#Ryan Allison
#Assignment 3

INPUT

```
#Problem 1
#a
dat <- read.table(file.choose())
dat
#b
# Seems wrong becasue we have variables for the first row.
#c
dat <- read.table(file.choose(), header=T)
dat
# This is better because the column header lists the appropriate variable names.

names(dat)

#Problem 2
x<-dat$x
x
y<-dat$y
y

dat.2<-list(x,y)
dat.2
dput(dat.2,file.choose())
rm(list = ls())
G<-dget(file.choose())
G
dfG<-data.frame(G)
dfG

#Problem 3
data()
data(PlantGrowth)
PlantGrowth
#There's two variables: 'weight' and 'group'.
?PlantGrowth
require(stats); require(graphics)
boxplot(weight ~ group, data = PlantGrowth, main = "PlantGrowth data",
        ylab = "Dried weight of plants", col = "lightgray",
        notch = TRUE, varwidth = TRUE)
anova(lm(weight ~ group, data = PlantGrowth))

#Problem 4
names(PlantGrowth)
weight <- PlantGrowth$weight
weight
rank<-rank(weight)
rank
```

```
#This tells us the position of the list of weights if sorted smallest to largest. The two '3.5' elements mean there are two 4.17 weights that would be the 3rd and 4th element in the list.
sort<-sort(weight)
sort
#This is the actual list of weights from smallest to largest. You can see the 4.17 are in the third and fourth position.
weight.table = data.frame(weight,rank,sort)
weight.table
```

OUTPUT

```
> dat <- read.table(file.choose())
> dat
   V1  V2
1   x   y
2 1.2 1.5
3 2.3 2.1
4 1.5 2.0
> dat <- read.table(file.choose(), header=T)
> dat
    x   y
1 1.2 1.5
2 2.3 2.1
3 1.5 2.0
> names(dat)
[1] "x" "y"
> x<-dat$x
> x
[1] 1.2 2.3 1.5
> y<-dat$y
> y
[1] 1.5 2.1 2.0
> dat.2<-list(x,y)
> dat.2
[[1]]
[1] 1.2 2.3 1.5

[[2]]
[1] 1.5 2.1 2.0

> dput(dat.2,file.choose())
> rm(list = ls())
> G<-dget(file.choose())
> G
[[1]]
[1] 1.2 2.3 1.5

[[2]]
[1] 1.5 2.1 2.0
```

```
> dfG<-data.frame(G)
> dfG
  c.1.2..2.3..1.5. c.1.5..2.1..2.
1              1.2            1.5
2              2.3            2.1
3              1.5            2.0
> data()
> data(PlantGrowth)
> PlantGrowth
   weight group
1    4.17  ctrl
2    5.58  ctrl
3    5.18  ctrl
4    6.11  ctrl
5    4.50  ctrl
6    4.61  ctrl
7    5.17  ctrl
8    4.53  ctrl
9    5.33  ctrl
10   5.14  ctrl
11   4.81  trt1
12   4.17  trt1
13   4.41  trt1
14   3.59  trt1
15   5.87  trt1
16   3.83  trt1
17   6.03  trt1
18   4.89  trt1
19   4.32  trt1
20   4.69  trt1
21   6.31  trt2
22   5.12  trt2
23   5.54  trt2
24   5.50  trt2
25   5.37  trt2
26   5.29  trt2
27   4.92  trt2
28   6.15  trt2
29   5.80  trt2
30   5.26  trt2
> ?PlantGrowth
> require(stats); require(graphics)
> boxplot(weight ~ group, data = PlantGrowth, main = "PlantGrowth data",
+         ylab = "Dried weight of plants", col = "lightgray",
+         notch = TRUE, varwidth = TRUE)
Warning message:
In bxp(list(stats = c(4.17, 4.53, 5.155, 5.33, 6.11, 3.59, 4.17,  :
  some notches went outside hinges ('box'): maybe set notch=FALSE
> anova(lm(weight ~ group, data = PlantGrowth))
Analysis of Variance Table
```

```
Response: weight
          Df  Sum Sq Mean Sq F value  Pr(>F)
group      2  3.7663  1.8832  4.8461 0.01591 *
Residuals 27 10.4921  0.3886
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
> names(PlantGrowth)
[1] "weight" "group"
> weight <- PlantGrowth$weight
> weight
 [1] 4.17 5.58 5.18 6.11 4.50 4.61 5.17 4.53 5.33 5.14 4.81 4.17 4.41 3.59 5.87 3.83 6.03 4.89 4.32 4.69
[21] 6.31 5.12 5.54 5.50 5.37 5.29 4.92 6.15 5.80 5.26
> rank<-rank(weight)
> rank
 [1]  3.5 24.0 17.0 28.0  7.0  9.0 16.0  8.0 20.0 15.0 11.0  3.5  6.0  1.0 26.0  2.0 27.0 12.0  5.0 10.0
[21] 30.0 14.0 23.0 22.0 21.0 19.0 13.0 29.0 25.0 18.0
> sort<-sort(weight)
> sort
 [1] 3.59 3.83 4.17 4.17 4.32 4.41 4.50 4.53 4.61 4.69 4.81 4.89 4.92 5.12 5.14 5.17 5.18 5.26 5.29 5.33
[21] 5.37 5.50 5.54 5.58 5.80 5.87 6.03 6.11 6.15 6.31
> weight.table = data.frame(weight,rank,sort)
> weight.table
   weight rank sort
1    4.17  3.5 3.59
2    5.58 24.0 3.83
3    5.18 17.0 4.17
4    6.11 28.0 4.17
5    4.50  7.0 4.32
6    4.61  9.0 4.41
7    5.17 16.0 4.50
8    4.53  8.0 4.53
9    5.33 20.0 4.61
10   5.14 15.0 4.69
11   4.81 11.0 4.81
12   4.17  3.5 4.89
13   4.41  6.0 4.92
14   3.59  1.0 5.12
15   5.87 26.0 5.14
16   3.83  2.0 5.17
17   6.03 27.0 5.18
18   4.89 12.0 5.26
19   4.32  5.0 5.29
20   4.69 10.0 5.33
21   6.31 30.0 5.37
22   5.12 14.0 5.50
23   5.54 23.0 5.54
24   5.50 22.0 5.58
25   5.37 21.0 5.80
26   5.29 19.0 5.87
27   4.92 13.0 6.03
28   6.15 29.0 6.11
```

```
29   5.80 25.0 6.15
30   5.26 18.0 6.31
>
```