

Ttest_analysis.R

agmmortl

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```
#####  
##  
## Simple two sample t test analysis  
##  
## Our Experiment  
## We have two treatments (Variety A and Variety B)  
## and we have 10 plots of land on the research station  
##  
## in a completely randomised design with two treatments  
## It will be analysed as a two sample t test  
#####  
## The steps in this code:  
# read in data from the .csv file  
# with the plan with the yields  
# look at the data  
# remind yourself of the variable names  
# and the number or rows in the variable "Yield"  
#####  
  
planY <- read.csv("planyield.csv")  
View(planY)  
head(planY)
```

```
## plot variety Yield  
## 1 1 VarietyB 194.0  
## 2 2 VarietyB 205.5  
## 3 3 VarietyA 190.7  
## 4 4 VarietyA 233.5  
## 5 5 VarietyB 199.2  
## 6 6 VarietyA 203.5
```

```
names(planY)
```

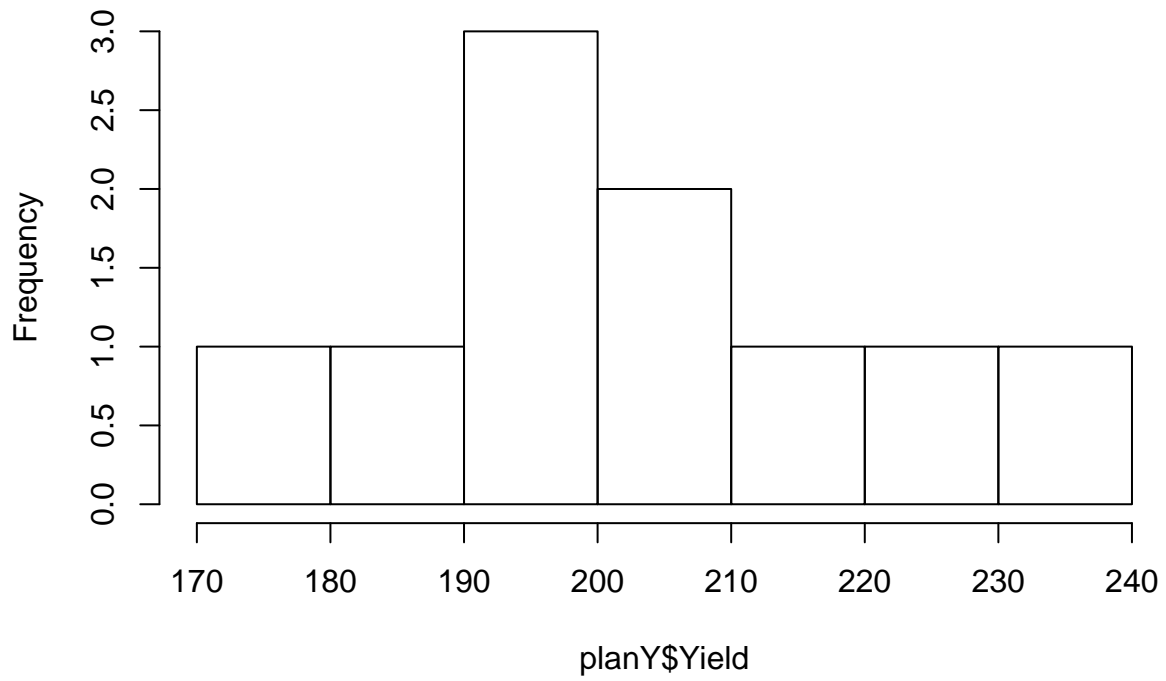
```
## [1] "plot" "variety" "Yield"
```

```
length(planY$Yield)
```

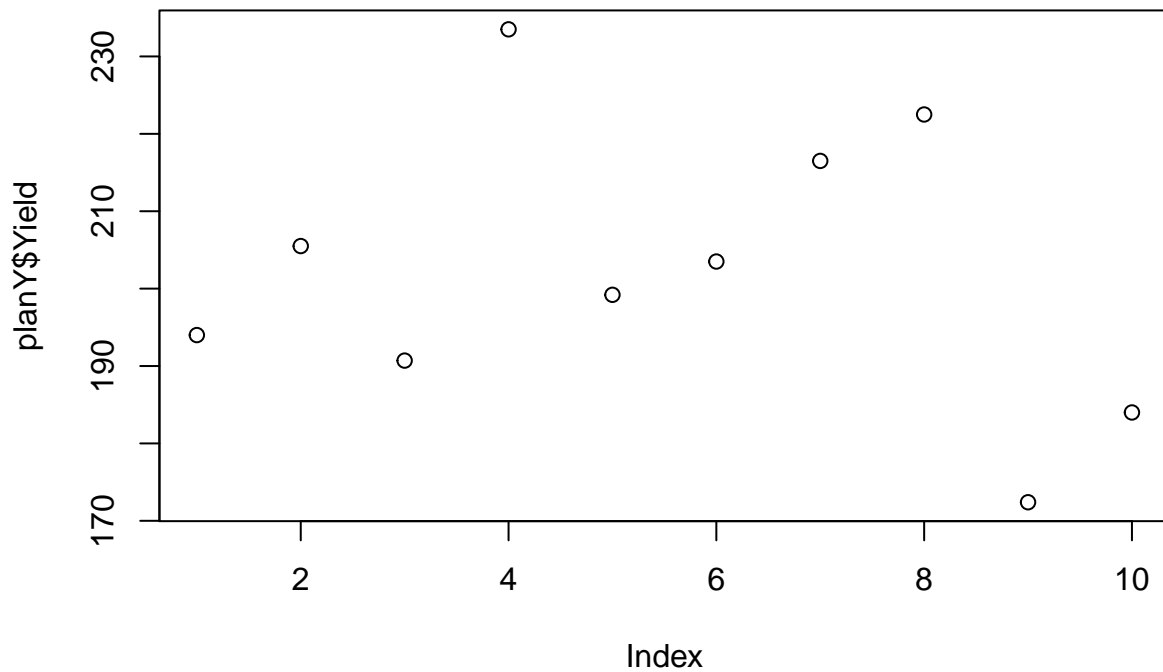
```
## [1] 10
```

```
hist(planY$Yield)
```

Histogram of planY\$Yield



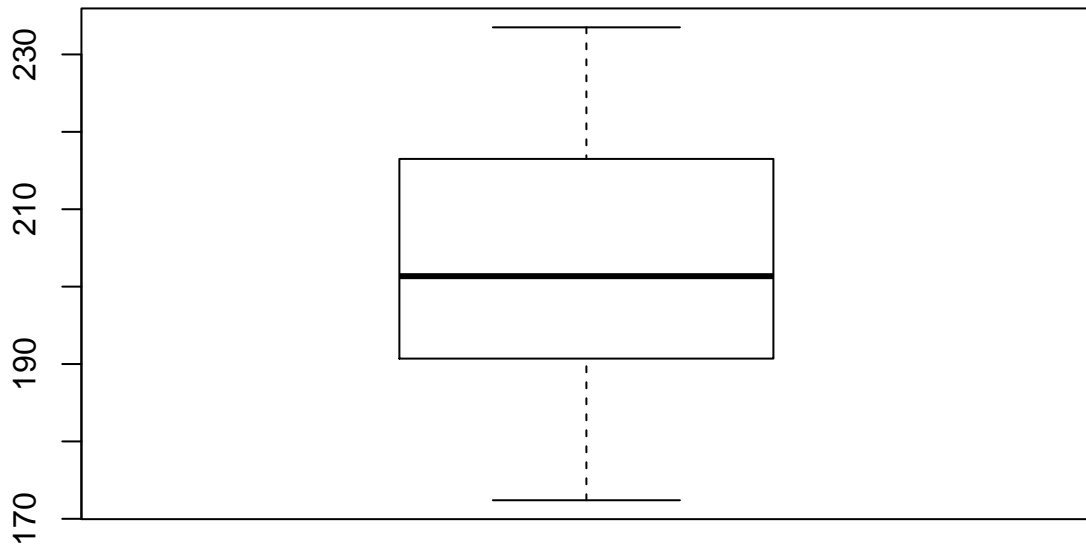
```
plot(planY$Yield)
```



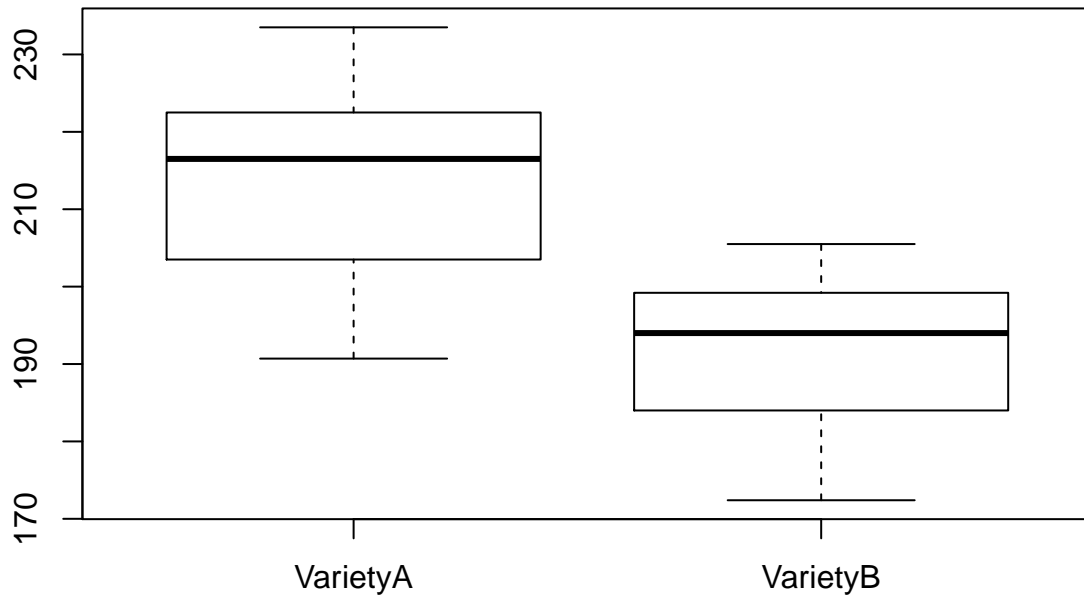
```
## look at the structure of the data
## Is your variety a factor ?
## In this case it has come in as a factor
## as it was a string or text variable
str(planY)
```

```
## 'data.frame': 10 obs. of 3 variables:
## $ plot : int 1 2 3 4 5 6 7 8 9 10
## $ variety: Factor w/ 2 levels "VarietyA","VarietyB": 2 2 1 1 2 1 1 1 2 2
## $ Yield : num 194 206 191 234 199 ...
```

```
# Plot all the data
boxplot(planY$Yield)
```



```
# Plot by variety  
boxplot(planY$Yield~planY$variety)
```



```
## Undertake a t test
## where y is numeric and x is a binary factor
##   t.test(y~x)

## The data is not structured, so there are no blocks
t.test(planY$Yield~planY$variety)
```

```
##
## Welch Two Sample t-test
##
## data:  planY$Yield by planY$variety
## t = 2.3585, df = 7.5674, p-value = 0.04781
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  0.278033 44.361967
## sample estimates:
## mean in group VarietyA mean in group VarietyB
##           213.34           191.02
```

```
## What do you conclude ?
```