NBA

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R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
suppressPackageStartupMessages({
library(rjson)
library(dplyr)
library(ggplot2)

library(grid)
library(jpeg)
library(gridExtra)
library(png)

library(RCurl)
})
```

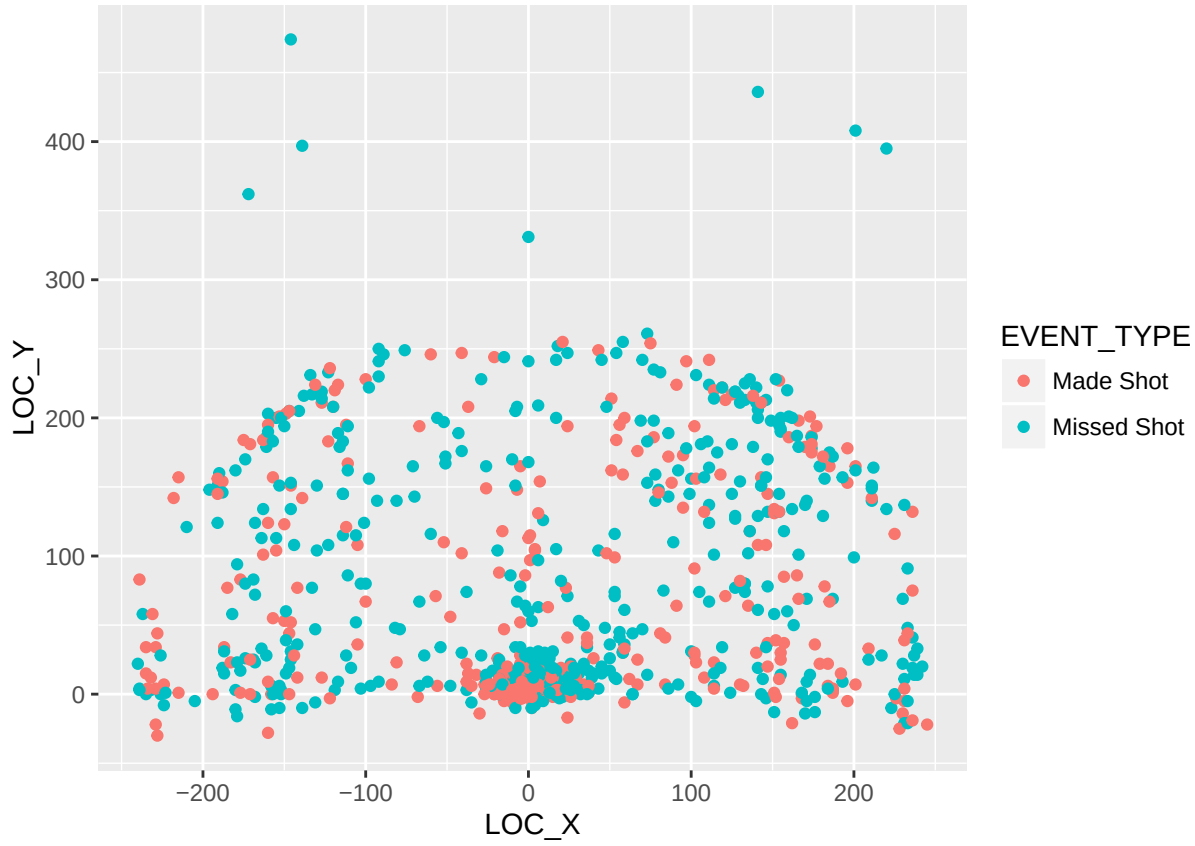
Including Plots

You can also embed plots, for example:

Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.

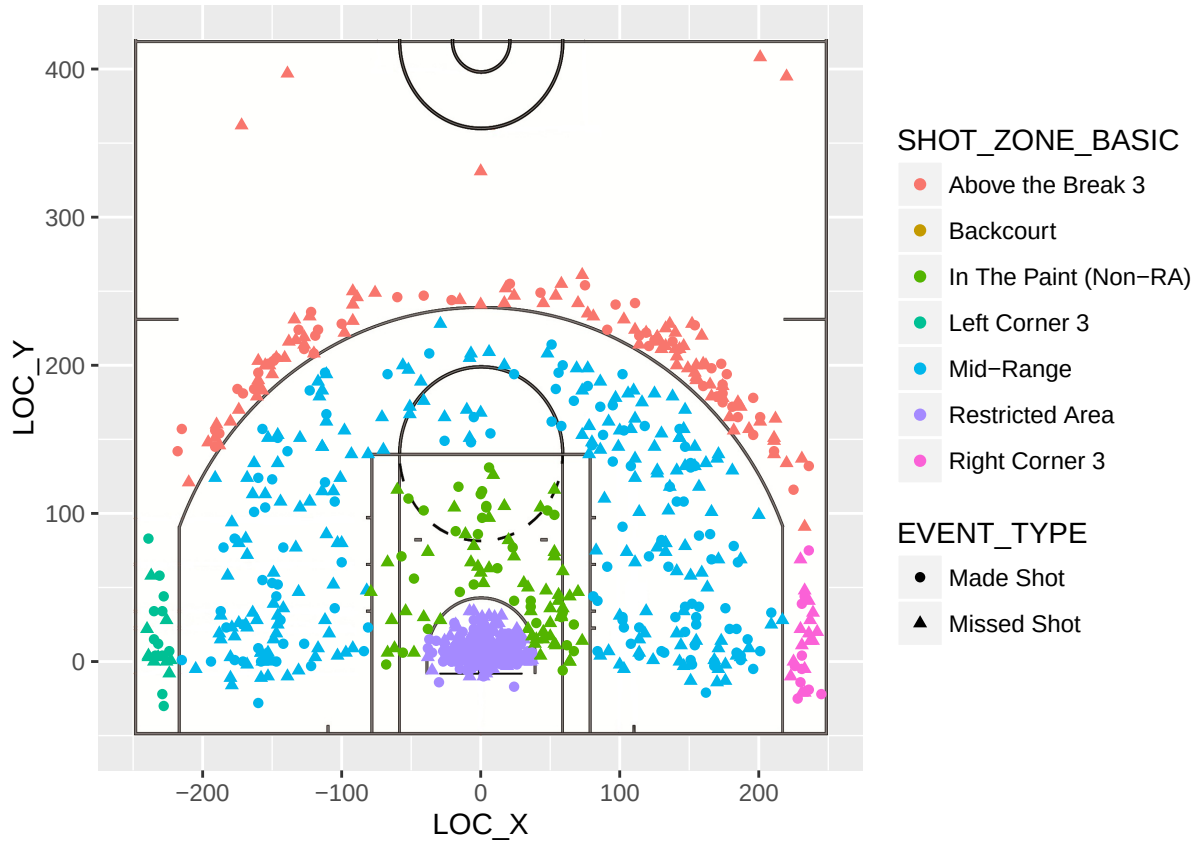
```
# unlist shot data, save into a data frame
shotDataf <- data.frame(matrix(unlist(shotData$resultSets[[1]][[3]]), ncol=24, byrow = TRUE))

# shot data headers
colnames(shotDataf) <- shotData$resultSets[[1]][[2]]

# covert x and y coordinates into numeric
shotDataf$LOC_X <- as.numeric(as.character(shotDataf$LOC_X))
shotDataf$LOC_Y <- as.numeric(as.character(shotDataf$LOC_Y))
shotDataf$SHOT_DISTANCE <- as.numeric(as.character(shotDataf$SHOT_DISTANCE))

# have a look at the data
```

```
# simple plot using EVENT_TYPE to colour the dots
ggplot(shotDataf, aes(x=LOC_X, y=LOC_Y)) +
         geom_point(aes(colour = EVENT_TYPE))
```



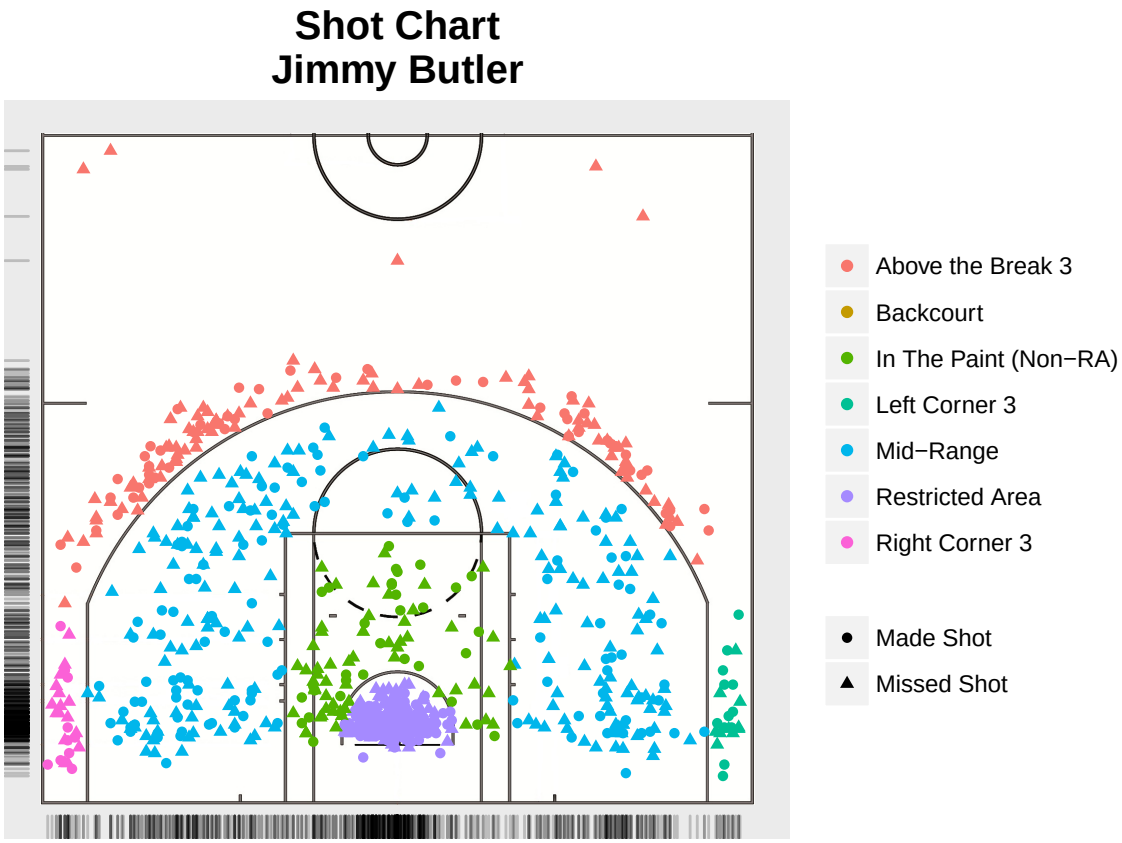

```
# half court image
courtImg.URL <- "https://thedatagame.files.wordpress.com/2016/03/nba_court.jpg"
court <- rasterGrob(readJPEG(getURLContent(courtImg.URL)),
           width=unit(1,"npc"), height=unit(1,"npc"))

# plot using NBA court background and colour by shot zone
ggplot(shotDataf, aes(x=LOC_X, y=LOC_Y)) +
      annotation_custom(court, -250, 250, -50, 420) +
      geom_point(aes(colour = SHOT_ZONE_BASIC, shape = EVENT_TYPE)) +
      xlim(-250, 250) +
      ylim(-50, 420)
```

```
## Warning: Removed 2 rows containing missing values (geom_point).
```




```
# plot using ggplot and NBA court background image
ggplot(shotDataf, aes(x=LOC_X, y=LOC_Y)) +
       annotation_custom(court, -250, 250, -50, 420) +
       geom_point(aes(colour = SHOT_ZONE_BASIC, shape = EVENT_TYPE)) +
       xlim(250, -250) +
       ylim(-50, 420) +
       geom_rug(alpha = 0.2) +
       coord_fixed() +
       ggtitle(paste("Shot Chart\n", unique(shotDataf$PLAYER_NAME), sep = "")) +
       theme(line = element_blank(),
             axis.title.x = element_blank(),
             axis.title.y = element_blank(),
             axis.text.x = element_blank(),
             axis.text.y = element_blank(),
             legend.title = element_blank(),
             plot.title = element_text(size = 15, lineheight = 0.9, face = "bold"))
```

```
## Warning: Removed 2 rows containing missing values (geom_point).
```




```
# scrape player photo and save as a raster object
playerImg.URL <- paste("http://stats.nba.com/media/players/132x132/",playerID,".png", sep="")
playerImg <- rasterGrob(readPNG(getURLContent(playerImg.URL)),
                                                    width=unit(0.15, "npc"), height=unit(0.15, "npc"))

# plot using ggplot and NBA court background
ggplot(shotDataf, aes(x=LOC_X, y=LOC_Y)) +
    annotation_custom(court, -250, 250, -52, 418) +
    geom_point(aes(colour = EVENT_TYPE, alpha = 0.8), size = 3) +
    scale_color_manual(values = c("#008000", "#FF6347")) +
    guides(alpha = FALSE, size = FALSE) +
    xlim(250, -250) +
    ylim(-52, 418) +
    geom_rug(alpha = 0.2) +
    coord_fixed() +
    ggtitle(paste("Shot Chart\n", unique(shotDataf$PLAYER_NAME), sep = "")) +
    theme(line = element_blank(),
        axis.title.x = element_blank(),
        axis.title.y = element_blank(),
        axis.text.x = element_blank(),
        axis.text.y = element_blank(),
        legend.title = element_blank(),
        plot.title = element_text(size = 17, lineheight = 1.2, face = "bold"))
```

```
## Warning: Removed 2 rows containing missing values (geom_point).
```

```
# add player photo and footnote to the plot
pushViewport(viewport(x = unit(0.9, "npc"), y = unit(0.8, "npc")))
    print(grid.draw(playerImg), newpage=FALSE)
```

```
## NULL
```

```
    grid.text(label = "2017-18 Season", just = "centre", vjust = 50)
```