

## 1 Partie: pré-traitement des données brutes

On utilise RStudio pour ce travail donc ci-dessous sont des codes:

**a.**

```
preprocessBreast<-function(a){  
  i<-  
  read.csv("~/RICM5/DataScience/breast-cancer-wisconsin/breast-cancer-wisconsin.data", header=FALSE)  
  a<-breast.cancer.wisconsin  
  ss=cbind(a[,11],a[,c(2,3,4,5,6,8,9,10)]/10)  
  ss[,1][ss[,1]==2]<-1  
  ss[,1][ss[,1]==4]<--1  
  p1<-ss[c(1:round(nrow(ss)*0.75,digits = 0)),]  
  p2<-ss[c(round(nrow(ss)*0.75+1,digits = 0)):nrow(ss),]  
  names(p1)<-NULL  
  rownames(p1)<-NULL  
  names(p2)<-NULL  
  rownames(p2)<-NULL  
  write.table(p1,"breast-Train",row.names = FALSE,col.names = FALSE)  
  write.table(p2,"breast-Test",row.names = FALSE,col.names = FALSE)  
}  
preprocessBreast(breast.cancer.wisconsin)
```

**b.**

```
preprocessIonosphere<-function(){  
  i<- read.csv("~/RICM5/DataScience/Ionosphere/ionosphere.data", header=FALSE)  
  is=cbind(i[,ncol(i)],i[,1:ncol(i)-1])  
  io<-cbind(seq(0,0,length.out = nrow(is)),is)  
  io[,1][io[,2]=='g']<-1  
  io[,1][io[,2]=='b']<--1  
  io[,2]<-NULL  
  i1<-io[c(1:round(nrow(io)*0.75,digits = 0)),]  
  i2<-io[c(round(nrow(io)*0.75+1,digits = 0)):nrow(io),]  
  names(i1)<-NULL  
  rownames(i1)<-NULL  
  names(i2)<-NULL  
  rownames(i2)<-NULL  
  write.table(i1,"ionosphere-Train",row.names = FALSE,col.names = FALSE)  
  write.table(i2,"ionosphere-Test",row.names = FALSE,col.names = FALSE)  
}
```

preprocesslonosphere

**c.**

```
preprocessSpambase<-function(){
  sp<- read.csv("~/RICM5/DataScience/spambase/spambase.data", header=FALSE)
  pp=cbind(sp[,ncol(sp)],sp[,1:ncol(sp)-1])
  ps<-pp[sample(seq(1,nrow(pp)),nrow(pp)),]
  ps[,1][ps[,1]==0]<--1
  ps1<-ps[c(1:round(nrow(ps)*0.75,digits = 0)),]
  ps2<-ps[c(round(nrow(ps)*0.75+1,digits = 0):nrow(ps)),]
  names(ps1)<-NULL
  rownames(ps1)<-NULL
  names(ps2)<-NULL
  rownames(ps2)<-NULL
  write.table(ps1,"spambase-Train",row.names = FALSE,col.names = FALSE)
  write.table(ps2,"spambase-Test",row.names = FALSE,col.names = FALSE)
}
preprocessSpambase()
```

## 2. Partie: Programmer pour Adaline

On a bien observé le code du perceptron et modifié certaines parties. A la fin on a bien généré notre code dans les fichier archivés.

## 3. Partie: un fichier de bash pour finaliser ce tp

On a rédigé un bash pour respecter les exigences de ce tp en répétant chaque expérience 20 fois, en créant un tableau récapitulatif reportant les moyennes des erreurs de test. Le fichier de bash sera dans le fichier archivé.

**tableau récapitulatif reportant les moyennes des erreurs de test**

	Perceptron					Adaline				
	1e-5	1e-4	1e-3	1e-2	1e-1	1e-5	1e-4	1e-3	1e-2	1e-1
breast	0.005 714	0,010 28565	0.022 857	0.017 143	0.011 429	0.028 571	0.017 143	0.005 714	0.005 714	0.011 429
ionosphere	0,003 4090 5	0.022 727	0.022 727	0.579 545	0.579 545	0.000 000	0.011 364	0,046 59085	0.090 909	0.522 727

spambase	0,325 7392	0,404 65215	0,393 2174	0,435 8695	0,472 4348	na	na	na	na	na
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### Ci-dessous sont les données brutes

=====Begin of breast=====

=====lambda:0.00001=====

=====perceptron: breast lambda:0.00001=====

Precision:1.000000 Recall:0.992701 F1-measure:0.996337 Errorr=0.005714

Precision:1.000000 Recall:0.992701 F1-measure:0.996337 Errorr=0.005714

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=====adaline: breast=====

Precision:1.000000 Recall:0.963504 F1-measure:0.981413 Errorr=0.028571

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Precision:1.000000 Recall:0.963504 F1-measure:0.981413 Errorr=0.028571

[illegible]

[illegible]



```
=====adaline: breast=====
```





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Precision:1.000000 Recall:1.000000 F1-measure:1.000000 Errorr=0.000000
Precision:1.000000 Recall:1.000000 F1-measure:1.000000 Errorr=0.000000
Precision:1.000000 Recall:0.977273 F1-measure:0.988506 Errorr=0.022727
Precision:1.000000 Recall:0.977273 F1-measure:0.988506 Errorr=0.022727
Precision:1.000000 Recall:0.977273 F1-measure:0.988506 Errorr=0.022727
```

=====adaline: ionosphere=====

[illegible]

```
=====lambda:0.0001=====
=====perceptron: ionosphere
```

[illegible]

[illegible]



[illegible]

=====adaline: ionosphere=====

=====lambda:0.1=====

lambda:0.00001=====



[illegible]

```
=====lambda:0.0001=====
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```
=====perceptron: spambase
```

lambda:0.00001=====

=====

```
=====adaline: spambase=====
```

Precision:-nan Recall:0.000000 F1-measure:-nan Errorr=0.000000

[illegible]

=====lambda:0.001=====

```
=====perceptron: spambase
```

lambda:0.00001=====

```
Precision:0.446078 Recall:0.986985 F1-measure:0.614450 Errorr=0.496522
Precision:0.446078 Recall:0.986985 F1-measure:0.614450 Errorr=0.496522
Precision:0.446078 Recall:0.986985 F1-measure:0.614450 Errorr=0.496522
Precision:0.446078 Recall:0.986985 F1-measure:0.614450 Errorr=0.496522
Precision:0.446078 Recall:0.986985 F1-measure:0.614450 Errorr=0.496522
Precision:0.446078 Recall:0.986985 F1-measure:0.614450 Errorr=0.496522
Precision:0.546851 Recall:0.772234 F1-measure:0.640288 Errorr=0.347826
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Precision:0.546851 Recall:0.772234 F1-measure:0.640288 Errorr=0.347826
Precision:0.580745 Recall:0.405640 F1-measure:0.477650 Errorr=0.355652
Precision:0.580745 Recall:0.405640 F1-measure:0.477650 Errorr=0.355652
```

=====

```
=====adaline: spambase=====
```

[illegible]



```
Precision:-nan Recall:0.000000 F1-measure:-nan Errorr=0.000000
Precision:-nan Recall:0.000000 F1-measure:-nan Errorr=0.000000
Precision:-nan Recall:0.000000 F1-measure:-nan Errorr=0.000000
Precision:-nan Recall:0.000000 F1-measure:-nan Errorr=0.000000
```

[illegible]

=====lambda:0.1=====

```
=====perceptron: spambase
```

lambda:0.00001=====

[illegible]

=====

```
=====adaline: spambase=====
```

Precision:-nan Recall:0.000000 F1-measure:-nan Errorr=0.000000

[illegible]