Market Leaders

Mark Smiley

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Introduction

This file shows some examples of treemaps. Treemaps are a modern way of displaying something like a pie chart. But unlike pie charts, treemaps also allow 3 variables (columns of data) to be displayed in one graph.

Market Leaders

The data comes from a bar chart on this page: Big Data Database Revenue and Market Forecast 2012-2017.

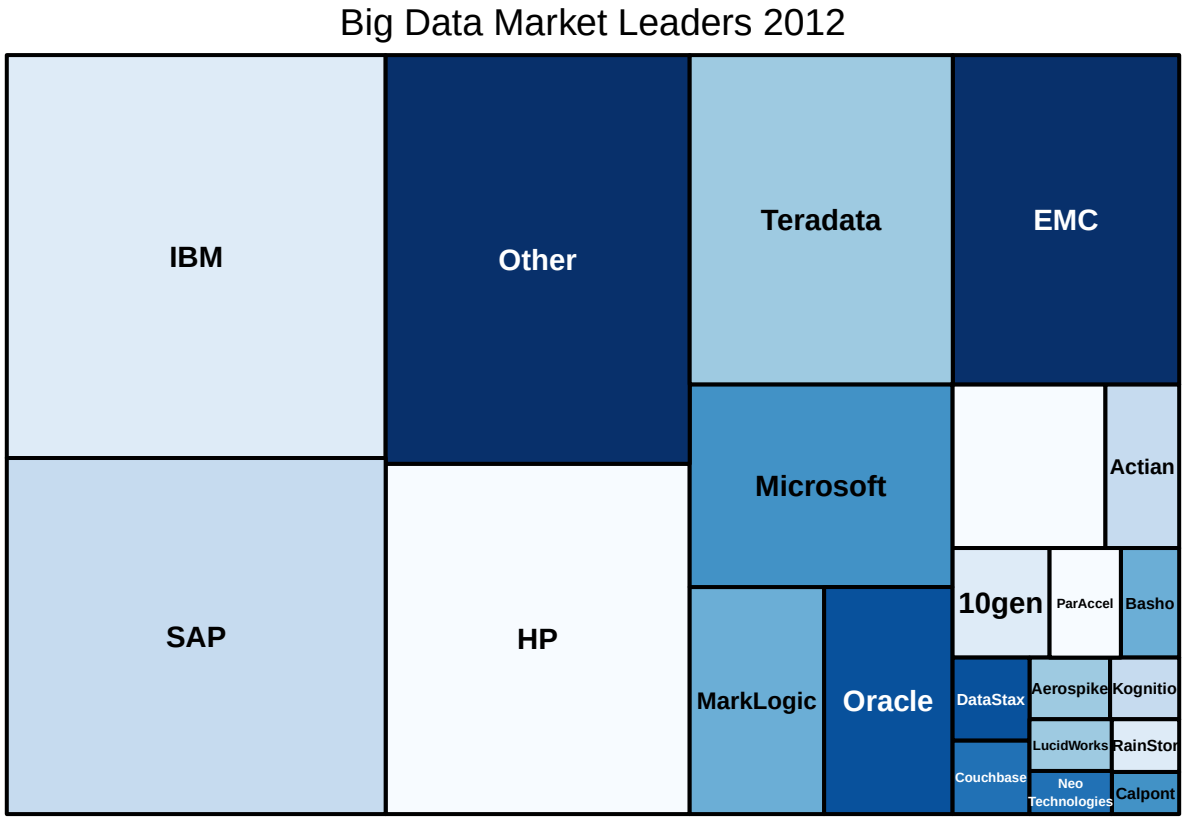
```
leaders <- read.csv("market.csv", stringsAsFactors = FALSE)
head(leaders)
```

Name	Value
IBM	215
SAP	190
HP	150
Teradata	122
EMC	105
Microsoft	75

TreeMap

This is an example using the `treemap` package.

```
treemap(leaders, #Your data frame object
        index=c("Name"),  #A list of your categorical variables
        vSize = "Value",  #This is your quantitative variable
        type="index", #Type sets the organization and color scheme of your treemap
        palette = "Blues",  #Select your color palette from the RColorBrewer presets or make your own.
        title="Big Data Market Leaders 2012", #Customize your title
        fontsize.title = 14 #Change the font size of the title
        )
```

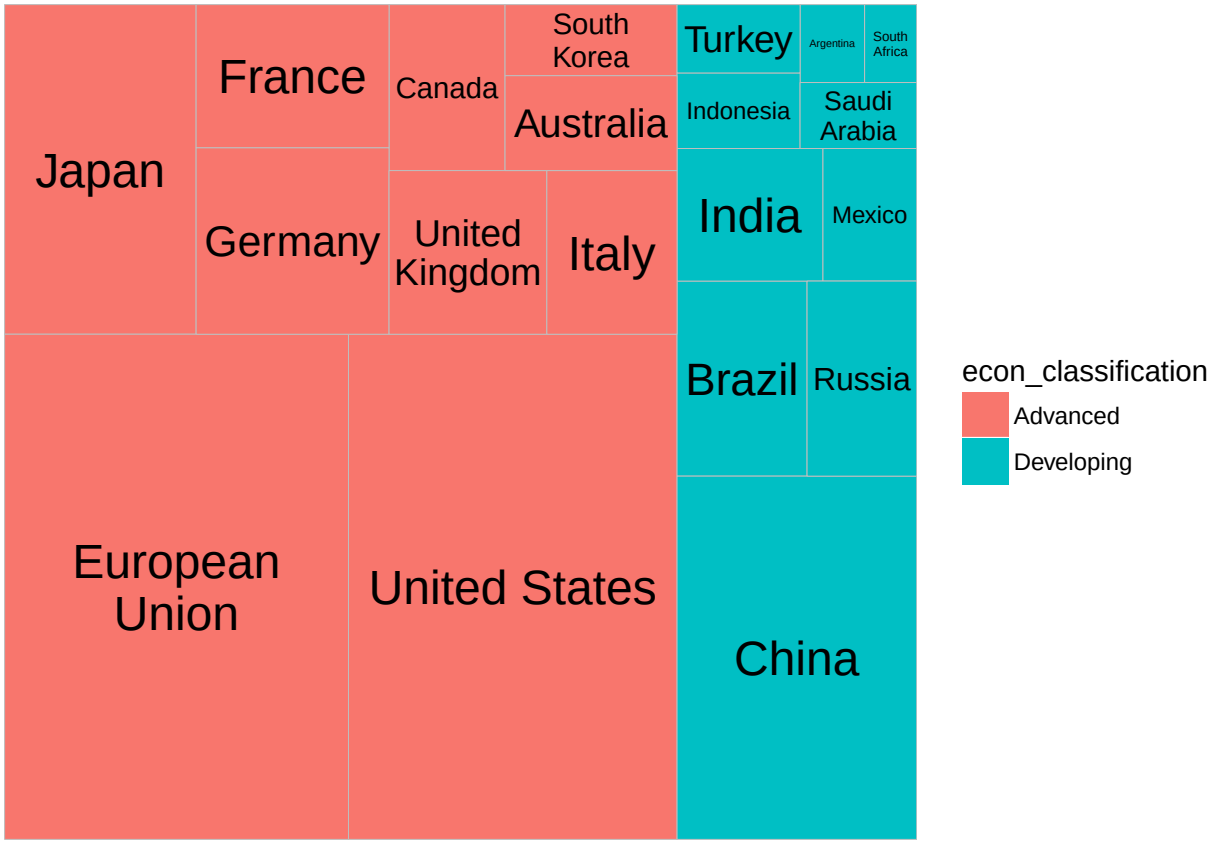


Treemapify

Treemapify works with ggplot, so it is preferable and is used in the remainder of this document.

The next treemap uses the G20 dataset.

```
ggplot(G20, aes(area = gdp_mil_usd,
                fill = econ_classification,
                label = country,
                subgroup = econ_classification)) +
  geom_treemap() +
  geom_treemap_text(place = "center", reflow = TRUE)
```



The SetTextContrastColor function comes from Chart of R Colors. Sets a reasonable contrast color for text on the given background color.

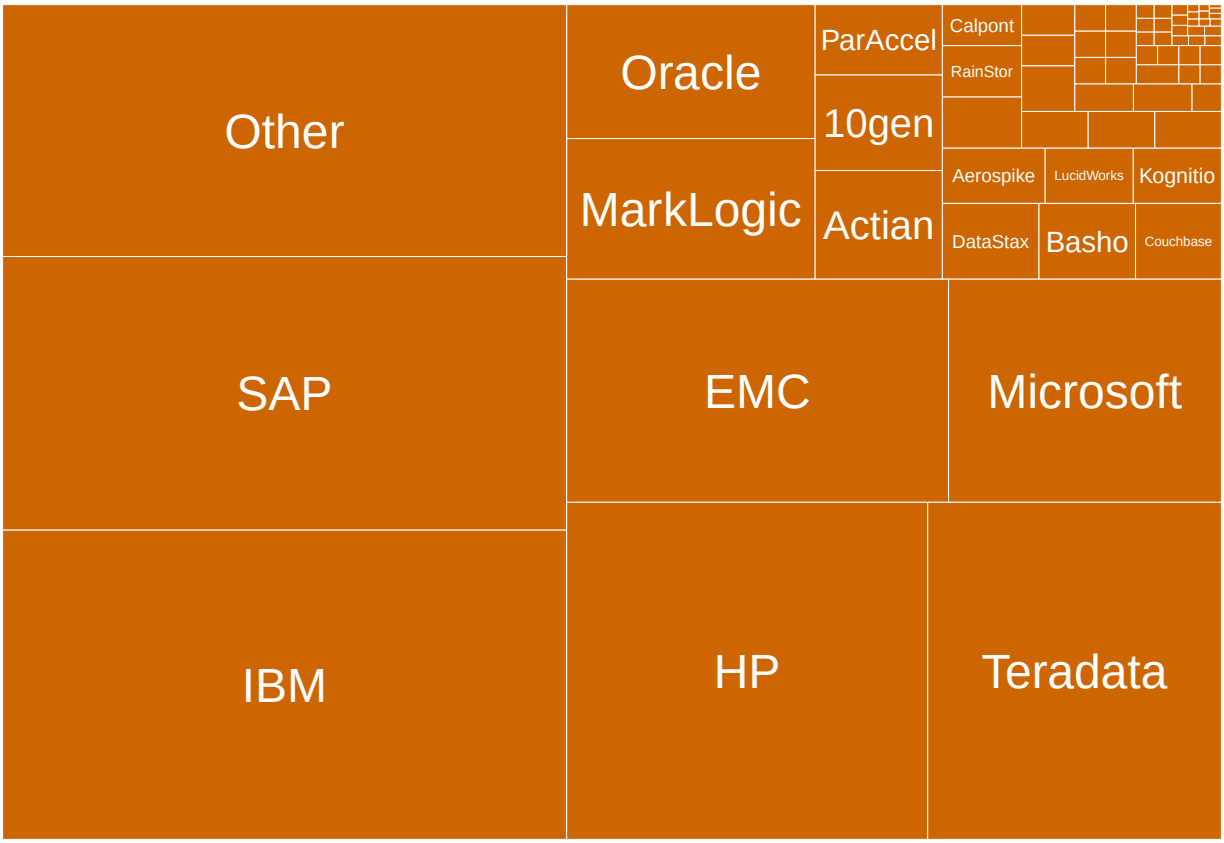
```
# Function to set the text to a color that contrasts with the tile's background
SetTextContrastColor <- function(color)
{
  ifelse( mean(col2rgb(color)) > 127, "black", "white")
}

# Alternate colors
gOrange   <- rgb(255, 150, 52, maxColorValue=255)
gTan      <- rgb(226, 216, 169, maxColorValue=255)
gBlueGray <- rgb(128, 143, 179, maxColorValue=255)
gDarkBlue <- rgb( 63, 106, 163, maxColorValue=255)
```

Here is a treemap using two data columns.

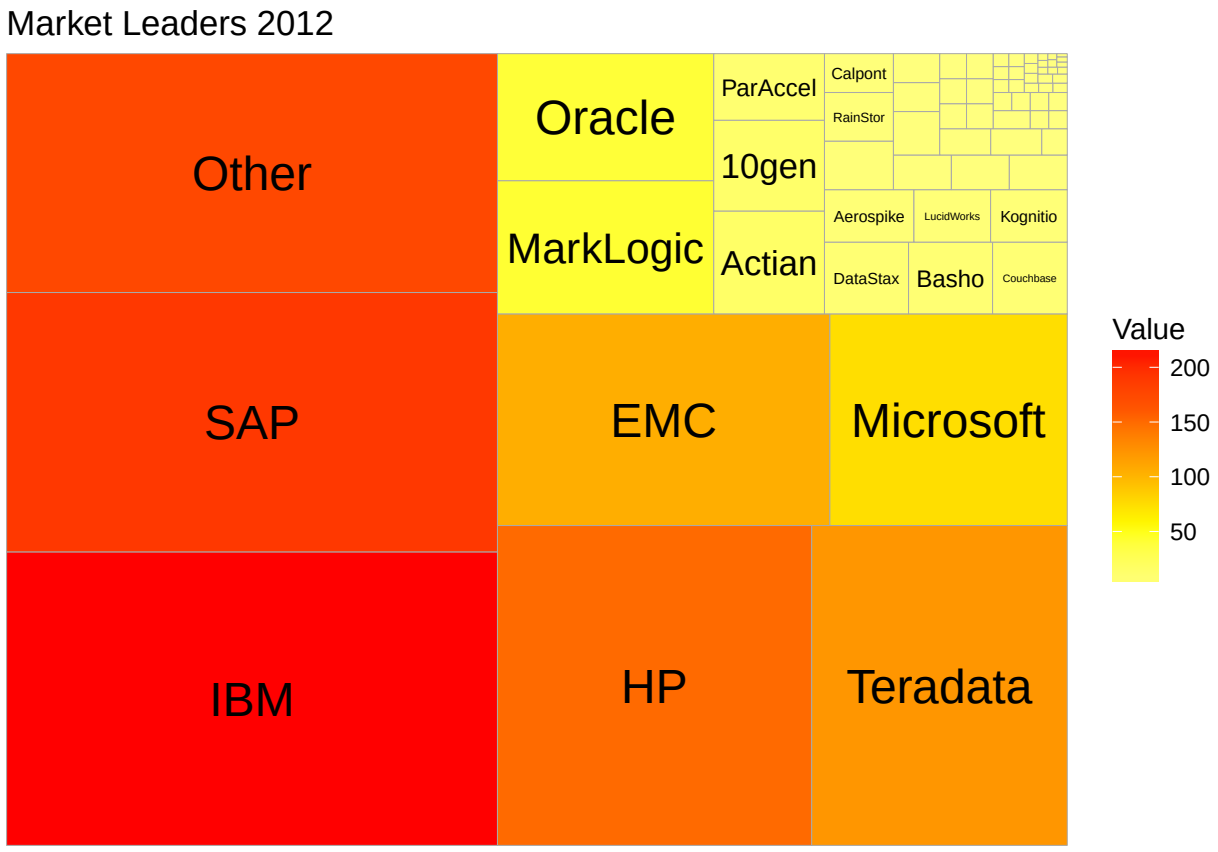
```
tile_color <- "darkorange3"
# tile_color <- gOrange
# tile_color <- gDarkBlue

ggplot(leaders,
       ggplot2::aes(area = Value,
                    label = Name)) +
  geom_treemap(fill = tile_color, col="white") +
  geom_treemap_text(col = SetTextContrastColor(tile_color), place = "centre")
```



We can color tiles based on their value.

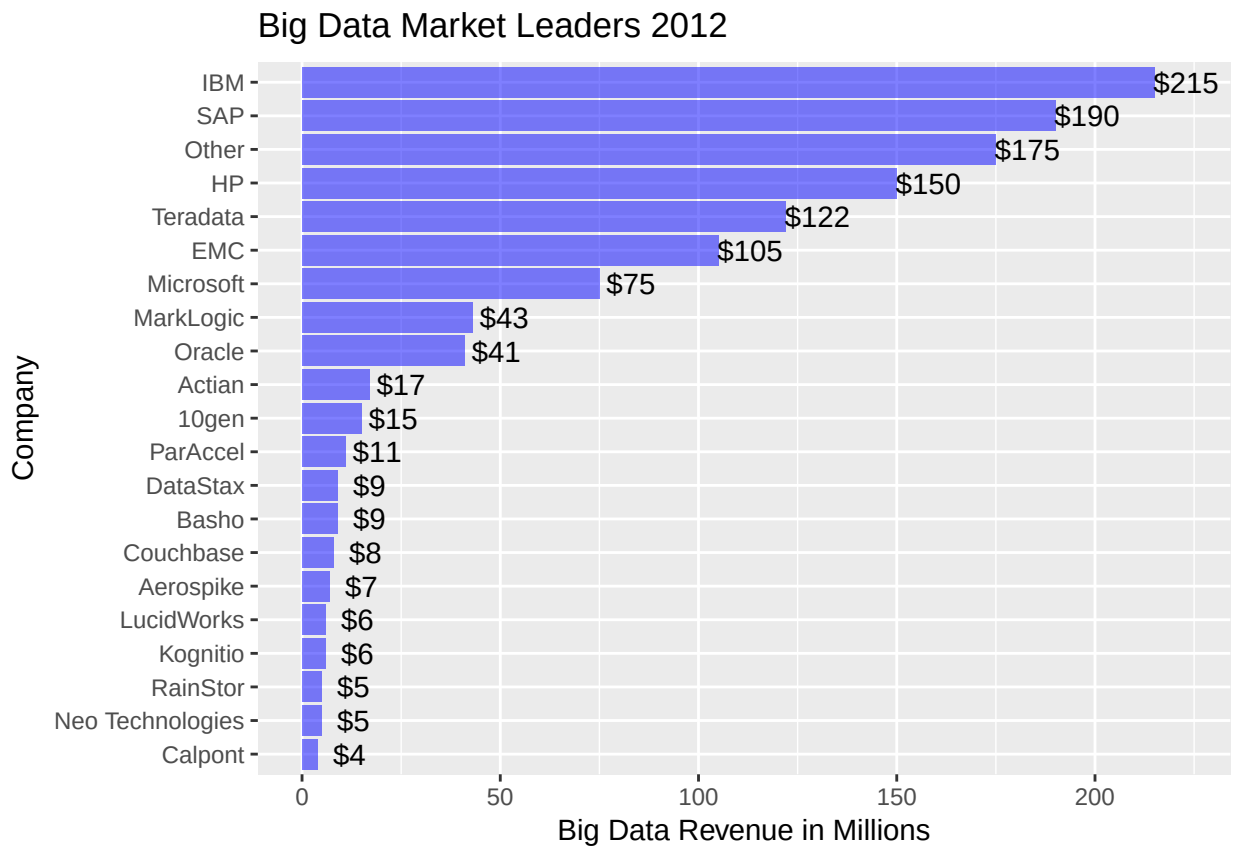
```
ggplot(leaders,
       aes(area = Value, label = Name)) +
  scale_fill_gradientn(colors = rev(heat.colors(5))) +
  geom_treemap(aes(fill = Value), col = 'darkgray') +
  geom_treemap_text(col = "black", place = "center") +
  ggtitle(label = "Market Leaders 2012")
```



Bar Chart

Next consider a bar chart, sorted by value and filtering out small values.

```
leaders %>%
  filter(Value >= 4) %>%
  ggplot(aes(y=Value, x=reorder(Name, Value))) +
  geom_col(fill="blue", alpha=.5)+
  coord_flip() +
  geom_text(aes(label=paste("$", Value, sep="")), position = position_nudge(y=8)) +
  labs(x="Company", y="Big Data Revenue in Millions", title = "Big Data Market Leaders 2012")
```

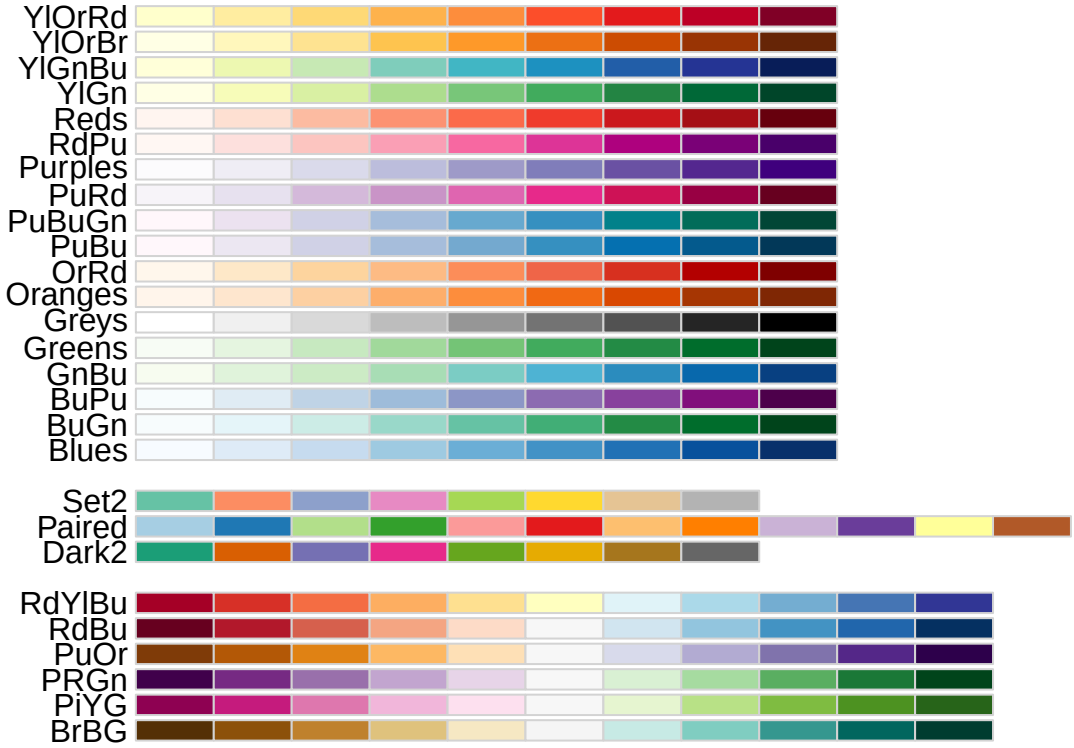


Palettes

Color Blind Palettes

These palettes create sets of colors that color blind people can distinguish, and so they are to be preferred.

```
display.brewer.all(
  n = NULL,
  type = "all",
  select = NULL,
  exact.n = FALSE,
  colorblindFriendly = TRUE
)
```



Modifying palettes

This adds a grey color to an existing palette, to make South America stand out in the next treemap.

```
yellow_red_pal <- brewer.pal(7,"YlOrRd")
format.hexmode(127)
```

```
## [1] "7f"
```

```
format.hexmode(128+64-1)
```

```
## [1] "bf"
```

```
g20pal <- c(yellow_red_pal, "#BFBFBF")
g20pal
```

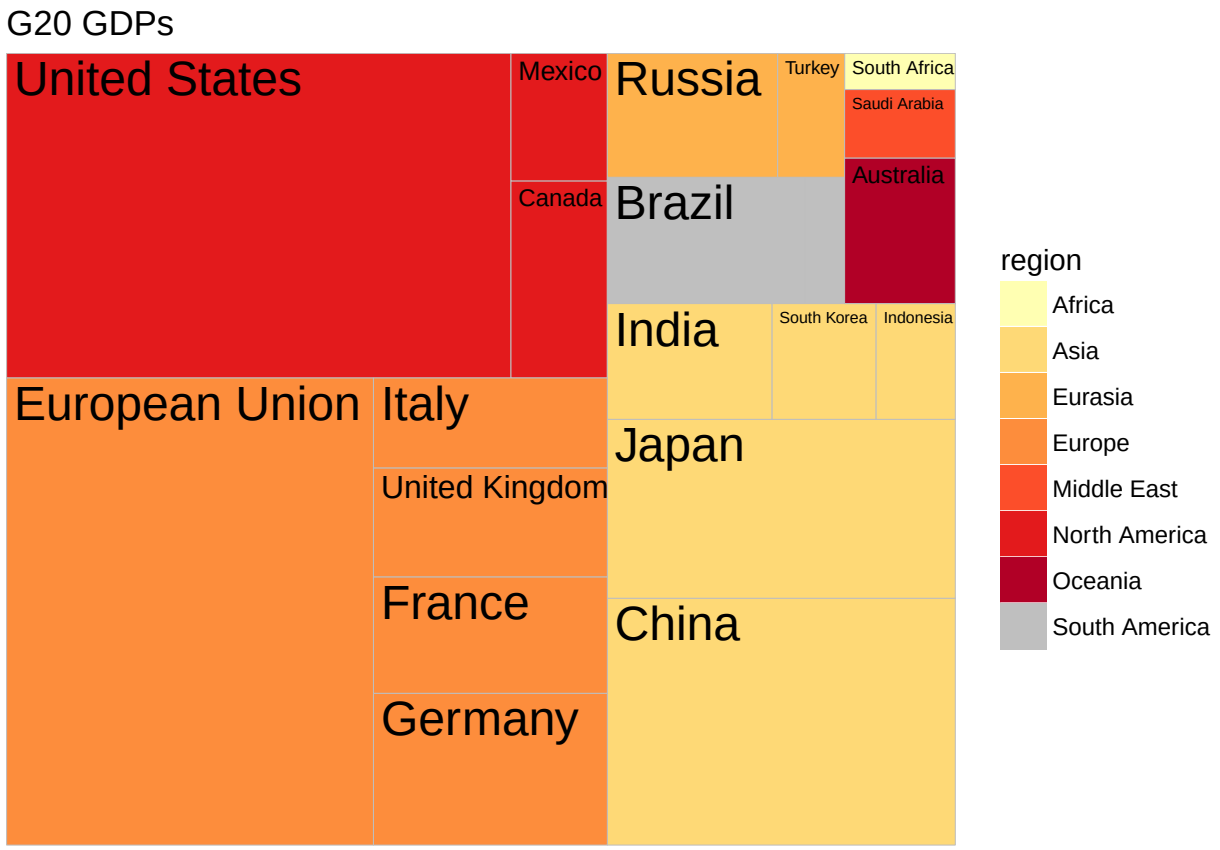
```
## [1] "#FFFFB2" "#FED976" "#FEB24C" "#FD8D3C" "#FC4E2A" "#E31A1C" "#B10026"
## [8] "#BFBFBF"
```

G20 GDP

These treemaps have subgroups. This allows display of another variable (data column), this case, the region.

Here is a treemap using the new palette.

```
ggplot(G20,
       aes(area = gdp_mil_usd,
           fill = region,
           label = country,
           subgroup = region)) +
  scale_fill_manual(values = g20pal) +
  geom_treemap() +
  geom_treemap_text() +
  labs(title = "G20 GDPs")
```



Here is one with a nice palette.

```
ggplot(G20,
       aes(area = gdp_mil_usd,
           fill = region,
           label = country,
           subgroup = region)) +
  scale_fill_brewer(palette = "Paired") +
  geom_treemap(col = "black") +
  geom_treemap_text(place = "center", reflow = TRUE, fontface = 'bold') +
  geom_treemap_subgroup_border(col = "white", size = 2) +
  geom_treemap_subgroup_text(place = "bottom", col = "white", alpha = .8,
```

```
                          size = 16, fontface = 'bold', reflow = T) +
labs(title = "G20 GDPs")
```