Corrigé Progrmmation Logiciel R

Master 1 PS. 2023/2024

Exercice 1 :: 7pts

Q1

```
read.table("Data.csv",sep=";",header=TRUE)
```

####Q2###

```
df1=df[df$"Region"=="Sud",]
```

```
rownames(df1[which.min(df1$Distance),])
```

Q3####

```
val=df["Oran","Superficie"]
```

```
rownames(df[df$Superficice>val,])
```

Q4####

```
df2=df[df$CHU==FALSE,]
```

```
rownames(df2[which.max(df2$Population),])
```

Q5###

```
df[order(df$Superficie),]
```

Q6###

```
100*table(df$Region)/sum(table(df$Region))
```

Q7###

```
res=tapply(df[,"Population"],Region,sum)
```

```
100*res/sum(res)
```

Exercice 2 :: 7pts [3+3+1]

Q1

```
prod=function(A,B) {
```

```
if(nrow(A)!=nrow(B) || ncol(A)!=ncol(B)) return("les matrices ne sont
```

```
pas compatibles")
```

```
C=matrix(0,nrow(A),ncol(A))
```

```
for(i in 1:nrow(C)) for(j in 1:ncol(C)) C[i,j]=A[i,j]*B[i,j]
return(C)
}

## Q2
nb=function(v){
s=0
for(i in 1:length(v)) s=s+v[i]
m=s/length(v)
cp=0
for(i in 1:length(v)) if(v[i]>=m) cp=cp+1
return(cp)
}
## Q3
sum(v>=mean(v))
```

Exercice 3 :: 5 pts

```
## Q1
1+cumsum(2*0:7)
## Q2
rep(rep(1:4,4:1),2)
## Q3
A=matrix(rep(8:1,3),byrow=TRUE,6,4)

B=matrix(1:2,6,6)
diag(B)=rep(c(5,0),3)

C=matrix(rep(1:4,1:4),6,5)
```

Exercice 4:: 5pts [2+1+2]

avec boucle

```
is.sym=function(M){
for(i in 1:nrow(M))
for(j in 1:i)  if(M[i,j]!=M[j,i] return(FALSE)
return(TRUE)
}
```

sans boucle

```
sum(t(M)!=M)==0
```