

R_basics

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We covered some of the basics of creating and working with objects in R during our first meeting. Now it is time to apply those skills to address some common tasks faced when processing data in R. **Indicate what R commands and their output are for each question.**

Download and read in the datafile “./quant_methods/data/tgpp.csv” from the class website. This dataset represents the vascular plant species richness that was collected from the Tallgrass Prairie Preserve from 10 x 10 m quadrats. Species richness is simply the number of species that occur within a quadrat.

Read the data into R, note this datafile has a header (i.e., it has column names) unlike the example we examined in class.

```
tgpp = read.csv("~/quant_methods/data/tgpp.csv")
```

1. What are the names of the columns in this dataset?

```
tgpp[1,]
```

```
## plot year record_id corner scale richness easting northing slope ph
## 1 205 1998 187 NA 100 60 727000 4080000 3 6.9
## yrsslb
## 1 0.39
```

plot, year, record_id, corner, scale, richness, easting, northing, slope, ph, yrsslb

2. How many rows and columns does this data file have?

```
nrow(tgpp)
```

```
## [1] 4080
```

```
ncol(tgpp)
```

```
## [1] 11
```

rows: 4080, col: 11

3. What kind of object is each data column? Hint: checkout the function `sapply()`.

```
sapply(tgpp, class)
```

```
## plot year record_id corner scale richness easting
## "integer" "integer" "integer" "integer" "numeric" "integer" "integer"
## northing slope ph yrsslb
## "integer" "integer" "numeric" "numeric"
```

plot: integer year: integer record_id: integer corner: integer scale: numeric richness: integer easting: integer
northing: integer slope: integer ph: numeric yrsslb: numeric

4. What are the values of the the datafile for rows 1, 5, and 8 at columns 3, 7, and 10

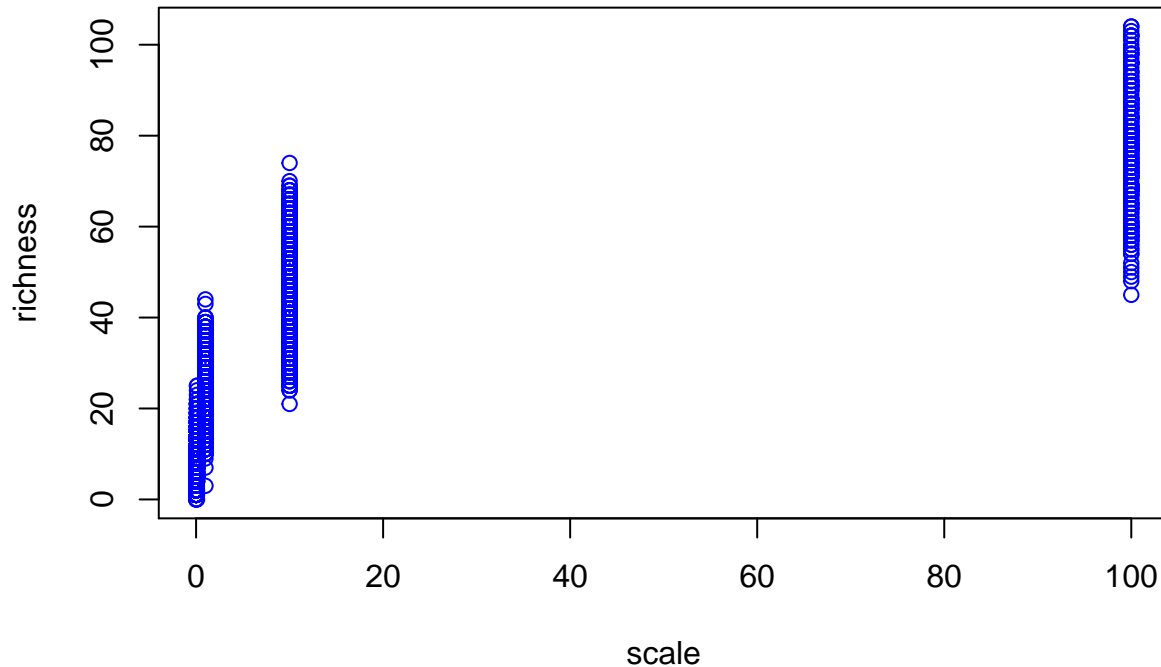
```
tgpp[c(1,5,8), c(3,7,10)]
```

```
## record_id easting ph
## 1 187 727000 6.9
## 5 191 727000 6.9
```

```
## 8      194 727000 6.9
```

5. Create a pdf of the relationship between the variables “scale” and “richness”. Scale is the area in square meters of the quadrat in which richness was recorded. Be sure to label your axes clearly, and choose a color you find pleasing for the points. To get a list of available stock colors use the function `colors()`. Also see this link: <http://research.stowers-institute.org/efg/R/Color/Chart/index.htm>.

```
plot(tgpp[,5], tgpp[,6], xlab='scale', ylab='richness', col='blue')
```



6. What happens to your plot when you set the plot argument `log` equal to 'xy'. `plot(..., log='xy')`

```
plot(tgpp[,5], tgpp[,6], xlab='scale', ylab='richness', col='blue', log='xy')
```

```
## Warning in xy.coords(x, y, xlabel, ylabel, log): 4 y values <= 0 omitted
## from logarithmic plot
```

