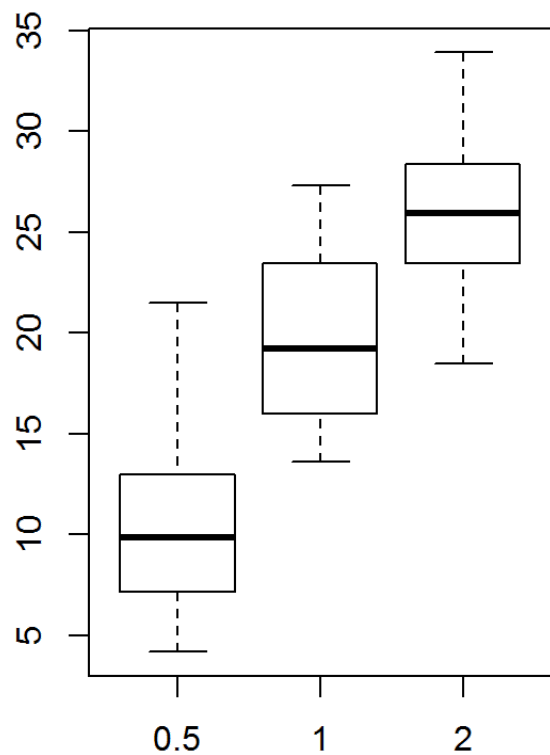
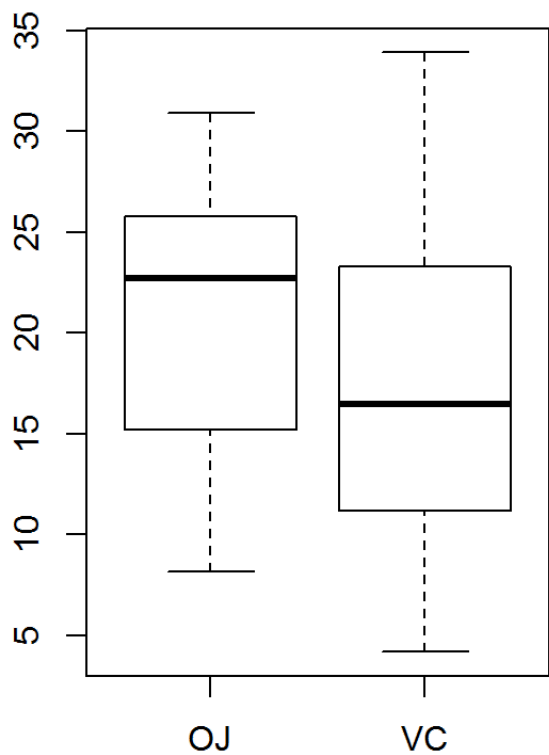


Statistical Inference Assignment

Part 2: Basic inferential data analysis

Basic boxplots to summarize the data visually



Basic data summary

##	len	supp	dose
##	Min. : 4.2	OJ:30	Min. :0.50
##	1st Qu.:13.1	VC:30	1st Qu.:0.50
##	Median :19.2		Median :1.00
##	Mean :18.8		Mean :1.17
##	3rd Qu.:25.3		3rd Qu.:2.00
##	Max. :33.9		Max. :2.00

t confidence and p value results for supp categories on length

##	[,1]	[,2]
##	[1,]	-0.167 7.567
##	[2,]	-0.171 7.571

```
##           [,1]
## [1,] 0.06039
## [2,] 0.06063
```

t confidence and p value results for dosage on length

```
##           [,1]      [,2]
## [1,] -8.994 -3.736
## [2,] -8.996 -3.734
## [3,] -11.984 -6.276
## [4,] -11.984 -6.276
## [5,] -18.154 -12.836
## [6,] -18.156 -12.834
```

```
##           [,1]
## [1,] 1.811e-05
## [2,] 1.906e-05
## [3,] 1.266e-07
## [4,] 1.268e-07
## [5,] 2.838e-14
## [6,] 4.398e-14
```

Conclusion : Impact of supplements and dosage on Tooth Length

1. We can't statistically say that the supplementary types have any impact on the length. The reason is zero lies between the t confidence intervals. The p value of approx. 6 % plus is statistically significant and we can't reject the null hypothesis that there is no difference because of the supp
2. Changes in Dosage between .5 to 1, .5 to 2, and 1 to 2 all has an impact on overall length. the t confidence intervals do not have zeroes and the p values are all significantly below 5%

Assumption

The key assumption is that the samples are all from the same population. However the finding with this assumption as TRUE or FALSE does not change the conclusion for either impact of supplements on length or dosage on length