ECS 163 HW #5
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- For this assignment, I chose to use a scatter plot and a bar chart for visualizing country data. I only used the data filtered on Asia countries, which includes their region, net area, population, population density and GDP information.

  I first plot a scatter plot to show the relationships between area and population for each Asia country, because scatter plot is great to show the spread of countries in the 2D visualization. Then, a bar chart is used to show GDP values for those countries, excluding countries with unknown GDP data. Using a bar chart helps users to visualize the GDP differences as well as value peaks among countries.

- In the scatter plot, I used points as marks and position, size, and color as channels.
  In the bar chart, I used line as marks and color and size as channels.

- I implemented a tooltip interaction for my visualizations, which involves mouseover and mouseout. In each visualization, whenever a user moves the mouse around, touching a certain mark will show a tooltip which gives the according data value of that mark.

  For example, in the scatter plot, pointing at each point will show a yellow-green box with country name, area per square mile, population and population density values shown; in the bar chart, pointing at each bar will show a yellow-green box with country name and GDP in dollars for per capita value shown.

  Moreover, I made a linked interaction between two visualizations. When pointing at a bar in the bar chart, the point in the scatter plot representing the same country will become larger and have its color changed to light grey.

  This interaction creates two advantages for this specific sub-dataset. First, users can obtain the rough area vs population relationship among all Asia countries from the scatter plot while reading the GDP data in the bar chart. Second, after exploring all countries' GDP values in the bar chart, the scatter plot will become mostly "light grey", leaving some points' color unchanged which means that these countries have unknown GDP data in our dataset. And users can just look into each of these points to obtain these country names.

- For each plot, I use two colors to distinguish Asia countries except near east and Asia countries of near east, so it is easy and convenient for user to approximately see which group of countries does better in certain aspect. The two colors I used in both my visualizations are distinguishable and the reason I chose them is also because of their contraction.

  I also use yellow-green for the tooltip box background and black for words in it. This choice is also objectively correct because it is a contrast color hue with the two colors in points and bars. It

is great for emphasis. Also, light grey is used to mark that a point in scatter plot is discovered while pointing to a bar in the bar chart. This choice shows that the unique color change in each pointing.