HW2_Lin

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P3

For solo workers, version control helps them track every single step they made, and help them remember every decision they've made. For group workers, version control simply makes cooperating easier for each other, because by version control, they can know the progress on each one and the team can adjust to make things more efficient.

P4

```
library(dplyr)
```

```
## Warning: package 'dplyr' was built under R version 3.5.1
```

```
##
## 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
```

```
url <- "https://www2.isye.gatech.edu/~jeffwu/wuhamadabook/data/Sensory.dat"
operator <- read.table(url,fill = TRUE)
op_dat <- as.matrix(operator[-c(1:2),])
for (i in 1:10) {
  t <- op_dat[3*i-1,1:5]
  t <- c(i,t)
  op_dat[3*i-1,] <- t
  m <- op_dat[3*i,1:5]
  m <- c(i,m)
  op_dat[3*i,] <- m

}
op_dat <- as.data.frame(op_dat)
names(op_dat) <- c('item','operator1','operator2','operator3','operator4','operator5')
op_dat[,2:6] <- op_dat[,2:6] %>% mutate_if(is.factor, as.character)
op_dat[,2:6] <- op_dat[,2:6] %>% mutate_if(is.character, as.numeric)
op_dat
```

```
##    item operator1 operator2 operator3 operator4 operator5
## 3     1       4.3       4.9       3.3       5.3       4.4
## 4     1       4.3       4.5       4.0       5.5       3.3
## 5     1       4.1       5.3       3.4       5.7       4.7
## 6     2       6.0       5.3       4.5       5.9       4.7
## 7     2       4.9       6.3       4.2       5.5       4.9
## 8     2       6.0       5.9       4.7       6.3       4.6
## 9     3       2.4       2.5       2.3       3.1       2.4
## 10    3       3.9       3.0       2.8       2.7       1.3
## 11    3       1.9       3.9       2.6       4.6       2.2
## 12    4       7.4       8.2       6.4       6.8       6.0
## 13    4       7.1       7.9       5.9       7.3       6.1
## 14    4       6.4       7.1       6.9       7.0       6.7
## 15    5       5.7       6.3       5.4       6.1       5.9
## 16    5       5.8       5.7       5.4       6.2       6.5
## 17    5       5.8       6.0       6.1       7.0       4.9
## 18    6       2.2       2.4       1.7       3.4       1.7
## 19    6       3.0       1.8       2.1       4.0       1.7
## 20    6       2.1       3.3       1.1       3.3       2.1
## 21    7       1.2       1.5       1.2       0.9       0.7
## 22    7       1.3       2.4       0.8       1.2       1.3
## 23    7       0.9       3.1       1.1       1.9       1.6
## 24    8       4.2       4.8       4.5       4.6       3.2
## 25    8       3.0       4.5       4.7       4.9       4.6
## 26    8       4.8       4.8       4.7       4.8       4.3
## 27    9       8.0       8.6       9.0       9.4       8.8
## 28    9       9.0       7.7       6.7       9.0       7.9
## 29    9       8.9       9.2       8.1       9.1       7.6
## 30   10       5.0       4.8       3.9       5.5       3.8
## 31   10       5.4       5.0       3.4       4.9       4.6
## 32   10       2.8       5.2       4.1       3.9       5.5
```

```r
mean_op_table <- op_dat %>%
  group_by(item) %>%
  summarize(
    mean1 = mean(operator1),
    mean2 = mean(operator2),
    mean3 = mean(operator3),
    mean4 = mean(operator4),
    mean5 = mean(operator5)
  )


url <- "https://www2.isye.gatech.edu/~jeffwu/wuhamadabook/data/LongJumpData.dat"
olympic <- read.table(url,fill = TRUE)
#olympic <- olympic %>% mutate_if(is.factor,as.character)
#olympic <- olympic %>% mutate_if(is.character,as.numeric)
olympic <- as.matrix(olympic)
oly_dat <- rbind(olympic[,1:2],olympic[,3:4],olympic[,5:6],olympic[,7:8])
oly_dat <- na.omit(oly_dat)
oly_dat <- as.data.frame(oly_dat)
names(oly_dat) <- c("year","Long Jump")
#oly_table <- oly_dat %>% summarize(mean=mean(`Long Jump`),var=var(`Long Jump`))
oly_dat
```

```
##    year Long Jump
## 1  Year      Long
## 2    -4    249.75
## 3     0    282.88
## 4     4    289.00
## 5     8    294.50
## 6    12    299.25
## 7    20    281.50
## 8  Jump      Year
## 9    24    293.13
## 10   28    304.75
## 11   32    300.75
## 12   36    317.31
## 13   48    308.00
## 14   52    298.00
## 15 Long      Jump
## 16   56    308.25
## 17   60    319.75
## 18   64    317.75
## 19   68    350.50
## 20   72    324.50
## 21   76    328.50
## 22 Year      Long
## 23   80    336.25
## 24   84    336.25
## 25   88    343.25
## 26   92    342.50
## 27
## 28
```

```
url <- 'https://www2.isye.gatech.edu/~jeffwu/wuhamadabook/data/BrainandBodyWeight.dat'
weight <- read.table(url,fill = TRUE)
#weight <- weight %>% mutate_if(is.factor,as.character)
#weight <- weight %>% mutate_if(is.character,as.numeric)
weight <- as.matrix(weight[-1,1:6])
weight_dat <- rbind(weight[,1:2],weight[,3:4],weight[,5:6])
weight_dat <- as.data.frame(weight_dat[-nrow(weight_dat),])
names(weight_dat) <- c("Body Wt","Brain Wt")
weight_dat
```

```
##        Body Wt Brain Wt
## X2       3.385     44.5
## X3       0.480     15.5
## X4       1.350      8.1
## X5     465.000    423.0
## X6      36.330    119.5
## X7      27.660    115.0
## X8      14.830     98.2
## X9       1.040      5.5
## X10      4.190     58.0
## X11      0.425      6.4
## X12      0.101      4.0
## X13      0.920      5.7
## X14      1.000      6.6
```

```
## X15      0.005      0.1
## X16      0.060      1.0
## X17      3.500     10.8
## X18      2.000     12.3
## X19      1.700      6.3
## X20   2547.000   4603.0
## X21      0.023      0.3
## X22    187.100    419.0
## X2.1   521.000    655.0
## X3.1     0.785      3.5
## X4.1    10.000    115.0
## X5.1     3.300     25.6
## X6.1     0.200      5.0
## X7.1     1.410     17.5
## X8.1   529.000    680.0
## X9.1   207.000    406.0
## X10.1   85.000    325.0
## X11.1    0.750     12.3
## X12.1   62.000   1320.0
## X13.1 6654.000   5712.0
## X14.1    3.500      3.9
## X15.1    6.800    179.0
## X16.1   35.000     56.0
## X17.1    4.050     17.0
## X18.1    0.120      1.0
## X19.1    0.023      0.4
## X20.1    0.010      0.3
## X21.1    1.400     12.5
## X22.1  250.000    490.0
## X2.2     2.500    12.10
## X3.2    55.500   175.00
## X4.2   100.000   157.00
## X5.2    52.160   440.00
## X6.2    10.550   179.50
## X7.2     0.550     2.40
## X8.2    60.000    81.00
## X9.2     3.600    21.00
## X10.2    4.288    39.20
## X11.2    0.280     1.90
## X12.2    0.075     1.20
## X13.2    0.122     3.00
## X14.2    0.048     0.33
## X15.2  192.000   180.00
## X16.2    3.000    25.00
## X17.2  160.000   169.00
## X18.2    0.900     2.60
## X19.2    1.620    11.40
## X20.2    0.104     2.50
## X21.2    4.235    50.40
```

```
url <- 'https://www2.isye.gatech.edu/~jeffwu/wuhamadabook/data/tomato.dat'
tomato <- read.csv(url,sep = '\t')
tomato < - tomato %>% mutate_if(is.factor,as.character)
```

```
## Warning in Ops.factor(left): '-' not meaningful for factors
```

```
## Warning in Ops.factor(left, right): '<' not meaningful for factors
```

```
##      X.this.needs.reformatting.to.read.into.Splus
## [1,]                                           NA
## [2,]                                           NA
## [3,]                                           NA
```

```
size <- paste(tomato[1,])
size <- strsplit(size," ")
size <- size[[1]][size[[1]]!=""]
size <- as.numeric(size[1:3])
size <- as.vector(size)

ife <- paste(tomato[2,])
ife <- strsplit(ife,' ')
ife <- ife[[1]][ife[[1]]!=""]
ife[2:4] <- strsplit(ife[2:4],',')
name <- as.matrix(rep(ife[[1]],3))
ife <- rbind(ife[[2]],ife[[3]],ife[[4]])
ife <- ife %>%
  cbind(name) %>%
  cbind(c(1000,2000,3000))

pusa <- paste(tomato[3,])
pusa <- strsplit(pusa,' ')
pusa <- pusa[[1]][pusa[[1]]!=""]
pusa[2:4] <- strsplit(pusa[2:4],',')
name <- as.matrix(rep(pusa[[1]],3))
pusa <- rbind(pusa[[2]],pusa[[3]],pusa[[4]])
pusa <- pusa %>%
  cbind(name) %>%
  cbind(c(1000,2000,3000))
tomato_dat <- rbind(pusa,ife)
tomato_dat <- tomato_dat %>% as.data.frame()
colnames(tomato_dat) <- c('1st','2nd','3rd','name','plant density')
tomato_dat <- tomato_dat[,c("name","plant density",'1st','2nd','3rd')]

tomato_dat[,2:5] <- tomato_dat[,2:5] %>%
  mutate_if(is.factor,as.character) %>%
  mutate_if(is.character,as.numeric)

tomato_dat
```

```
##             name plant density  1st  2nd  3rd
## 1 PusaEarlyDwarf          1000  8.1  8.6 10.1
## 2 PusaEarlyDwarf          2000 12.7 13.7 11.5
## 3 PusaEarlyDwarf          3000 14.4 15.4 13.7
## 4        Ife\\#1          1000 16.1 15.3 17.5
## 5        Ife\\#1          2000 16.6 19.2 18.5
## 6        Ife\\#1          3000 20.8 18.0 21.0
```