Assignment 4

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Hello Octocat

I love Octocat. She's the coolest cat in town.

Figure 1: Octocat

```
data(anscombe)
dim(anscombe)
```

```
## [1] 11  8
```

```
colnames(anscombe)
```

```
## [1] "x1" "x2" "x3" "x4" "y1" "y2" "y3" "y4"
```

```
head(anscombe)
```

```
##   x1 x2 x3 x4   y1   y2    y3   y4
## 1 10 10 10  8 8.04 9.14  7.46 6.58
## 2  8  8  8  8 6.95 8.14  6.77 5.76
## 3 13 13 13  8 7.58 8.74 12.74 7.71
## 4  9  9  9  8 8.81 8.77  7.11 8.84
## 5 11 11 11  8 8.33 9.26  7.81 8.47
## 6 14 14 14  8 9.96 8.10  8.84 7.04
```

```
tail(anscombe)
```

```
##    x1 x2 x3 x4    y1   y2   y3    y4
## 6  14 14 14  8  9.96 8.10 8.84  7.04
## 7   6  6  6  8  7.24 6.13 6.08  5.25
```

```
## 8   4  4  4 19  4.26 3.10 5.39 12.50
## 9  12 12 12  8 10.84 9.13 8.15  5.56
## 10  7  7  7  8  4.82 7.26 6.42  7.91
## 11  5  5  5  8  5.68 4.74 5.73  6.89
```

```
summary(anscombe)
```

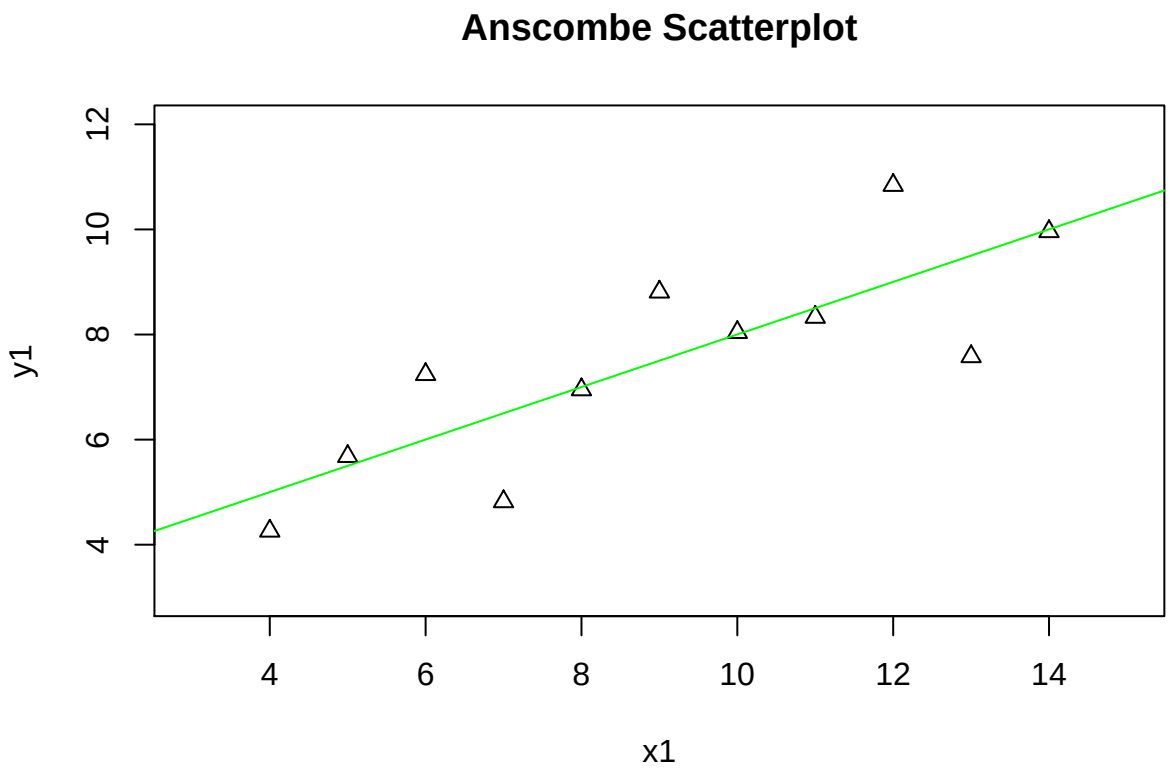
```
##        x1             x2             x3             x4
##  Min.   : 4.0   Min.   : 4.0   Min.   : 4.0   Min.   : 8
##  1st Qu.: 6.5   1st Qu.: 6.5   1st Qu.: 6.5   1st Qu.: 8
##  Median : 9.0   Median : 9.0   Median : 9.0   Median : 8
##  Mean   : 9.0   Mean   : 9.0   Mean   : 9.0   Mean   : 9
##  3rd Qu.:11.5   3rd Qu.:11.5   3rd Qu.:11.5   3rd Qu.: 8
##  Max.   :14.0   Max.   :14.0   Max.   :14.0   Max.   :19
##        y1              y2              y3              y4
##  Min.   : 4.260   Min.   :3.100   Min.   : 5.39   Min.   : 5.250
##  1st Qu.: 6.315   1st Qu.:6.695   1st Qu.: 6.25   1st Qu.: 6.170
##  Median : 7.580   Median :8.140   Median : 7.11   Median : 7.040
##  Mean   : 7.501   Mean   :7.501   Mean   : 7.50   Mean   : 7.501
##  3rd Qu.: 8.570   3rd Qu.:8.950   3rd Qu.: 7.98   3rd Qu.: 8.190
##  Max.   :10.840   Max.   :9.260   Max.   :12.74   Max.   :12.500
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
##    x1    y1
## 1  10  8.04
## 2   8  6.95
## 3  13  7.58
## 4   9  8.81
## 5  11  8.33
## 6  14  9.96
## 7   6  7.24
## 8   4  4.26
## 9  12 10.84
## 10  7  4.82
## 11  5  5.68
```




```
library(readr)
df <- read.csv("analgesic.csv")
```

```
dim(df)
```

```
## [1] 40  5
```

```
colnames(df)
```

```
## [1] "ID"            "Group"         "Measurement_1" "Measurement_2"
## [5] "Measurement_3"
```

```
head(df)
```

```
##   ID     Group Measurement_1 Measurement_2 Measurement_3
## 1  1 Analgesic            26            26            21
## 2  2 Analgesic            29            26            23
## 3  3 Analgesic            24            28            22
## 4  4 Analgesic            25            22            24
## 5  5 Analgesic            24            28            23
## 6  6 Analgesic            22            23            26
```

```r
tail(df)
```

```
##    ID   Group Measurement_1 Measurement_2 Measurement_3
## 35 35 Placebo            17            21            15
## 36 36 Placebo            19            17            15
## 37 37 Placebo            14            19            13
## 38 38 Placebo            17            19            13
## 39 39 Placebo            11            20            18
## 40 40 Placebo            15            18            12
```

```r
summary(df)
```

```
##        ID              Group    Measurement_1   Measurement_2
##  Min.   : 1.00   Analgesic:20   Min.   :10.00   Min.   : 8.0
##  1st Qu.:10.75   Placebo  :20   1st Qu.:17.00   1st Qu.:17.0
##  Median :20.50                  Median :20.00   Median :20.0
##  Mean   :20.50                  Mean   :20.12   Mean   :20.7
##  3rd Qu.:30.25                  3rd Qu.:24.00   3rd Qu.:25.0
##  Max.   :40.00                  Max.   :30.00   Max.   :32.0
##  Measurement_3
##  Min.   :12.00
##  1st Qu.:16.00
##  Median :20.50
##  Mean   :20.52
##  3rd Qu.:24.25
##  Max.   :30.00
```

```r
library(tidyr)
library(dplyr)
# Tidy the data from a wide to long format
df.new <- gather(df, Replicate_reading, Measurement, Measurement_1:Measurement_3)

# Group by the 'Group' column ("Analgesic", "Placebo")
grouped <- group_by(df.new, Group)
grouped
```

```
## Source: local data frame [120 x 4]
## Groups: Group [2]
##
##       ID     Group Replicate_reading Measurement
##    <int>    <fctr>             <chr>       <int>
## 1      1 Analgesic     Measurement_1          26
## 2      2 Analgesic     Measurement_1          29
## 3      3 Analgesic     Measurement_1          24
## 4      4 Analgesic     Measurement_1          25
## 5      5 Analgesic     Measurement_1          24
## 6      6 Analgesic     Measurement_1          22
## 7      7 Analgesic     Measurement_1          25
## 8      8 Analgesic     Measurement_1          28
## 9      9 Analgesic     Measurement_1          22
## 10    10 Analgesic     Measurement_1          18
## ..   ...       ...               ...         ...
```

```r
# Group by the 'ID' column
grouped.2 <- group_by(grouped, ID)
grouped.2
```

```
## Source: local data frame [120 x 4]
## Groups: ID [40]
##
##       ID     Group Replicate_reading Measurement
##    <int>    <fctr>             <chr>       <int>
## 1      1 Analgesic     Measurement_1          26
## 2      2 Analgesic     Measurement_1          29
## 3      3 Analgesic     Measurement_1          24
## 4      4 Analgesic     Measurement_1          25
## 5      5 Analgesic     Measurement_1          24
## 6      6 Analgesic     Measurement_1          22
## 7      7 Analgesic     Measurement_1          25
## 8      8 Analgesic     Measurement_1          28
## 9      9 Analgesic     Measurement_1          22
## 10    10 Analgesic     Measurement_1          18
## ..   ...       ...               ...         ...
```

```r
# Get the mean for every individual's ("ID") measurements
sum <- summarize(grouped.2, mean(Measurement))

# Print the final dataframe
sum
```

```
## Source: local data frame [40 x 2]
##
##       ID mean(Measurement)
##    <int>             <dbl>
## 1      1          24.33333
## 2      2          26.00000
## 3      3          24.66667
## 4      4          23.66667
## 5      5          25.00000
## 6      6          23.66667
## 7      7          26.66667
## 8      8          23.33333
## 9      9          22.66667
## 10    10          24.00000
## ..   ...               ...
```