

# Shiny Application Development from Auckland Volcano Datasets

*Kumar.Hemant*

*Monday, February 15, 2016*

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:

```
op <- par(no.readonly = TRUE)
z <- 2*volcano      # Exchange the relief
x <- 10*(1:nrow(z)) # 10 meter spacing (S to N)
y <- 10*(1:ncol(z)) # 10 meter spacing (E to W)
par(bg = "white")    # "lavender"
persp(x,y,z,theta=0,phi=30,col="green3",scale=FALSE,LTHETA=-120,SHADE=0.95,BORDER=NA,box=FALSE)

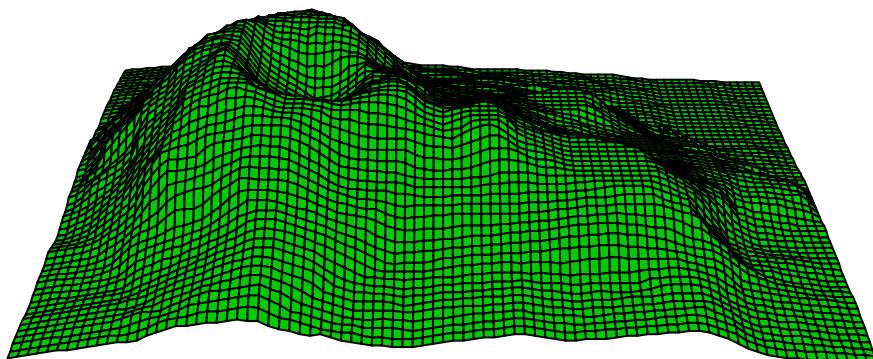
## Warning in persp.default(x, y, z, theta = 0, phi = 30, col = "green3",
## scale = FALSE, : "LTHETA" is not a graphical parameter

## Warning in persp.default(x, y, z, theta = 0, phi = 30, col = "green3",
## scale = FALSE, : "SHADE" is not a graphical parameter

## Warning in persp.default(x, y, z, theta = 0, phi = 30, col = "green3",
## scale = FALSE, : "BORDER" is not a graphical parameter

title("Perspective Plots with Volcano Maunga Whau in Auckland")
```

## Perspective Plots with Volcano Maunga Whau in Auckland



```

persp(x,y,z, theta= 45, phi=30, col="green3",scale=FALSE,LTHETA=-120,SHADE=0.95,BORDER=NA,box=FALSE)

## Warning in persp.default(x, y, z, theta = 45, phi = 30, col = "green3", :
## "LTHETA" is not a graphical parameter

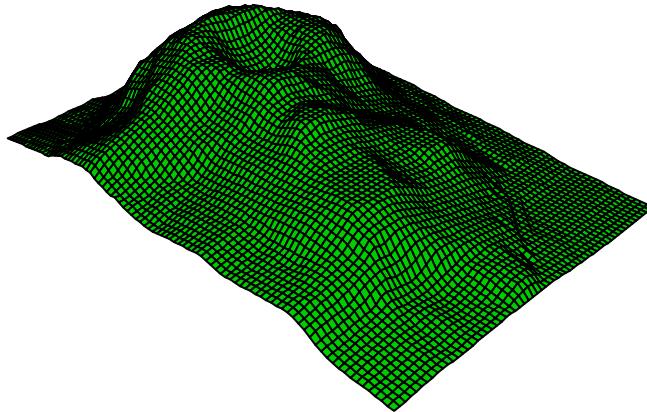
## Warning in persp.default(x, y, z, theta = 45, phi = 30, col = "green3", :
## "SHADE" is not a graphical parameter

## Warning in persp.default(x, y, z, theta = 45, phi = 30, col = "green3", :
## "BORDER" is not a graphical parameter

title("Perspective Plots with Volcano Maunga Whau in Auckland")

```

## Perspective Plots with Volcano Maunga Whau in Auckland



```

persp(x,y,z, theta= 90, phi=30, col="green3",scale=FALSE,LTHETA=-120,SHADE=0.95,BORDER=NA,box=FALSE)

## Warning in persp.default(x, y, z, theta = 90, phi = 30, col = "green3", :
## "LTHETA" is not a graphical parameter

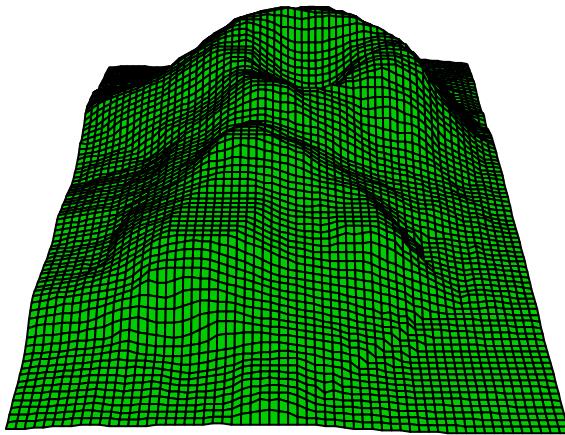
## Warning in persp.default(x, y, z, theta = 90, phi = 30, col = "green3", :
## "SHADE" is not a graphical parameter

## Warning in persp.default(x, y, z, theta = 90, phi = 30, col = "green3", :
## "BORDER" is not a graphical parameter

title("Perspective Plots with Volcano Maunga Whau in Auckland")

```

## Perspective Plots with Volcano Maunga Whau in Auckland



```
persp(x,y,z, theta=135, phi=30, col="green3",scale=FALSE,LTHETA=-120,SHADE=0.95,BORDER=NA,box=FALSE)

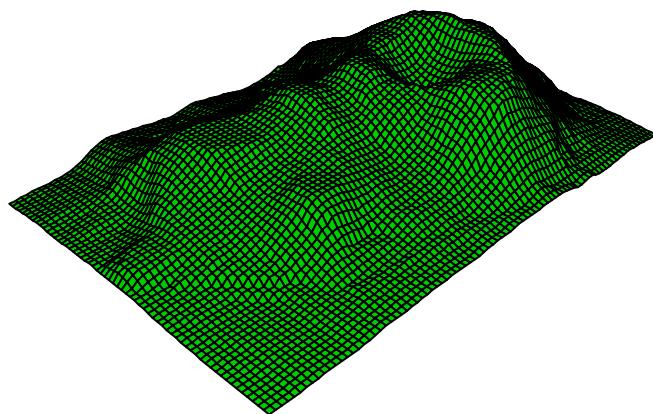
## Warning in persp.default(x, y, z, theta = 135, phi = 30, col = "green3", :
## "LTHETA" is not a graphical parameter

## Warning in persp.default(x, y, z, theta = 135, phi = 30, col = "green3", :
## "SHADE" is not a graphical parameter

## Warning in persp.default(x, y, z, theta = 135, phi = 30, col = "green3", :
## "BORDER" is not a graphical parameter

title("Perspective Plots with Volcano Maunga Whau in Auckland")
```

## Perspective Plots with Volcano Maunga Whau in Auckland



```

persp(x,y,z, theta=180, phi=30, col="green3",scale=FALSE,LTHETA=-120,SHADE=0.95,BORDER=NA,box=FALSE)

## Warning in persp.default(x, y, z, theta = 180, phi = 30, col = "green3", :
## "LTHETA" is not a graphical parameter

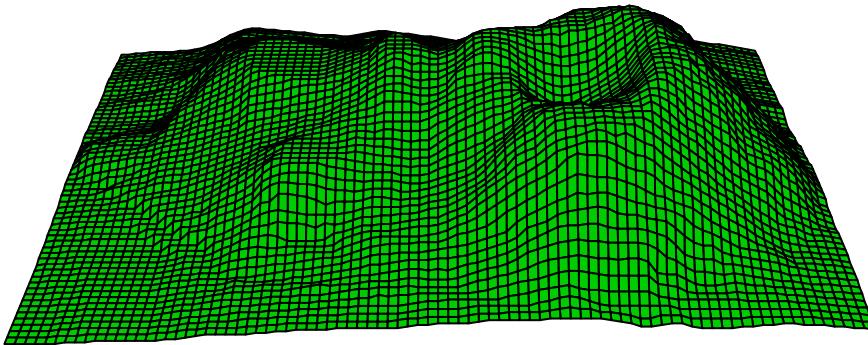
## Warning in persp.default(x, y, z, theta = 180, phi = 30, col = "green3", :
## "SHADE" is not a graphical parameter

## Warning in persp.default(x, y, z, theta = 180, phi = 30, col = "green3", :
## "BORDER" is not a graphical parameter

title("Perspective Plots with Volcano Maunga Whau in Auckland")

```

## Perspective Plots with Volcano Maunga Whau in Auckland



```

persp(x,y,z, theta=225, phi=30, col="green3",scale=FALSE,LTHETA=-120,SHADE=0.95,BORDER=NA,box=FALSE)

## Warning in persp.default(x, y, z, theta = 225, phi = 30, col = "green3", :
## "LTHETA" is not a graphical parameter

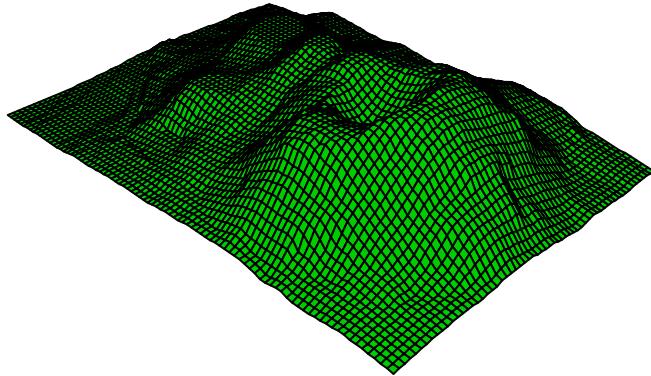
## Warning in persp.default(x, y, z, theta = 225, phi = 30, col = "green3", :
## "SHADE" is not a graphical parameter

## Warning in persp.default(x, y, z, theta = 225, phi = 30, col = "green3", :
## "BORDER" is not a graphical parameter

title("Perspective Plots with Volcano Maunga Whau in Auckland")

```

## Perspective Plots with Volcano Maunga Whau in Auckland



```
persp(x,y,z, theta=270, phi=30, col="green3",scale=FALSE,LTHETA=-120,SHADE=0.95,BORDER=NA,box=FALSE)

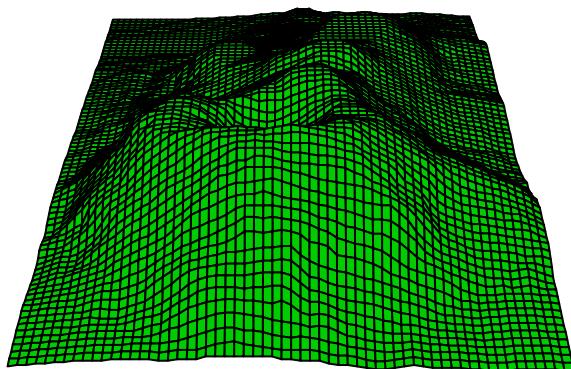
## Warning in persp.default(x, y, z, theta = 270, phi = 30, col = "green3", :
## "LTHETA" is not a graphical parameter

## Warning in persp.default(x, y, z, theta = 270, phi = 30, col = "green3", :
## "SHADE" is not a graphical parameter

## Warning in persp.default(x, y, z, theta = 270, phi = 30, col = "green3", :
## "BORDER" is not a graphical parameter

title("Perspective Plots with Volcano Maunga Whau in Auckland")
```

## Perspective Plots with Volcano Maunga Whau in Auckland



```

persp(x,y,z, theta=315, phi=30, col="green3",scale=FALSE,LTHETA=-120,SHADE=0.95,BORDER=NA,box=FALSE)

## Warning in persp.default(x, y, z, theta = 315, phi = 30, col = "green3", :
## "LTHETA" is not a graphical parameter

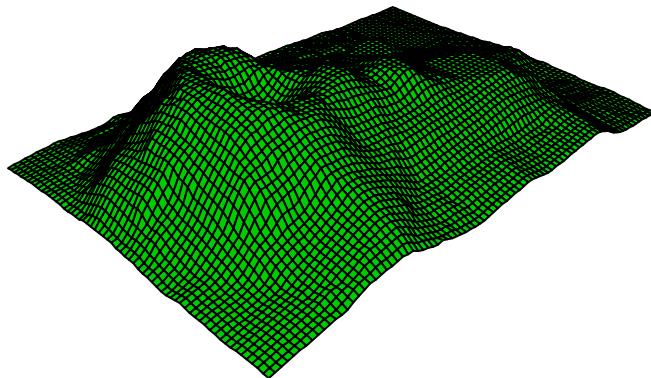
## Warning in persp.default(x, y, z, theta = 315, phi = 30, col = "green3", :
## "SHADE" is not a graphical parameter

## Warning in persp.default(x, y, z, theta = 315, phi = 30, col = "green3", :
## "BORDER" is not a graphical parameter

title("Perspective Plots with Volcano Maunga Whau in Auckland")

```

## Perspective Plots with Volcano Maunga Whau in Auckland



```

persp(x,y,z, theta=360, phi=30, col="green3",scale=FALSE,LTHETA=-120,SHADE=0.95,BORDER=NA,box=FALSE)

## Warning in persp.default(x, y, z, theta = 360, phi = 30, col = "green3", :
## "LTHETA" is not a graphical parameter

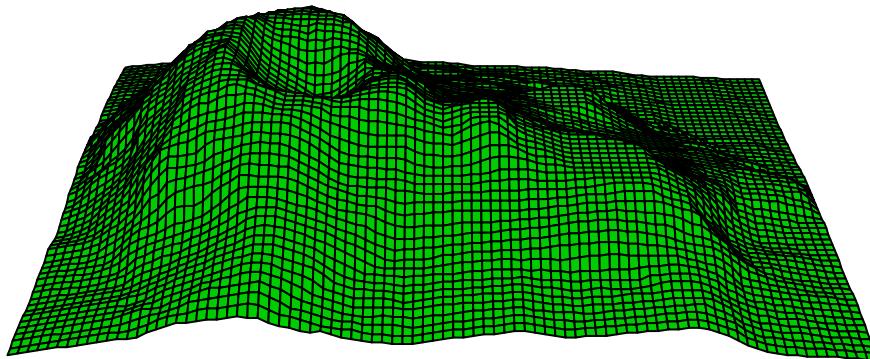
## Warning in persp.default(x, y, z, theta = 360, phi = 30, col = "green3", :
## "SHADE" is not a graphical parameter

## Warning in persp.default(x, y, z, theta = 360, phi = 30, col = "green3", :
## "BORDER" is not a graphical parameter

title("Perspective Plots with Volcano Maunga Whau in Auckland")

```

## Perspective Plots with Volcano Maunga Whau in Auckland



```
persp(x,y,z, theta=360, phi=0, col="green3",scale=FALSE,LTHETA=-120,SHADE=0.95,BORDER=NA,box=FALSE)

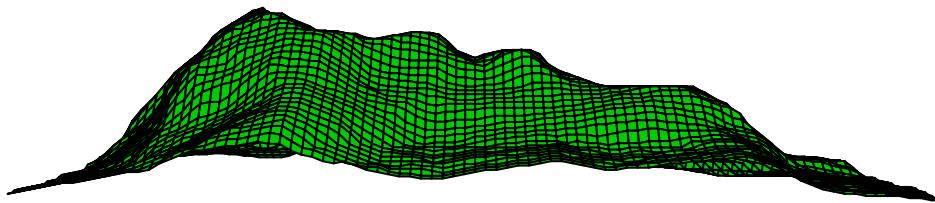
## Warning in persp.default(x, y, z, theta = 360, phi = 0, col = "green3", :
## "LTHETA" is not a graphical parameter

## Warning in persp.default(x, y, z, theta = 360, phi = 0, col = "green3", :
## "SHADE" is not a graphical parameter

## Warning in persp.default(x, y, z, theta = 360, phi = 0, col = "green3", :
## "BORDER" is not a graphical parameter

title("Perspective Plots with Volcano Maunga Whau in Auckland")
```

## Perspective Plots with Volcano Maunga Whau in Auckland



```
persp(x,y,z, theta=360, phi=-30, col="green3",scale=FALSE,LTHETA=-120,SHADE=0.95,BORDER=NA,box=FALSE)

## Warning in persp.default(x, y, z, theta = 360, phi = -30, col = "green3", :
## "LTHETA" is not a graphical parameter
```

```

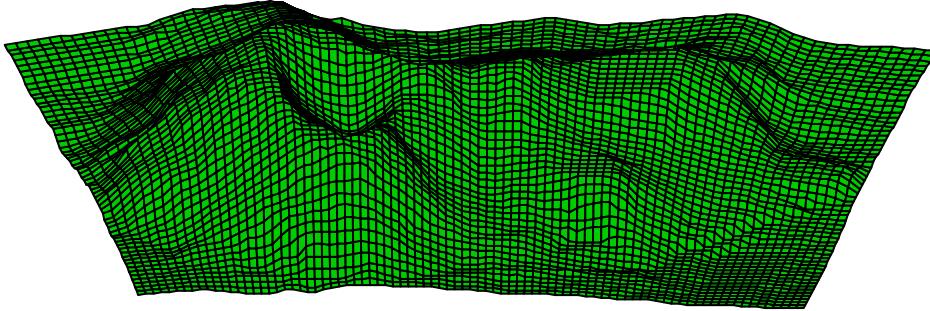
## Warning in persp.default(x, y, z, theta = 360, phi = -30, col = "green3", :
## "SHADE" is not a graphical parameter

## Warning in persp.default(x, y, z, theta = 360, phi = -30, col = "green3", :
## "BORDER" is not a graphical parameter

title("Perspective Plots with Volcano Maunga Whau in Auckland")

```

## Perspective Plots with Volcano Maunga Whau in Auckland



```

persp(x,y,z, theta=360, phi=-45, col="green3",scale=FALSE,LTHETA=-120,SHADE=0.95,BORDER=NA,box=FALSE)

## Warning in persp.default(x, y, z, theta = 360, phi = -45, col = "green3", :
## "LTHETA" is not a graphical parameter

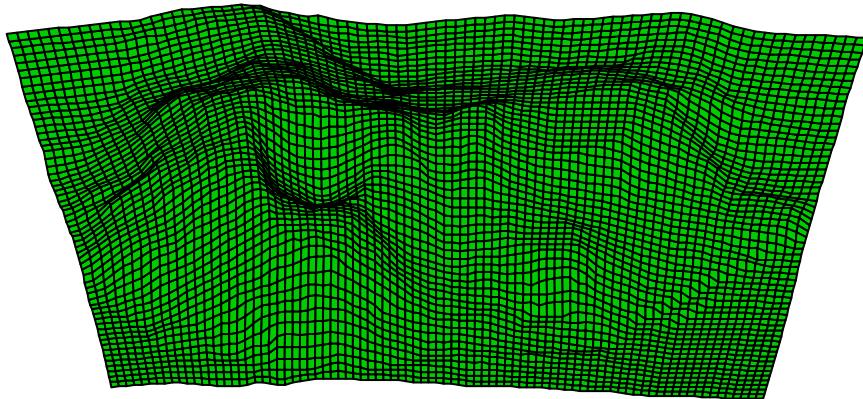
## Warning in persp.default(x, y, z, theta = 360, phi = -45, col = "green3", :
## "SHADE" is not a graphical parameter

## Warning in persp.default(x, y, z, theta = 360, phi = -45, col = "green3", :
## "BORDER" is not a graphical parameter

```

```
title("Perspective Plots with Volcano Maunga Whau in Auckland")
```

## Perspective Plots with Volcano Maunga Whau in Auckland



```
persp(x,y,z, theta=360, phi=-60, col="green3",scale=FALSE,LTHETA=-120,SHADE=0.95,BORDER=NA,box=FALSE)
```

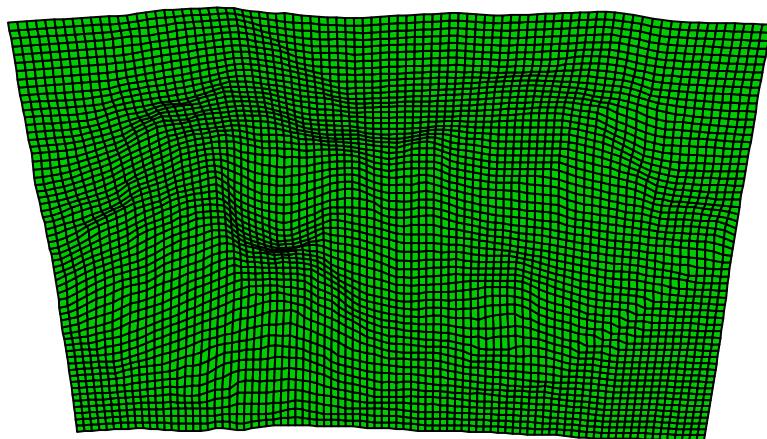
```
## Warning in persp.default(x, y, z, theta = 360, phi = -60, col = "green3", :  
## "LTHETA" is not a graphical parameter
```

```
## Warning in persp.default(x, y, z, theta = 360, phi = -60, col = "green3", :  
## "SHADE" is not a graphical parameter
```

```
## Warning in persp.default(x, y, z, theta = 360, phi = -60, col = "green3", :  
## "BORDER" is not a graphical parameter
```

```
title("Perspective Plots with Volcano Maunga Whau in Auckland")
```

## Perspective Plots with Volcano Maunga Whau in Auckland



```

#title("Perspective Plots with Volcano")

# convert to all the images for animation
$ convert *.png -delay 39 -loop 0 MaungaWhau.gif

#install.packages("RColorBrewer")
library(RColorBrewer)
cols <- colors()
length(cols)

## [1] 657

cols[1:5]

## [1] "white"         "aliceblue"      "antiquewhite"   "antiquewhite1"
## [5] "antiquewhite2"

```

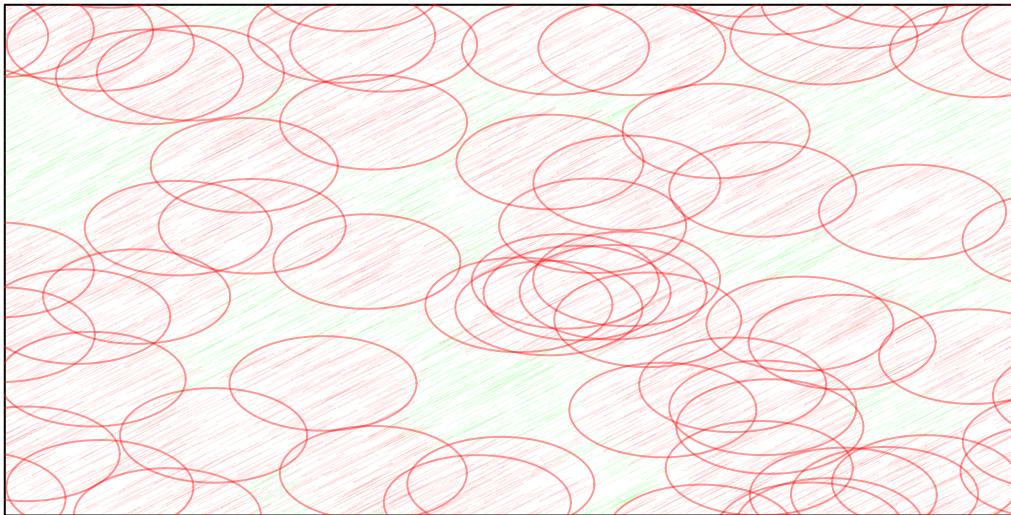
You can also embed plots, for example:

```

play.circle <- function(circle.counts=100, limits=3, radius=0.2, densitys=1){
  circle <- function(x, y, r=1, col=1){
    angle <- (0:360)*pi/180
    pos.x <- r*cos(angle) + x
    pos.y <- r*sin(angle) + y
    lines(pos.x, pos.y, col=col)
  }
  leaf <- function(limits, xs, ys, radius, r=1, alpha="55"){
    isin <- function(x, y){
      any(sqrt((xs-x)^2 + (ys-y)^2) <= radius)
    }
    x <- runif(1, 0, limits)
    y <- runif(1, 0, limits)
    angle <- (0:360)*pi/180
    pos.x <- r*cos(angle) +x
    pos.y <- r*cos(angle) +y
    polygon(pos.x, pos.y, col=paste(ifelse(isin(x,y), "#FF0000", "#00FF00"), alpha, sep=""), border=NA)
  }
  xs <- runif(n=circle.counts, min=0, max=limits)
  ys <- runif(n=circle.counts, min=0, max=limits)
  plot(radius:(limits-radius), radius:(limits-radius), type='n', axes=F, xlab='', ylab='')
  box()
  for (i in 1:circle.counts){
    circle(xs[i], ys[i], r=radius, col="#FF000066")
  }
  for (i in (1:circle.counts^2*densitys)){
    leaf(limits, xs, ys, radius, r=radius/5)
  }
}

play.circle()

```



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