**Honeybees and Neonic Pesticides – Data Visualization Mini Project**

For my mini project I decided to analyze bee data which I found on Kaggle (<https://www.kaggle.com/kevinzmith/honey-with-neonic-pesticide>) that has honey production in the USA combined with the USGS’s Pesticide National Synthesis Project. For my 3 graphs I decided to show the best graphs I made. The first graph shots the total US honey production for 1998 through 2017. I made sure to follow Tufte’s principles as well as Berinato’s and Kosslyn’s to the best of my ability. I made sure to follow Kosslyn’s principles especially the principle of informative changes and capacity limitations. The graph can be very overwhelming with 50 states of data on one chart, so I made sure to point out some important numbers like North Dakota having 658 Million Pounds of Honey produced, and the next highest being California at 404 Million Pounds of Honey. For my second chart I normalized my data over the years and created a US heat map. I followed Berinato’s Principle number 4 that we seek and make connections, and reliance on conventions and metaphors. I use “honey” colors to symbolize more honey productions, and a blueish color to symbolize a much smaller amount. The colors sit well with each other and make clear that the states with more yellow produce more honey on average. I made sure to note in my graph that the data was normalized, and I did not try to include too much information like state labels, since that would severely clutter my image. For my third and final image I created another heat map with my normalized data, this time symbolizing neonic pesticide usage in each state. The more orange a state is, the more pesticide is used, and the bluer the state is the less pesticide used. When you put these two images side by side, (my bonus image), you see that the states that had high neonic pesticide usage produce vastly less honey than those who do not!

