

Εργαστηριακή Άσκηση 2

Θέμα: Περιγραφική Στατιστική

1.

```
> Height<-c(3.33, 5.87, 6.31, 1.98, 4.86, 2.65, 2.78, 2.21, 0.45, 1.51, 0.56, 3.68, 2.16, 3.15, 0.84, 3.95, 4.16, 2.99, 2.15, 6.78, 2.84, 4.23, 2.89, 2.56, 2.65, 1.54, 0.98, 0.87)
```

```
> Position<-c(1,2,2,2,1,2,1,1,2,1,2,1,1,1,1,1,1,1,2,2,1,2,1,1,2,2,2,2)
```

```
> summary(Height)
  Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
 0.450  1.870  2.715  2.890  3.748  6.780
> sd(Height)
[1] 1.662966
```

```
> iq<-3.748-1.870
```

```
> iq
[1] 1.878
```

Ισοδύναμα:

```
> iq<-quantile(Height,0.75)-quantile(Height,0.25)
```

```
> var(Height)
[1] 2.765455
> n<-length(Height)
> (n-1)*var(Height)/n
[1] 2.666689
```

2.

```
> hist(Height)
> hist(Height, freq=F)

>hist(Height, freq=F, nclass=4)
> hist(Height, freq=F, nclass=14)
```

3.

```
> boxplot(Height~Position, names=c('North Greece','South Greece'), main="Height
(meters) of a particular plant according to its Geographical Position")
```

Ισοδύναμα:

```
> Height1<-Height[Position==1]  
> Height2<-Height[Position==2]  
> boxplot(Height1,Height2,names=c('North Greece','South Greece'), main="Height  
(meters) of a particular plant according to its Geographical Position")
```

4.

```
>plot(Height, type='n')  
>text(Height, label=Position)  
>title("Height (meters) of a particular plant according to its Geographical Position") >  
>legend(20,6, legend=c("1=North Greece", "2=South Greece"))
```

5.

```
> by(Height, Position, median)
```

INDICES: 1

[1] 2.89

INDICES: 2

[1] 2.15

Ισοδύναμα:

```
> median(Height1)
```

```
> median(Height2)
```

6.

```
> cat_height<-rep(1, 28)  
> cat_height[Height>=1 & Height<=3]<-2  
> cat_height[Height>3]<-3  
> cat_height<-factor(cat_height)  
> levels(cat_height)<-c("Short", "Medium", "Tall")  
> table(cat_height)  
> prop.table(table(cat_height))  
> pie(table(cat_height))  
> title(main="Pie-chart of the Height of a particular plant")
```

7.

```
> mytable<-table(cat_height, Position)  
> prop.table(mytable)  
> prop.table(mytable, 1)  
> prop.table(mytable, 2)
```