

exercice 3

vecteur V1 contient les effectifs

V1=c(60,90,170,320,230,130)

sum(V1): somme des valeurs de V1

cumsum(V1):somme cumulée

#Data frame : sorte de matrice. Les colonnes représentent les variables et les lignes les individus.

data.frame(Eff=V1,EffCum=cumsum(V1),Freq=V1/sum(V1),FreqCum=cumsum(V1/sum(V1)))

#commande pour la diagramme circulaire

pie(V1,radius=1)

#commande pour la diagramme en barres

barplot(V1)

exercice 3

Z=c(20, 21, 25, 25, 26, 26,26, 27, 27, 27,28, 29, 30, 30, 30,31, 31,32, 32, 32, 32,

+ 33, 33, 33, 33, 33, 34, 34, 35, 35,36, 37, 37, 38, 38, 39, 40, 40, 40, 41, 41,

+ 46, 48, 48, 49, 50, 50, 53, 53, 53, 53, 53, 53, 54, 54)

stem(Z,0.5)

exercice 4

Notes=c(10 ,8 ,3 ,12 ,13 ,9 , 12 ,9 , 12 ,11,11 ,11 ,8 ,5 ,13 ,14 ,14 ,6,

+12 ,16 ,7 ,11 ,10 ,10 , 2 ,15 ,12 ,10 ,1 ,14,11 ,7 ,8 ,10 ,13,9,13,

+9,7,13,11 ,19 , 9 , 4, 10 , 8 , 9, 6,7,14)

T5=table(cut(Notes, right=FALSE,breaks=c(0,5,7,9,11,13,15,20)))

T5c=c(T5)

data.frame(Eff=T5c,EffCum=cumsum(T5c),Freq=T5c/sum(T5c),FreqCum=cumsum(T5c/sum(T5c)))

hist(Notes,right=FALSE,breaks=c(0,5,7,9,11,13,15,20),col="blue")

```

y=c(0,0,cumsum(T5c/sum(T5c)),1)
x=c(-5,0,5,7,9,11,13,15,20,25)
plot(x,y,type="b",xlab=" x label",ylab="y label",xaxt = "n",col="blue")
axis(1, c(0,5,7,9,11,13,15,20))

```

```
summary(T5c)
```

```
#####
```

```
S1=c(12 ,13 ,15 ,16 ,18 ,19 , 22 ,24 , 25 ,27,28 ,34)
```

```
mean(S1)
```

```
median(S1)
```

```
quantile(S1,type=2)
```

```
## summary(S1)
```

```
S2=c(12 ,13 ,15 ,16 ,18 ,19 , 22 ,24 , 25 ,27)
```

```
mean(S2)
```

```
median(S2)
```

```
quantile(S2,type=2)
```

```
##quantile(S2,c(0.25,0.5,0.75))
```

```
#####
```

```
ex60=c(5.0 ,0.8 ,1.8 ,1.8 ,2.5 ,3.7 , 3.5 ,1.6 , 1.5 ,0.7)
```

```
sort(ex60)
```

```
mean(ex60)
```

```
median(ex60)
```

```
quantile(ex60,type=2)
```

```
#####
```

```
ex64=c(995.5,48.8 ,175.0 ,263.5 ,298.0 ,218.9 , 209.0 ,
```

```
+ 628.3 , 111.0 ,212.9,92.6,2325.0,958.0,212.5)
```

```

sort(ex64)

mean(ex64)

median(ex64)

quantile(ex64,type=2)

#####

S1=c(15, 10, 17, 11, 15, 12, 13, 16, 12, 14, 14, 16, 15, 18, 11, 16, 13, 17, 12, 16, 18, 15, 17, 15, 19,
13, 14, 17, 16, 15, 12, 11, 17, 16, 15, 10, 14, 15, 13, 16, 18, 15, 17, 11, 14, 17, 15, 14, 13, 16)

mean(S1)

median(S1)

quantile(S1,type=2)

barplot(S1)

boxplot(S1,horizontal=TRUE)

#####

# exercice 5

x<-c(19, 17, 17, 14, 16, 12, 15, 12, 13)

y<-c(32, 28, 29, 24, 26, 20, 24, 20, 22)

mean(x)

mean(y)

plot(x,y)

cov(x,y)

cor(x,y)

a<-(cov(x,y)/var(x))

b<- (mean(y)-a*mean(x))

# Graphique avec le residus

segments(12,a*12+b,19,a*19+b)

segments(15,0,15,30,col="blue")

segments(0,25,19,25,col="blue")

```

```
Z<-c(1,1,1,1,1,2,2,2,2,2,2,2,2,2,3,3,3,3,3,3,3,3,3,3,3,3,3,4,
```

```

+ 4,4,4,4,4,4,4,4,4,5,5,5,5,5,6,6,6,8,8)

T4<-table(Z)

T4c<-c(T4)

data.frame(Eff=T4c,EffCum=cumsum(T4c),Freq=T4c/sum(T4c),FreqCum=cumsum(T4c/sum(T4c)))

plot(T4,type="h",xlab="",ylab="",main="",frame=0,lwd=3)

plot(ecdf(Z),xlab="",ylab="",main="",frame=0)

#####

S<-c(152,152,152,153,153,154,154,154,155,155,156,156,156,156,
+ 157,157,157,158,158,159,159,160,160,160,161,160,160,161,162, +
162,162,163,164,164,164,164,165,166,167,168,168,168,169,169, +
170,171,171,171,171)

T5<-table(cut(S,right=FALSE, breaks=c(151,155,159,163,167,171)))

T5c<-c(T5)

data.frame(Eff=T5c,EffCum=cumsum(T5c),Freq=T5c/sum(T5c),FreqCum=cumsum(T5c/sum(T5c)))

hist(S,breaks=c(151.5,155.5,159.5,163.5,167.5,171.5), freq=FALSE, xlab="",ylab="",main="",xaxt =
"n")

axis(1, c(151.5,155.5,159.5,163.5,167.5,171.5))

y=c(0,0,cumsum(T5c/sum(T5c)),1)

x=c(148,151.5,155.5,159.5,163.5,167.5,171.5,175)

plot(x,y,type="b",xlab="",ylab="",xaxt = "n")

axis(1, c(151.5,155.5,159.5,163.5,167.5,171.5))

#####

yeux<- c(rep("bleu",times=10),rep("vert",times=50),rep("marron",times=20),
rep("bleu",times=20),rep("vert",times=60),rep("marron",times=40))

sexe<- c(rep("homme",times=80),rep("femme",times=120))

yeux<-factor(yeux,levels=c("bleu","vert","marron"))

sexe<-factor(sexe,levels=c("homme","femme"))

```

```
T<-table(sexe,yeux)
```

```
T
```

```
plot(T,main="")
```

```
summary(T)
```

```
#####
```

```
# nuage de points
```

```
poids<-c(60,61,64,67,68,69,70,70,72,73,75,76,78,80,85,90,96,96,98,101)
```

```
taille<-c(155,162,157,170,164,162,169,170,178,173,180,175,173,175,179,175,180,185,189,187)
```

```
plot(taille,poids)
```

```
# Graphique avec le residus
```

```
plot(taille,poids)
```

```
b<-(cov(taille,poids)/var(taille))
```

```
a<- mean(poids)-b*mean(taille)
```

```
# Graphique avec le residus
```

```
plot(taille,poids)
```

```
segments(158,a+b*158,190,a+b*190)
```

```
segments(180,a+b*180,180,96,col="red")
```

```
#
```

```
text(178,90,expression(e))
```

```
text(178.7,89.5,"i")
```

```
#
```

```
arrows(180,a+b*180,156,a+b*180,col="blue",length=0.14)
```

```
arrows(180,60,180,a+b*180,col="blue",length=0.14)
```

```
arrows(180,96,156,96,col="blue",length=0.14)
```

```
#
```

```
text(154.8,86,expression(y))
```

`text(155.5,85.5,"i")`

`#`

`text(154.8,97,expression(y))`

`text(155.5,97.8,"*")`

`text(155.5,96.5,"i")`