finalproject.R

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# Final Project  
  
# Randomize the experiment  
set.seed(1234)  
sample(1:20, replace=FALSE)

## [1] 3 12 11 18 14 10 1 4 8 6 7 5 20 15 2 9 17 16 19 13

# Read in the data  
results <- read.table(text = "run,material,clipSize,time  
1,Copier,Small,2.62  
2,Notebook,Small,2.10  
3,Notebook,Small,1.98  
4,Notebook,Big,1.86  
5,Notebook,Small,2.24  
6,Copier,Big,1.79  
7,Copier,Small,1.64  
8,Copier,Small,1.65  
9,Copier,Big,1.72  
10,Copier,Big,1.71  
11,Copier,Big,1.64  
12,Copier,Small,1.98  
13,Notebook,Big,1.84  
14,Notebook,Small,2.11  
15,Copier,Small,1.73  
16,Copier,Big,1.78  
17,Notebook,Big,1.65  
18,Notebook,Big,1.97  
19,Notebook,Big,1.66  
20,Notebook,Small,1.58", header = TRUE, sep = ",")  
  
# Look at the data  
str(results)

## 'data.frame': 20 obs. of 4 variables:  
## $ run : int 1 2 3 4 5 6 7 8 9 10 ...  
## $ material: Factor w/ 2 levels "Copier","Notebook": 1 2 2 2 2 1 1 1 1 1 ...  
## $ clipSize: Factor w/ 2 levels "Big","Small": 2 2 2 1 2 1 2 2 1 1 ...  
## $ time : num 2.62 2.1 1.98 1.86 2.24 1.79 1.64 1.65 1.72 1.71 ...

head(results)

## run material clipSize time  
## 1 1 Copier Small 2.62  
## 2 2 Notebook Small 2.10  
## 3 3 Notebook Small 1.98  
## 4 4 Notebook Big 1.86  
## 5 5 Notebook Small 2.24  
## 6 6 Copier Big 1.79

tail(results)

## run material clipSize time  
## 15 15 Copier Small 1.73  
## 16 16 Copier Big 1.78  
## 17 17 Notebook Big 1.65  
## 18 18 Notebook Big 1.97  
## 19 19 Notebook Big 1.66  
## 20 20 Notebook Small 1.58

# Summarize the results  
aggregate(time~material+clipSize+material\*clipSize, data = results, FUN = mean)

## material clipSize time  
## 1 Copier Big 1.728  
## 2 Notebook Big 1.796  
## 3 Copier Small 1.924  
## 4 Notebook Small 2.002

aggregate(time~material+clipSize+material\*clipSize, data = results, FUN = sd)

## material clipSize time  
## 1 Copier Big 0.06058052  
## 2 Notebook Big 0.13794927  
## 3 Copier Small 0.41258938  
## 4 Notebook Small 0.25321927