## 1 Partie: pré-traitement des données brutes

rownames(i2)<-NULL

}

On utilise RStudio pour ce travail donc ci-dessous sont des codes: a. preprocessBreast<-function(a){</pre> j<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(){</pre> 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

write.table(i1,"ionosphere-Train",row.names = FALSE,col.names = FALSE) write.table(i2,"ionosphere-Test",row.names = FALSE,col.names = FALSE)

```
C.
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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
    rownames(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()</pre>
```

## 2. Partie: Programmer pour Adaline

On a bien observé le code du perception 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.

	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	0.011 364	0,046 59085	0.090 909	0.522 727

spambase	0,325	0,404	0,393	0,435	0,472	na	na	na	na	na
	7392	65215	2174	8695	4348					

## Ci-dessous sont les données brutes

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

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=========perceptron: ionosphere

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================adaline: ionosphere==========================
Precision: 1.000000 Recall: 0.943182 F1-measure: 0.970760 Errorr=0.056818
Precision: 1.000000 Recall: 0.943182 F1-measure: 0.970760 Errorr=0.056818
Precision:1.000000 Recall:0.943182 F1-measure:0.970760 Errorr=0.056818
Precision: 1.000000 Recall: 0.943182 F1-measure: 0.970760 Errorr=0.056818
Precision:1.000000 Recall:0.943182 F1-measure:0.970760 Errorr=0.056818
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Precision:1.000000 Recall:0.943182 F1-measure:0.970760 Errorr=0.056818
Precision:1.000000 Recall:0.943182 F1-measure:0.970760 Errorr=0.056818
Precision: 1.000000 Recall: 0.965909 F1-measure: 0.982659 Errorr=0.034091
Precision: 1.000000 Recall: 0.965909 F1-measure: 0.982659 Errorr=0.034091
Precision:1.000000 Recall:0.965909 F1-measure:0.982659 Errorr=0.034091
Precision: 1.000000 Recall: 0.965909 F1-measure: 0.982659 Errorr=0.034091
Precision: 1.000000 Recall: 0.965909 F1-measure: 0.982659 Errorr=0.034091
Precision: 1.000000 Recall: 0.965909 F1-measure: 0.982659 Errorr=0.034091
Precision:1.000000 Recall:0.965909 F1-measure:0.982659 Errorr=0.034091
Precision: 1.000000 Recall: 0.965909 F1-measure: 0.982659 Errorr=0.034091
Precision:1.000000 Recall:0.965909 F1-measure:0.982659 Errorr=0.034091
==========perceptron: ionosphere
lambda:0.00001=============
Precision: 1.000000 Recall: 0.420455 F1-measure: 0.592000 Errorr=0.579545
Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545
Precision: 1.000000 Recall: 0.420455 F1-measure: 0.592000 Errorr=0.579545
Precision: 1.000000 Recall: 0.420455 F1-measure: 0.592000 Errorr=0.579545
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Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545

Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545

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

Precision: 1.000000 Recall: 0.909091 F1-measure: 0.952381 Errorr=0.090909 Precision:1.000000 Recall:0.909091 F1-measure:0.952381 Errorr=0.090909 Precision: 1.000000 Recall: 0.909091 F1-measure: 0.952381 Errorr=0.090909 Precision:1.000000 Recall:0.909091 F1-measure:0.952381 Errorr=0.090909 Precision:1.000000 Recall:0.909091 F1-measure:0.952381 Errorr=0.090909 Precision: 1.000000 Recall: 0.909091 F1-measure: 0.952381 Errorr=0.090909 Precision:1.000000 Recall:0.909091 F1-measure:0.952381 Errorr=0.090909 Precision:1.000000 Recall:0.909091 F1-measure:0.952381 Errorr=0.090909 Precision:1.000000 Recall:0.909091 F1-measure:0.952381 Errorr=0.090909 Precision: 1.000000 Recall: 0.909091 F1-measure: 0.952381 Errorr=0.090909 Precision:1.000000 Recall:0.909091 F1-measure:0.952381 Errorr=0.090909 Precision: 1.000000 Recall: 0.909091 F1-measure: 0.952381 Errorr=0.090909 Precision: 1.000000 Recall: 0.909091 F1-measure: 0.952381 Errorr=0.090909 Precision:1.000000 Recall:0.909091 F1-measure:0.952381 Errorr=0.090909 

==========perceptron: ionosphere

Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545

Precision: 1.000000 Recall: 0.420455 F1-measure: 0.592000 Errorr=0.579545 Precision: 1.000000 Recall: 0.420455 F1-measure: 0.592000 Errorr=0.579545 Precision: 1.000000 Recall: 0.420455 F1-measure: 0.592000 Errorr=0.579545 Precision: 1.000000 Recall: 0.420455 F1-measure: 0.592000 Errorr=0.579545 Precision: 1.000000 Recall: 0.420455 F1-measure: 0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision: 1.000000 Recall: 0.420455 F1-measure: 0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision: 1.000000 Recall: 0.420455 F1-measure: 0.592000 Errorr=0.579545 Precision: 1.000000 Recall: 0.420455 F1-measure: 0.592000 Errorr=0.579545 Precision:1.000000 Recall:0.420455 F1-measure:0.592000 Errorr=0.579545 Precision: 1.000000 Recall: 0.420455 F1-measure: 0.592000 Errorr=0.579545 \_\_\_\_\_\_

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

Precision:1.000000 Recall:0.477273 F1-measure:0.646154 Errorr=0.522727 Precision: 1.000000 Recall: 0.477273 F1-measure: 0.646154 Errorr=0.522727 Precision: 1.000000 Recall: 0.477273 F1-measure: 0.646154 Errorr=0.522727 Precision:1.000000 Recall:0.477273 F1-measure:0.646154 Errorr=0.522727 Precision:1.000000 Recall:0.477273 F1-measure:0.646154 Errorr=0.522727 Precision:1.000000 Recall:0.477273 F1-measure:0.646154 Errorr=0.522727 Precision: 1.000000 Recall: 0.477273 F1-measure: 0.646154 Errorr=0.522727 Precision:1.000000 Recall:0.477273 F1-measure:0.646154 Errorr=0.522727 Precision: 1.000000 Recall: 0.477273 F1-measure: 0.646154 Errorr=0.522727 Precision: 1.000000 Recall: 0.477273 F1-measure: 0.646154 Errorr=0.522727 Precision: 1.000000 Recall: 0.477273 F1-measure: 0.646154 Errorr=0.522727 Precision:1.000000 Recall:0.477273 F1-measure:0.646154 Errorr=0.522727 Precision: 1.000000 Recall: 0.477273 F1-measure: 0.646154 Errorr=0.522727 Precision:1.000000 Recall:0.477273 F1-measure:0.646154 Errorr=0.522727 Precision: 1.000000 Recall: 0.477273 F1-measure: 0.646154 Errorr=0.522727

=========End of ionosphere======================

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======Begin of
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==========perceptron: spambase
Precision: 0.468619 Recall: 0.971800 F1-measure: 0.632322 Errorr=0.453043
Precision: 0.687500 Recall: 0.286334 F1-measure: 0.404288 Errorr=0.338261
Precision: 0.690751 Recall: 0.518438 F1-measure: 0.592317 Errorr=0.286087
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==============adaline: spambase==============================
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Precision:-nan Recall:0.000000 F1-measure:-nan Errorr=0.000000 Precision:-nan Recall:0.000000 F1-measure:-nan Errorr=0.000000

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Precision:-nan Recall:0.000000 F1-measure:-nan Errorr=0.000000
==========perceptron: spambase
lambda:0.00001============
Precision: 0.733668 Recall: 0.316703 F1-measure: 0.442424 Errorr=0.320000
Precision: 0.457576 Recall: 0.982646 F1-measure: 0.624397 Errorr=0.473913
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===============adaline: spambase=============================
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
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Precision:-nan Recall:0.000000 F1-measure:-nan Errorr=0.000000
==========perceptron: spambase
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
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
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=============adaline: spambase======================
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
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Precision:-nan Recall:0.000000 F1-measure:-nan Errorr=0.000000 Precision:-nan Recall:0.000000 F1-measure:-nan Errorr=0.000000

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Precision:-nan Recall:0.000000 F1-measure:-nan Errorr=0.000000
=========perceptron: spambase
lambda:0.00001=============
Precision:-nan Recall:0.000000 F1-measure:-nan Errorr=0.400870
Precision:-nan Recall:0.000000 F1-measure:-nan Errorr=0.400870
Precision: 0.461851 Recall: 0.984816 F1-measure: 0.628809 Errorr=0.466087
Precision: 0.661616 Recall: 0.284165 F1-measure: 0.397572 Errorr=0.345217
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==============adaline: spambase==============================
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
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Precision:-nan Recall:0.000000 F1-measure:-nan Errorr=0.000000

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Precision:-nan Recall:0.000000 F1-measure:-nan Errorr=0.000000
=========perceptron: spambase
lambda:0.00001=============
Precision: 0.406884 Recall: 1.000000 F1-measure: 0.578419 Errorr=0.584348
Precision: 0.730061 Recall: 0.258134 F1-measure: 0.381410 Errorr=0.335652
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Precision:-nan Recall:0.000000 F1-measure:-nan Errorr=0.000000

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