

## Demo: Creating Heat Maps

In this video, we show how to create heat maps using the Mobile Cellular data.

This is data about mobile cell phone subscriptions per 100 people, from 1990 to 2017.

The data set includes information on 217 countries grouped into seven regions and four income groups. In a heat map, the values are represented as colors.

We are interested in exploring the increase in mobile cellular subscriptions over time, across the different regions and countries.

To create a heat map, we use Graph Builder from the Graph menu. First, we create a heat map for Region over time. We drag Region to the Y zone, drag Year to the X zone, and drag Mobile (per 100) to the Color zone. Then we click the heatmap icon.

There is a lot of information in this one graph. The mobile phone subscriptions, per year and region, are represented as colored rectangles.

You can see that some regions had an increase in mobile phone subscriptions much earlier than others.

For example, North America started to see an increase in the early 1990s.

Heat maps are particularly useful when you have many categories or levels. For example, we might want to look at the different countries.

When we put Country in the Y zone instead of Region, you can see that the graph is not very informative. There are too many countries to learn much from this graph.

To look at the heat map by country, we add a local data filter. We select Local Data Filter from the top red triangle, and select Region as the filter variable.

When we select a region in the data filter, the heat map shows only this region.

One thing we learn is that, in many countries, there is no data about cell phone subscriptions until the mid- to late-1990s. Cells with missing data are not colored. We also see that, within a region, some countries have far more cell phones than others.

By default, JMP uses a blue to gray to red diverging color theme. We'll change this to a sequential color theme to make it easier to interpret the colors without referring to the scale.

To do this, we right-click the legend next to the graph and select Gradient. Here, we select a white to orange color theme.

Notice that there are many other customizations available. We'll use the other default settings and click OK.

Now, it's a little easier to see when countries first started to have an increase in mobile phone subscriptions. It's also easier to compare the different countries within a region.

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