for each of those variables.

Question 2 (4pts)
Image 1 (below) from the TWO-N data visualisation agency, shows data from the World Economic Forum that "quantifies the magnitude of gender disparities and tracks their progress over time, with a specific focus on the relative gaps between women and men across four key areas: health, education, economy and politics." The data shown on the figure is the composite Gender Gap Index where "a score of 100% (right side of the chart) denotes true gender equality".
a) Give the visual mapping for this chart using Card et al. taxonomy.
b) Explain why this encoding is good/bad according to Bertin's criterions.

Question 3 (6pts)
Image 2 (below) shows the evolution of the rankings of the UK "premier league" male football championship during the 2012-2013 season.
a) List the attributes of the data shown by the graph, and give for each of them its type and the graphical variable used for its encoding.
b) Explain why this encoding is good/bad according to Bertin's criterions.

By clicking on the legend, it is possible to show/hide teams.
c) Which step of the Information Visualisation Pipeline is affected by this interaction?
d) Which problem of the encoding is mitigated by this interaction?

Question 4 (5pts)
You are given a data set with passengers of the last titanic trip as rows, and their **name**, **sex**, **age**, **passenger's class** (1st, 2nd, 3rd and crew), **fare**, and wether they **survived or not** as columns.
a) For each data attribute give its data type (nominal, ordered, interval or ratio).
b) Following Bertin's principles, what would be the best way to presente this data set on a single visualisation? (justify your design)

Image 1

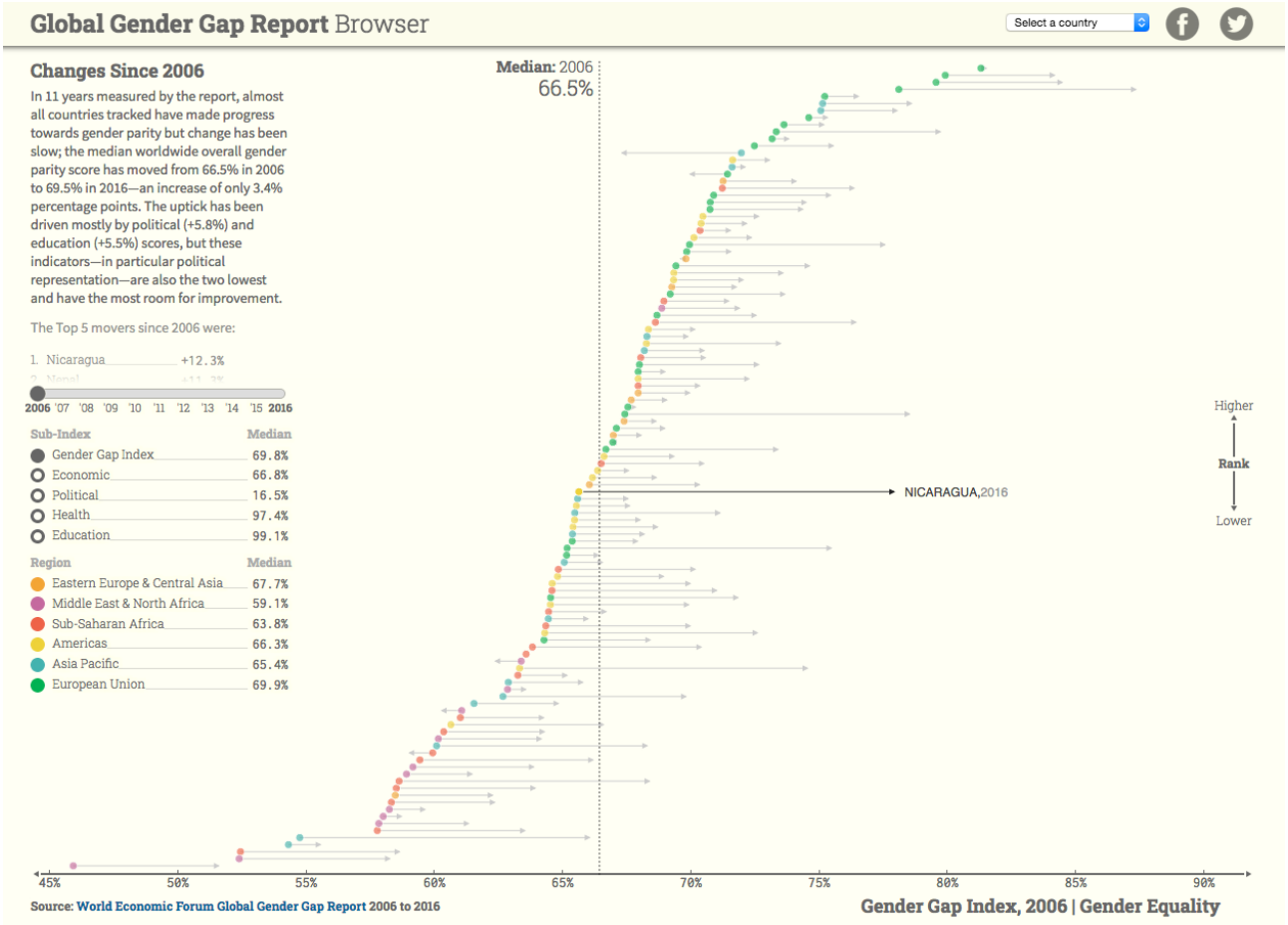

Image 2