

R intro2

1st way to read in data using the c() command

```
name=c("Hamb","Chsbrg","Delxbg","Fish","Chix")
size=c(107,121,216,156,223)
totfat=c(9,13,31,25,20)
burgers=data.frame(name,size,totfat)
```

You can look at it by either calling the object (dataset) or use View()

```
burgers
```

```
  name size totfat
1  Hamb  107     9
2 Chsbrg  121    13
3 Delxbg  216    31
4  Fish  156    25
5  Chix  223    20
```

```
head(burgers)
```

```
  name size totfat
1  Hamb  107     9
2 Chsbrg  121    13
3 Delxbg  216    31
4  Fish  156    25
5  Chix  223    20
```

```
# View(burgers)
```

2nd way using read.csv() or read.table()

```
burgers=read.table("http://webpages.uidaho.edu/~renaes/Data/burgs1.txt",sep=',',header=T)
burgers=read.csv("http://webpages.uidaho.edu/~renaes/Data/burgs1.csv",header=T)
```

3rd way using 'Import Dataset'

In RStudio, you can use the Import Dataset option in the Environment window (which cannot really be shown here) The STUDENT dataset was a bit picky when I used Import Dataset and I had to change the variable types since it coded most of the numeric variables as character and I changed them back to integer. Maybe do not use that for this dataset. :-) read.csv() seemed to behave better.

```
students=read.csv("http://webpages.uidaho.edu/~renaes/Data/STUDENT.csv",header=T)
head(students)
```

```
  Sys1 Sys2 Sys3 Dias1 Dias2 Dias3 Pulse1 Pulse2 Pulse3 Wt1 Wt2 Wt3
1   96  98  94   67   68   66   89   93   90   .   .   .
2  142 138 133   87   85   87   74   78   77  242 239 240
3  139 135 125   79   80   87   77   80   63  178 175 174
4  124 128 122   76   78   75   .   .   .  164   .   .
```

```

5 120 110 122 76 74 78 55 57 60 169 167 169
6 104 100 105 81 69 80 116 72 66 126 126 128
  Thumb Finger Eye Ht States
1 L 2.6 Br 61.0 9
2 L 3.4 Bl 74.0 4
3 L 3.0 Br 70.0 33
4 L 3.8 N 69.5 11
5 R 4.0 N 69.0 5
6 L 3.0 Br 65.0 21

```

Some basic summaries

```
with(students,mean(Sys1,na.rm=T)) #na.rm=T removes missing values for calculation
```

Warning in mean.default(Sys1, na.rm = T): argument is not numeric or logical: returning NA

```
[1] NA
```

```
with(students,mean(Dias1,na.rm=T))
```

```
[1] 77.39394
```

Means of Sys1, Dias1 by eye color. Would work if no missing values (or if the Eye variable had the same missing values as Sys1 and Dias1)

```
with(students,tapply(Sys1,Eye,mean,na.rm=T))
```

```
with(students,tapply(Dias1,Eye,mean,na.rm=T))
```

We would have been able to do both variables at once if there were no missing values. Example that won't work here but will if dataset had no missing values

```
with(students,tapply(c(Sys1,Dias1),Eye,mean,na.rm=T))
```

Table with counts

```
with(students,table(Eye))
```

Eye

	B1	Br	G	N	N
1	12	10	2	3	6

Contingency table with cross-classifying factors

```
with(students,xtabs(~Eye+Thumb))
```

Eye	Thumb					
	B	L	L	R	R	
1	0	0	0	0	0	0
B1	0	0	1	8	1	2
Br	0	0	0	6	0	4
G	0	0	0	2	0	0
N	0	0	0	3	0	0
N	0	1	0	2	0	3

Sorting data, sorting is ascending by default. Sorted by eye color (Eye)

```
students2=students[order(students$Eye),] # the comma means all columns
head(students2)
```

```

  Sys1 Sys2 Sys3 Dias1 Dias2 Dias3 Pulse1 Pulse2 Pulse3 Wt1 Wt2 Wt3 Thumb
34 \032                NA
 2  142  138  133   87   85   87    74    78    77  242  239  240    L
 9  114  121  117   80   81   83    91   113   76  125  125  125    R
10  110   .   .    76   .   .    62    80   80  190  192  195    L
12  101   99  100   77   63   74    67    83   77  125  125  122    R
15  120  120  120   78   67   65    74    77   74  140  140  142    L
  Finger Eye   Ht States
34    NA    NA    NA
 2    3.4 B1  74.0    4
 9    3.4 B1  64.0   10
10    3.5 B1  71.8    6
12    3.1 B1  63.5   23
15    3.0 B1  67.0   15
```

```
students3=students[order(students$Eye,-students$Thumb),]
```

Warning in Ops.factor(students\$Thumb): '-' not meaningful for factors

```
head(students3)
```

```

  Sys1 Sys2 Sys3 Dias1 Dias2 Dias3 Pulse1 Pulse2 Pulse3 Wt1 Wt2 Wt3 Thumb
34 \032                NA
 2  142  138  133   87   85   87    74    78    77  242  239  240    L
 9  114  121  117   80   81   83    91   113   76  125  125  125    R
10  110   .   .    76   .   .    62    80   80  190  192  195    L
12  101   99  100   77   63   74    67    83   77  125  125  122    R
15  120  120  120   78   67   65    74    77   74  140  140  142    L
  Finger Eye   Ht States
34    NA    NA    NA
 2    3.4 B1  74.0    4
 9    3.4 B1  64.0   10
10    3.5 B1  71.8    6
12    3.1 B1  63.5   23
15    3.0 B1  67.0   15
```

Scatterplot

```
with(students,plot(Dias1,Sys1))
```

