Main features of ggplot2

- Create graphics using `qplot` or `ggplot`
- Add layers to an existing plot using "+"
- Change aesthetics by variables in the data
- Control the type of plot using `geoms`
- Panel by variables using the `facet_*` functions

Tube Data with ggplot2

```
library(ggplot2)
qplot(Month, Excess, data = tubeData) +
   geom_smooth(method = "lm",
     col = "red") +
  facet_wrap(~Line) +
  theme_bw()
```

The geoms

ggplot2 includes a variety of geoms for controlling the type of plot we create

```
> grep("^geom", objects("package:ggplot2"), value = TRUE)
 [1] "geom_abline"     "geom_area"       "geom_bar"        "geom_bin2d"
 [5] "geom_blank"      "geom_boxplot"    "geom_contour"    geom_crossbar"
 [9] "geom_density"    "geom_density2d"  "geom_dotplot"    "geom_errorbar"
[13] "geom_errorbarh"  "geom_freqpoly"   "geom_hex"        "geom_histogram"
[17] "geom_hline"      "geom_jitter"     "geom_line"       "geom_linerange"
[21] "geom_map"        "geom_path"       "geom_point"      "geom_pointrange"
[25] "geom_polygon"    "geom_quantile"   "geom_raster"     "geom_rect"
[29] "geom_ribbon"     "geom_rug"        "geom_segment"    "geom_smooth"
[33] "geom_step"       "geom_text"       "geom_tile"       "geom_violin"
[37] "geom_vline"
```

Facetting

- We can panel graphics based on variables in the data using facets
- `facet_wrap` and `facet_grid` add panels as layers

Scales and Themes

- ggplot2 provides a large number of scale functions to control aspects of a graphic including axes and legends
- theme functions allow us to control the overall style of the graphic