{is this footnotesize?}

Base R plot() examples

- Ref:https://dcgerard.github.io/stat234/base_r_cheatsheet.html
- https://rdrr.io/r/
- ALT-F4 to close popup windows
- `graphics device` refers to lower-level (dots, line, text)
- `graphics engine` refers to higher level (draw rectangles, polygons, center
- `cairo` - type of system? …)
- cex (point size)
- pch (point shape)
- col (color)
- lty (line type)

Capabilities vary with R build

```
as.data.frame(capabilities())
  ##             capabilities()
  ## jpeg                  TRUE
  ## png                   TRUE
  ## tiff                  TRUE
  ## tcltk                 TRUE
  ## X11                   TRUE
  ## aqua                 FALSE
  ## http/ftp              TRUE
  ## sockets               TRUE
  ## libxml               FALSE
  ## fifo                  TRUE
  ## cledit               FALSE
  ## iconv                 TRUE
  ## NLS                   TRUE
  ## Rprof                 TRUE
  ## profmem               TRUE
  ## cairo                 TRUE
  ## ICU                   TRUE
  ## long.double           TRUE
  ## libcurl               TRUE
```

control devices

https://rdrr.io/r/grDevices/dev.html ::: {.cell}

```
##  if 1, then null device
    dev.cur()
      ## pdf
      ##   2
    dev.list()
      ## pdf
      ##   2

##   error if only null device
    if (dev.cur() != 1) dev.off()
      ## null device
      ##           1

##  create several devices

    pdf()
    png()
    # only this pops up a window
    if (F) x11()

    dev.list()
      ## pdf png
      ##   2   3
    .Devices        # if device removed, its entry appears empty here
      ## [[1]]
```

```
      ## [1] "null device"
      ##
      ## [[2]]
      ## [1] "pdf"
      ## attr(,"filepath")
      ## [1] "Rplots.pdf"
      ##
      ## [[3]]
      ## [1] "png"
      ## attr(,"filepath")
      ## [1] "Rplot%03d.png"

## finally, close active device
    dev.off()
      ## pdf
      ##   2
    dev.list()
      ## pdf
      ##   2

##  shut down ALL devices
    graphics.off()
    dev.list()
      ## NULL
    unlist(.Devices)
      ## [1] "null device" ""            ""


##
##  if null, this CREATES new device
#   getOption("device")
```

:::

in X11

```
##  reset & get list of curent options
    as.data.frame(unlist(X11.options(reset=T)))
      ##                            unlist(X11.options(reset = T))
      ## display
      ## width                                                <NA>
      ## height                                               <NA>
      ## pointsize                                              12
      ## bg                                            transparent
      ## canvas                                              white
      ## gamma                                                   1
      ## colortype                                            true
      ## maxcubesize                                           256
      ## fonts1       -adobe-helvetica-%s-%s-*-*-%d-*-*-*-*-*-*-*
      ## fonts2       -adobe-symbol-medium-r-*-*-%d-*-*-*-*-*-*-*
      ## family                                               sans
      ## symbolfamily                                      default
      ## xpos                                                 <NA>
      ## ypos                                                 <NA>
      ## title
      ## type                                                cairo
      ## antialias                                         default

Sys.getenv("display")
      ## [1] ""

as.data.frame(unlist(pdf.options()))
      ##             unlist(pdf.options())
      ## width                           7
      ## height                          7
      ## onefile                      TRUE
      ## family                  Helvetica
      ## title           R Graphics Output
      ## version                       1.4
      ## paper                     special
      ## encoding                  default
      ## bg                    transparent
      ## fg                          black
      ## pointsize                      12
```

```
      ## pagecentre                  TRUE
      ## colormodel                  srgb
      ## useDingbats                FALSE
      ## useKerning                  TRUE
      ## fillOddEven                FALSE
      ## compress                    TRUE
#   options("device")
```

Use par() to get/set values

```
##  par() returns info about active device
##  BUT will create a device if null now.

    dev.cur()
      ## pdf
      ##   2
    if (dev.cur() != 1) {
        par()
        par("pch")
        par(no.readonly=F)
        par("lty")
    }
      ## [1] "solid"
```

pdf() device

```
##  remove all
    graphics.off()
    dev.list()
      ## NULL

##
    as.data.frame(unlist(pdf.options()))
      ##             unlist(pdf.options())
      ## width                           7
      ## height                          7
      ## onefile                      TRUE
      ## family                  Helvetica
      ## title           R Graphics Output
      ## version                       1.4
      ## paper                     special
      ## encoding                  default
      ## bg                    transparent
      ## fg                          black
      ## pointsize                      12
      ## pagecentre                  TRUE
      ## colormodel                  srgb
      ## useDingbats                FALSE
      ## useKerning                  TRUE
      ## fillOddEven                FALSE
      ## compress                    TRUE
```

plot

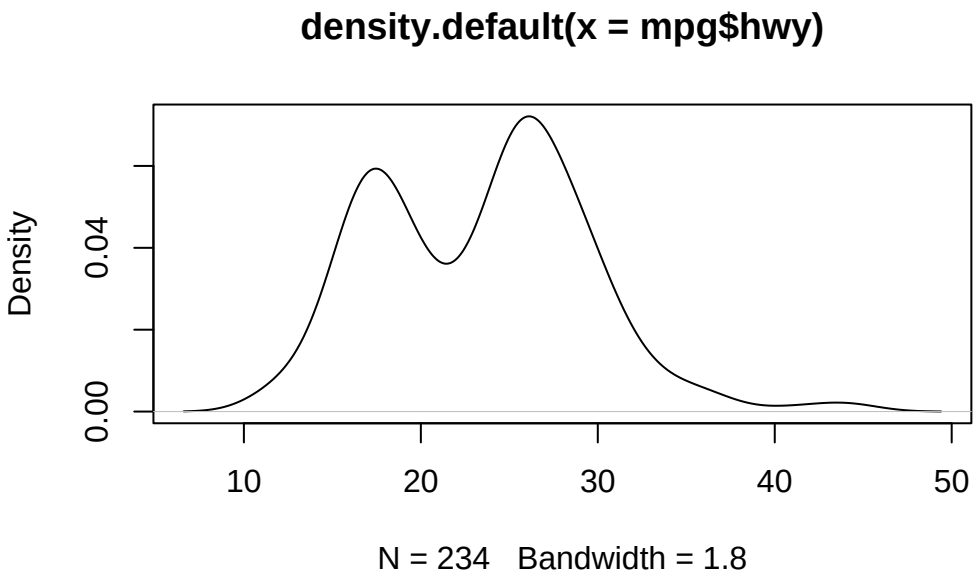
```
##  S3 classes
    methods(plot)
      ##  [1] plot,ANY-method     plot,color-method   plot.acf*
      ##  [4] plot.data.frame*    plot.decomposed.ts* plot.default
      ##  [7] plot.dendrogram*    plot.density*       plot.ecdf
      ## [10] plot.factor*        plot.formula*       plot.function
      ## [13] plot.ggplot*        plot.gtable*        plot.hcl_palettes*
      ## [16] plot.hclust*        plot.histogram*     plot.HoltWinters*
      ## [19] plot.isoreg*        plot.lm*            plot.medpolish*
      ## [22] plot.mlm*           plot.ppr*           plot.prcomp*
      ## [25] plot.princomp*      plot.profile.nls*   plot.R6*
      ## [28] plot.raster*        plot.spec*          plot.stepfun
      ## [31] plot.stl*           plot.table*         plot.trans*
      ## [34] plot.ts             plot.tskernel*      plot.TukeyHSD*
      ## see '?methods' for accessing help and source code
```

Base:: plots

- set the params in pdf(...)
- plot
- dev.off() to complete

```
pdf("~/Downloads/print_and_delete/04_lm_residuals.pdf")
plot(x, r, col = 2, ylim = c(-5, 5))
abline(h = 0)
dev.off()
```

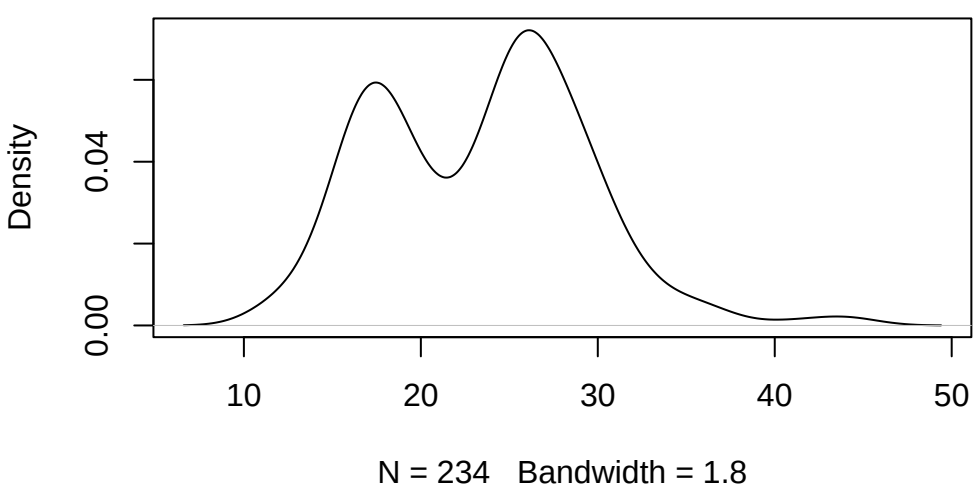
```
density_object <- density(mpg$hwy)
pdf("~/Downloads/print_and_delete/out.pdf")
      ## Error in pdf("~/Downloads/print_and_delete/out.pdf"): cannot open file '~/Downloads/print_and_delete/out.pdf'
plot(density_object)
```




```
dev.off()
      ## null device
      ##           1
```

```
filename  <- "~/Downloads/print_and_delete/out.png"
png(filename = filename,
         width = 480, height = 480, units = "px", pointsize = 12)
plot(density_object)
      ## Error in plot.new(): could not open file '/home/jim/Downloads/print_and_delete/out.png'
dev.off()
      ## pdf
      ##   2
```

```
plot(density_object)
```



stripchart() ::: {.cell}

```
png(filename = paste0("~/Downloads/print_and_delete/" , file,".png"),
         width = 480, height = 480, units = "px", pointsize = 12,
          bg = "white",  res = NA,
         type = c("cairo", "cairo-png", "Xlib", "quartz")
)
      ## Error in paste0("~/Downloads/print_and_delete/", file, ".png"): cannot coerce type 'closure' to vector of type 'character'

stripchart(x = x,
           ylim=c(0, 225),
           pch = 1,
           cex = 0.5,
           frame = TRUE,
           vertical = TRUE,
           main = "24-hour Ur Ox")
      ## Error in stripchart(x = x, ylim = c(0, 225), pch = 1, cex = 0.5, frame = TRUE, : object 'x' not found

abline(h = 35, col=2)
      ## Error in int_abline(a = a, b = b, h = h, v = v, untf = untf, ...): plot.new has not been called yet

# plot(x, fake, ylim = c(-5, 5), sub = "t-value = 21.5", type = "p")
# abline(h = fake_mean, col=2)
dev.off()
      ## null device
      ##           1
```

:::