REVOLUTION ANALYTICS

Modifying Layout with grid

Revolution Analytics

1 Layout with grid

Loading Data

```
dataPath <- "../data"
rdataFile <- file.path(dataPath, "airline.RData")
load(rdataFile, verbose = TRUE)
```

```
## Loading objects:
##   airline
```

```
library(png)
library(ggplot2)
library(gridExtra)
```

Outline

Introducing the `grid` package

- a low-level graphics system
- provides a great deal of control and flexibility in the appearance and arrangement of graphical output.
- an attempt to provide users with a developer's view of statistical graphics

Paul Murrel: grid package author

Using the `grid` package

```
vignette("grid")
```

www.stat.auckland.ac.nz/~paul/Talks/grid.pdf
www.amstat.org/publications/jse/v18n3/zhou.pdf

Dividing the plot grid

We've seen `grid` in action already – when?

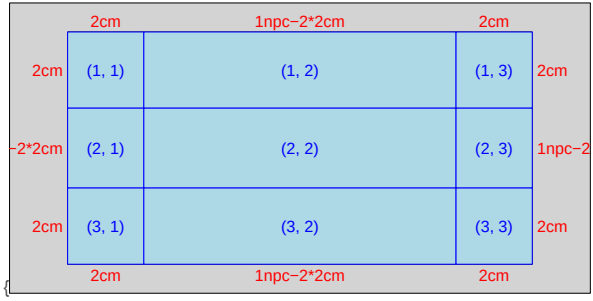
Now we'll use `grid` to position a logo beside our plot, instead of having the logo in the background of our plot as in the previous examples.

Note: `npc` refers to Normalised Parent Coordinates. The origin of the viewport is (0, 0) and the viewport has a width and height of 1 unit. (0.5, 0.5) is the centre of the viewport.

```
# Set up the layout for grid
lo = grid.layout(nrow = 3, ncol = 3, widths = unit.c(unit(2, "cm"),
  unit(1, "npc") - 2 * unit(2, "cm"), unit(2, "cm")), heights = unit.c(unit(2,
  "cm"), unit(1, "npc") - 2 * unit(2, "cm"), unit(2, "cm")))
```

Dividing the plot grid

```
# Show the layout
grid.show.layout(lo)
```




```
}
```

Adding an image to the grid

```
# Reads an image from a PNG file/content into a raster array. &
# Render a raster object (bitmap image) at the given location,
# size, and orientation.
Lg <- rasterGrob(readPNG(file.path(dataPath, "RA_LOGO_LG.png"), FALSE))
Sm <- rasterGrob(readPNG(file.path(dataPath, "RA_ICON.png"), FALSE))

# Get the graph
p <- ggplot(airline, aes(departure.time/100, color = carrier)) + xlab("Departure Time") +
  ylab("Density") + ggtitle("Density") + geom_density(na.rm = TRUE)
```

Adding an image to the grid

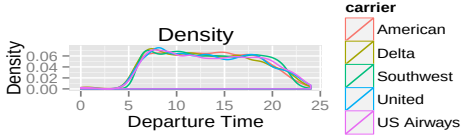
```
# Position the elements within the viewports
grid.newpage()
pushViewport(viewport(layout = lo))

# The Logo (Upper left corner)
pushViewport(viewport(layout.pos.row = 1, layout.pos.col = 1))
print(grid.draw(Sm), newpage = FALSE)
popViewport()

# The Plot (Center)
pushViewport(viewport(layout.pos.row = 2, layout.pos.col = 2))
print(p, newpage = FALSE)
popViewport()

# The Banner (Bottom center)
pushViewport(viewport(layout.pos.row = 3, layout.pos.col = 2))
print(grid.draw(Lg), newpage = FALSE)
popViewport()
```

See it!


Density
Density
0.06
0.04
0.02
0.00
0
5
10
15
20
25
Departure Time
carrier
American
Delta
Southwest
United
US Airways

{

}

Exercise

Can you add the small ℝ Logo to all of the corners in the grid layout?

Summary

You can use `grid` options and functions to modify the layout of graphics devices. It provides a low-level interface for modifying your layout.

Quesions?

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Thank you

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