HW from lecture on 2/1

If you are running R you too can play along by typing in the commands. For everybody, answer the questions.

First load the data set **seahawks**

```
> source("http://www.math.csi.cuny.edu/verzani/classes/MTH113/data/seahawks.R")
```

The variables are

```
> names(seahawks)
```

```
[1] "Number"   "Name"     "Position" "Age"      "Height"   "Weight"   "Yrs"
[8] "College"
```

We can use them if we attach the data set

```
> attach(seahawks)
```

Now for some questions. A stem and leaf diagram of the weights of the players is found with

```
> stem(Weight, scale = 2)
```

```
  The decimal point is 1 digit(s) to the right of the |
  18 | 038
  19 | 0056699
  20 | 012279
  21 | 0
  22 | 0335569
  23 | 0489
  24 | 0145689
  25 | 12
  26 | 055
  27 | 228
  28 | 7
  29 | 378
  30 | 35889
  31 | 3
  32 | 07
  33 | 0
```

1. What does the comment "The decimal point is 1 digit(s) to the right of the |" mean?

A number, such as 24|4 means 244 or 244.5

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2. What is weight of the lightest seahawk? 180 lbs
3. What is the weight of the heaviest seahawk? 330 lbs
4. There are 56 seahawks, what is the median weight? between 28, 29 oz $\frac{239+240}{2} = 239\frac{1}{2}$
5. Based on the shape of the distribution, would you think the median weight is more, less, or about the same as the mean weight? Data skewed right, so mean > median.

The mean weight is

```
> mean(Weight)

[1] 244.375
```

Find the mean of this sample of size 5: $\bar{x} = \frac{265+260+309+229+230}{5} = 258.6$

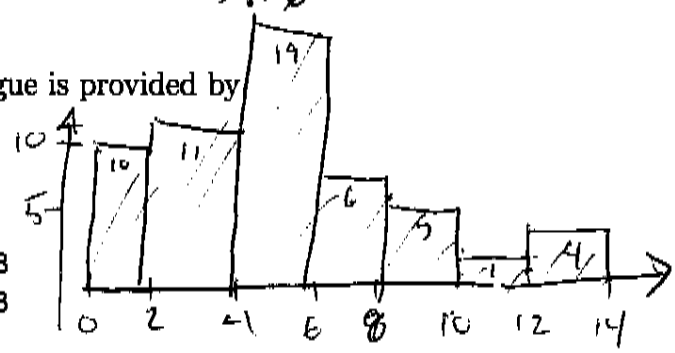
```
> sample(Weight, 5)

[1] 265 260 309 229 230
```

A table of the number of years in the league is provided by

```
> table(Yrs)

Yrs
 0  1  2  3  4  5  6  7  8  9 10 12 13
 8  2  7  4 10  9  5  1  2  3  1  1  3
```



From this, produce a histogram of the data where you use intervals [0,2),[2,4), etc.

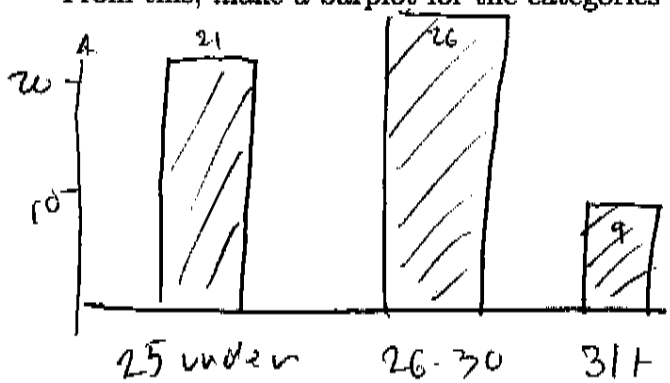
A table for the age of the player is

```
> table(Age)

Age
23 24 25 26 27 28 29 30 31 32 33 34 35 37
 7  9  5 11  5  5  2  3  2  2  1  1  2  1
```

From this, make a barplot for the categories 25 and under, 26 to 30 and over 31.

31 or over!



Homework problems 2

Here are some problems based on Monday's class (2/6).

Excercise 1. Find the median, Q_1, Q_3 of the data set

3 1 4 1 5 9 3

Sort 1 1 3 3 4 5 9 $n = 7$

Median = 3
$Q_1 = 1$
$Q_3 = 5$

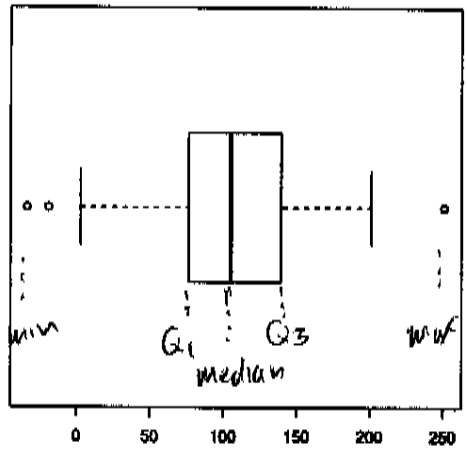
Excercise 2. Compare the mean and median for the following data

12 15 14 43 122

12 14 15 43 122

Median 15
Mean 41.2

Excercise 3. From the boxplot, estimate values of the min, the max, Q_1, the median, and Q_3:



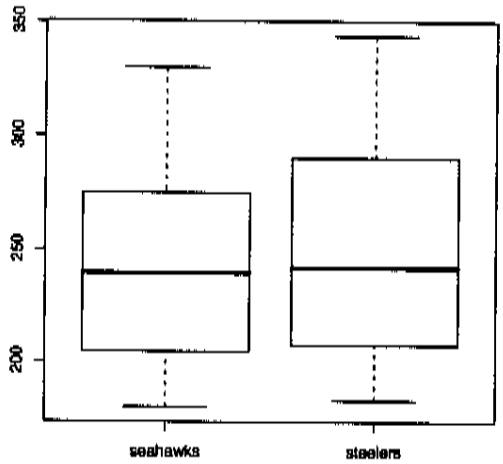
min −20
Q_1 −60
M 100
Q_3 110
max 250

Excercise 4. The weights of the players for the Seahawks and the Steelers can be analyzed as follows.

These commands produce side-by-side boxplots

```
> source("http://www.math.csi.cuny.edu/verzani/classes/MTH113/data/steelers.R")
> source("http://www.math.csi.cuny.edu/verzani/classes/MTH113/data/seahawks.R")
> seahawks.weights = seahawks[["Weight"]]
> steelers.weights = steelers[["WT"]]
> boxplot(list(seahawks = seahawks.weights, steelers = steelers.weights))
```

Homework problems 2



1. Which team had the heaviest player? Steelers
2. Which team had the lightest player? Seahawks
3. Which team had the larger median weight? Steelers
4. Which was more, the third quartile of the Seahawks, or the median of the Steelers?

Seahawks