

LAMPIRAN

Lampiran 1 Script R

```
#package bioinformatics
Usepackages <- function(x){
for( i in x ){
# require returns TRUE invisibly if it was able to load package
if( ! require( i , character.only = TRUE ) ){
# If package was not able to be loaded then re-install
install.packages( i , dependencies = TRUE )

source('http://bioconductor.org/biocLite.R')
biocLite(i)
# Load package after installing
require( i , character.only = TRUE )
}
}
}

packag <- c('affy','GEOquery','Biobase',
           'simpleaffy','affyPLM','hgu133plus2.db',
           'hgu133acdf','hgu133a.db','hgu133plus2cdf',
           'genefilter','AnnotationDbi')

Usepackages (packag)

## Input Data
gse<- list.celfiles("file:///D:/Skripsi", full.names=T)
```

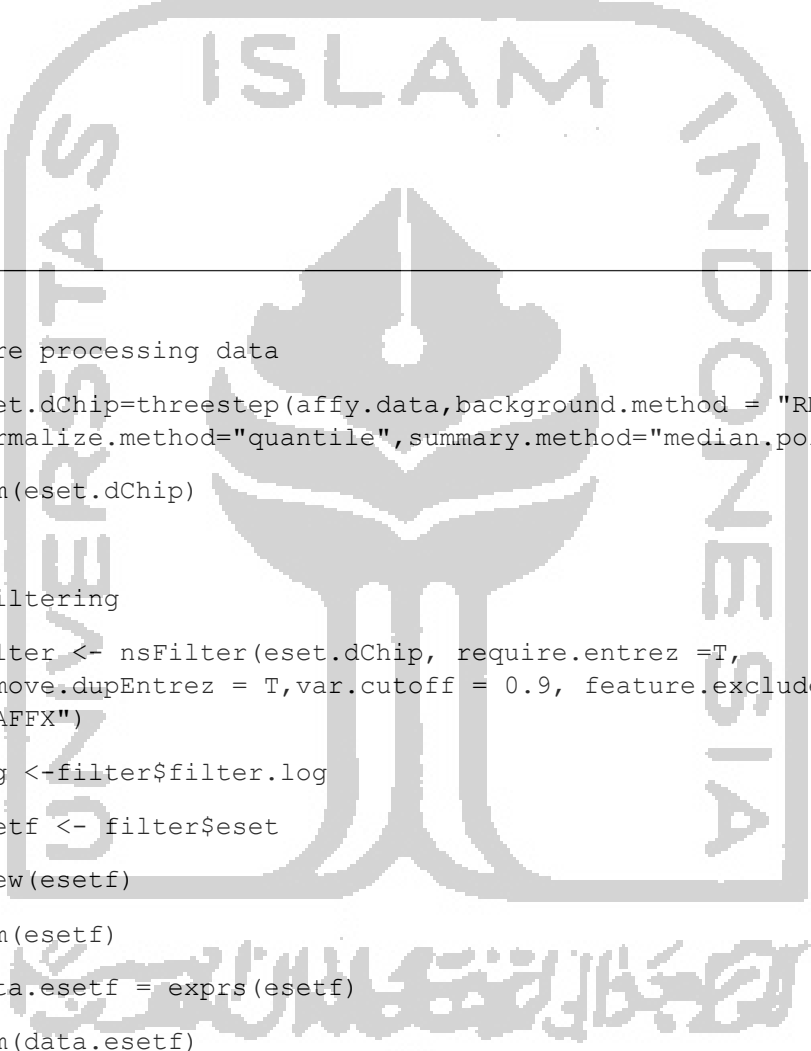
```

pheno2 <- pData(phenoData(gset[[1]]))
View(pheno2)

#save pheno in txt file
WriteMatrixToFile <- function(tmpMatrix, tmpFileName,
blnRowNames, blnColNames)
{
  output <- file(tmpFileName, "at")
  utils::write.table(tmpMatrix, output, sep = "\t", quote =
FALSE,
                    row.names = blnRowNames, col.names =
blnColNames)
  close(output)
}
WriteMatrixToFile(tmpMatrix=pheno2, tmpFileName="phenoku.txt",
                  blnRowNames=TRUE, blnColNames=TRUE)

## PHENO DATA
p1 <- read.AnnotatedDataFrame(file.path("phenoku.txt"), sep =
"\t", header = TRUE)
View(p1)
phenoData(affy.data) <- p1
phenoku = pData(phenoData(affy.data))
View(phenoku)
table(phenoku$characteristics_ch1.2)
#pie chart
des <-table(phenoku$characteristics_ch1.2)
percent <- round(des/sum(des)*100)
des <- as.data.frame(des)
lbls <- paste(des$Var1,'-',percent, '%', sep='')

```



```

#pre processing data
eset.dChip=threestep(affy.data,background.method = "RMA.2",
normalize.method="quantile",summary.method="median.polish")
dim(eset.dChip)

#filtering
filter <- nsFilter(eset.dChip, require.entrez =T,
remove.dupEntrez = T,var.cutoff = 0.9, feature.exclude =
"^AFFX")
log <-filter$filter.log
esetf <- filter$eset
View(esetf)

dim(esetf)
data.esetf = exprs(esetf)
dim(data.esetf)
head(data.esetf)

#make ExpressionSet
exp = exprs(esetf)
as(esetf,"ExpressionSet")
all(rownames(pData)==colnames(exp))
newData<- ExpressionSet(assayData = exp,phenoData =
p1,annotation = "hgul33plus2" )
View(newData)
write.csv(newData,file="databaru.csv")

#Input data

```



```

head(dataku)
class(dataku)
summary(dataku)

baru <- dataku[,2:202]
View(sampel)
rownames(baru) <- (sampel)
dim(baru)
View(baru)
dataku <- baru
dim(dataku)

library(biclust)
set.seed(994)
spectral <- biclust(x=as.matrix(baru), method=BCSpectral(),
normalization="bistochastization",
minr=3, minc=3, withinVar=0.95)

spectral

drawHeatmap(x=as.matrix(baru), bicResult=spectral, local=TRUE, number=1)

drawHeatmap(x=as.matrix(baru), bicResult=spectral, local=TRUE, number=2)

drawHeatmap(x=as.matrix(baru), bicResult=spectral, local=TRUE, number=3)

drawHeatmap(x=as.matrix(dataku), bicResult=spectral, local=TRUE, number=4)

drawHeatmap(x=as.matrix(dataku), bicResult=spectral, local=TRUE, number=5)

```



```
library(BcDiag)
help(exploreOnlybic)
library(biclust)
if (!requireNamespace("BiocManager", quietly=TRUE))
  install.packages("BiocManager")
BiocManager::install("fabia")
exploreOnlybic(dset=as.matrix(dataku), bres=spectral, mname='biclust', pfor='mean',
              gby='conditions', bnum=1)
exploreOnlybic(dset=as.matrix(dataku), bres=spectral, mname='biclust', pfor='mean',
              gby='conditions', bnum=2)
exploreOnlybic(dset=as.matrix(dataku), bres=spectral, mname='biclust', pfor='mean',
              gby='conditions', bnum=3)
exploreOnlybic(dset=as.matrix(dataku), bres=spectral, mname='biclust', pfor='mean',
              gby='conditions', bnum=4)
exploreOnlybic(dset=as.matrix(dataku), bres=spectral, mname='biclust', pfor='mean',
              gby='conditions', bnum=5)
```

Lampiran 2 Bicluster

Bicluster 1

Sampel	Gen
13	24
GSM514747	X1562738_a_at
GSM514748	X213964_x_at
GSM514749	X230156_x_at
GSM514751	X1553113_s_at
GSM514752	X238992_at
GSM514753	X1553749_at
GSM514754	X240050_s_at
GSM514755	X217547_x_at
GSM514756	X241621_at
GSM514757	X242685_at
GSM514758	X232197_x_at
GSM514759	X229589_x_at
GSM514760	X229399_at

	X231500_s_at X233191_at X1557066_at X1552480_s_at X1567457_at X1568012_at X226637_at X205063_at X228416_at X209700_x_at X1555884_at
--	---

Bicluster 2

Sampel	Gen
13	37
GSM514747	X226836_at
GSM514748	X225537_at
GSM514749	X234464_s_at
GSM514751	X231548_at
GSM514752	X213582_at
GSM514753	X230699_at
GSM514754	X213951_s_at
GSM514755	X221919_at
GSM514756	X209657_s_at
GSM514757	X200602_at
GSM514758	X1562364_at
GSM514759	X1554597_at
GSM514760	X1560145_at
	X222968_at
	X230535_s_at

	X239133_at
	X213868_s_at
	X217383_at
	X221986_s_at
	X219433_at
	X225934_at
	X230683_at
	X224308_s_at
	X236223_s_at
	X217257_at
	X209340_at
	X229123_at
	X219303_at
	X224953_at
	X60815_at
	X201936_s_at
	X227900_at
	X217654_at
	X219138_at
	X231418_at
	X203603_s_at
	X236314_at

Bicluster 3

Sampel	Gen
13	43
GSM514747	X235547_at
GSM514748	X213684_s_at
GSM514749	X230790_x_at
GSM514751	X230559_x_at

GSM514752	X1554704_at
GSM514753	X1559129_a_at
GSM514754	X227310_at
GSM514755	X201437_s_at
GSM514756	X226099_at
GSM514757	X216563_at
GSM514758	X212477_at
GSM514759	X1554283_at
GSM514760	X232125_at
	X1563498_s_at
	X214723_x_at
	X229543_at
	X209525_at
	X236026_at
	X224037_at
	X241631_at
	X228751_at
	X225726_s_at
	X226164_x_at
	X1558956_s_at
	X240990_at
	X213409_s_at
	X234947_s_at
	X237444_at
	X224974_at
	X224873_s_at
	X223292_s_at
	X215450_at
	X226765_at
	X215220_s_at
	X222837_s_at

	X209258_s_at X230003_at X204349_at X202984_s_at X209795_at X203493_s_at X204075_s_at X204291_at
--	--

Bicluster 4

Sampel	Gen
13	35
GSM514747	X226746_s_at
GSM514748	X212768_s_at
GSM514749	X242497_at
GSM514751	X213817_at
GSM514752	X208325_s_at
GSM514753	X224673_at
GSM514754	X214683_s_at
GSM514755	X219599_at
GSM514756	X231035_s_at
GSM514757	X208939_at
GSM514758	X202318_s_at
GSM514759	X213826_s_at
GSM514760	X231735_s_at
	X228938_at
	X214057_at
	X232001_at
	X1553575_at
	X228933_at

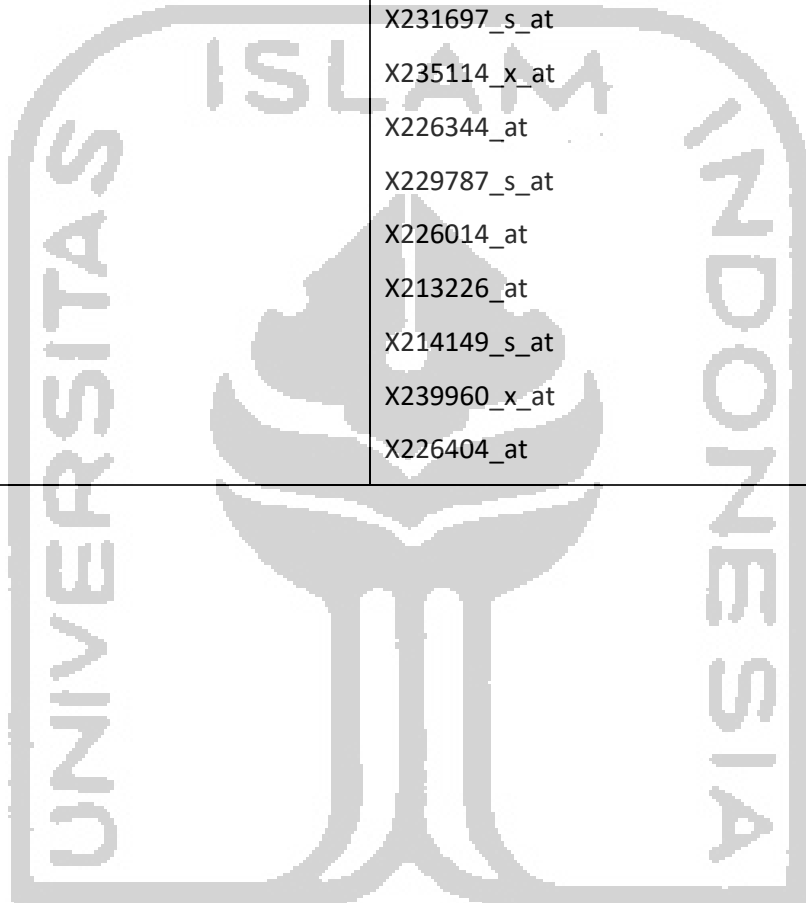
	X229204_at
	X221645_s_at
	X222811_at
	X228309_at
	X214000_s_at
	X214041_x_at
	X213350_at
	X232371_at
	X209358_at
	X203983_at
	X218195_at
	X209972_s_at
	X227528_s_at
	X210596_at
	X213251_at
	X213742_at
	X238653_at

Bicluster 5

Sampel	Gen
13	51
GSM514747	X1565866_a_at
GSM514748	X221057_at
GSM514749	X214384_s_at
GSM514751	X217494_s_at
GSM514752	X228985_at
GSM514753	X225830_at

GSM514754	X203634_s_at
GSM514755	X228324_at
GSM514756	X214395_x_at
GSM514757	X230126_s_at
GSM514758	X214052_x_at
GSM514759	X227553_at
GSM514760	X224321_at
	X213552_at
	X210007_s_at
	X228193_s_at
	X227244_s_at
	X220132_s_at
	X1552980_at
	X228520_s_at
	X206638_at
	X1558700_s_at
	X207688_s_at
	X1562481_at
	X221589_s_at
	X229143_at
	X222487_s_at
	X225207_at
	X214163_at
	X1555247_a_at
	X218984_at
	X206500_s_at
	X239146_at
	X231193_s_at
	X235511_at
	X200908_s_at
	X214001_x_at

	X214370_at
	X219972_s_at
	X217644_s_at
	X216609_at
	X1556204_a_at
	X231697_s_at
	X235114_x_at
	X226344_at
	X229787_s_at
	X226014_at
	X213226_at
	X214149_s_at
	X239960_x_at
	X226404_at



جامعة الإسلام في إندونيسيا