



Free Training Transcript:
Density mark (heatmaps)

Welcome to this video on heatmaps in Tableau Desktop. You can download the exercise workbook to follow along in your own copy of Tableau.

Heatmaps are a fast and easy way to visualize patterns in dense data. Heatmaps use the density mark type, which can be used on both maps and non-maps. Let's see how this works in Tableau.

Density mark on Map

Here, we're looking at data on over 300k taxi pickups for the month of October, in Manhattan. This map shows every single taxi pickup instance, represented by each mark. Notice that the default mark type being used here is the "Automatic" mark type. We can see that the majority of the marks seem to be clustered here in mid to lower Manhattan, with fewer rides up north. But it's difficult to understand which specific locations have greater or fewer numbers of data points, since there are so many overlapping marks.

Heatmaps make it easy to see these concentrations in your data. All we need to do is change the mark type from "Automatic" to "Density". And just like that, we have a heatmap. Tableau does this by grouping overlaying marks, and color-coding them based on the number of marks in a group.

Now we can instantly see concentration areas where more taxi pickups occurred.

I can choose a color palette that is designed specifically for displaying density, or I can choose one of the existing palettes. The more overlapping data points, the more intense the color is. Note that I do not have the normal option to edit the individual colors in the palette. Custom color palettes, however, can still be used.

I also have the ability to adjust the Opacity and Intensity of the marks, with Intensity allowing me to show more or fewer "hot spots" in the data. And I have the ability to adjust the size of the density marks as well.

Notice that there is no color legend for heatmaps. The palettes are designed intuitively to show relative densities, with more concentrated areas appearing brighter and more intense, and relatively less concentrated areas being less intense.

Density is also dynamically displayed, so when I zoom in, Tableau will recompute to show the relative density for the new view.

Finally, I have the option to add weight to the Density, meaning that I can define how the density is being computed. For example, right now the hotspots in our heatmap are showing high concentrations of the count of taxi rides. Let's see what happens when we weigh the density by Toll Amount. The hotspots now show where trips with higher tolls originated. Note that only Measures can affect the weighting of density.

Density mark on Scatterplot

This mark type isn't just limited to maps. As we've seen, density can be applied to any chart type with a large number of overlapping marks, such as dot plots or paths between origin and destination. A common use case however, is on a scatterplot

This scatterplot shows a common Sales vs. Profit scenario, and it is dense data with many overlapping marks. In the same way as before, we can change this to a heatmap by simply changing the mark type to Density.

Notice that when I hover, I can still interact with the underlying marks to view the tooltip detail, and I can select those marks and interact with them as I normally would.

Change over time

One powerful application is combining density with a date filter to see changes in density over time. Going back to our taxi data, I'll bring Pickup Date to the Pages shelf, and now as we step through the pages, we can visualize and compare patterns in taxi pickups by hour.

Conclusion

Thank you for watching this video on heatmaps. We invite you to continue with the Free Training videos to learn more about using Tableau.