

# MVA3.r

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```
wisc_bc_df <- read.csv("C://Users//Yshah//Downloads//Rutgers Sem 2//MVA//wisc_bc_data.csv")  
head(wisc_bc_df)
```

```
##      id diagnosis radius_mean texture_mean perimeter_mean area_mean
## 1 87139402      B      12.32      12.39      78.85      464.1
## 2 8910251      B      10.60      18.95      69.28      346.4
## 3 905520      B      11.04      16.83      70.92      373.2
## 4 868871      B      11.28      13.39      73.00      384.8
## 5 9012568      B      15.19      13.21      97.65      711.8
## 6 906539      B      11.57      19.04      74.20      409.7
## smoothness_mean compactness_mean concavity_mean points_mean
## 1      0.10280      0.06981      0.03987      0.03700
## 2      0.09688      0.11470      0.06387      0.02642
## 3      0.10770      0.07804      0.03046      0.02480
## 4      0.11640      0.11360      0.04635      0.04796
## 5      0.07963      0.06934      0.03393      0.02657
## 6      0.08546      0.07722      0.05485      0.01428
## symmetry_mean dimension_mean radius_se texture_se perimeter_se area_se
## 1      0.1959      0.05955      0.2360      0.6656      1.670      17.43
## 2      0.1922      0.06491      0.4505      1.1970      3.430      27.10
## 3      0.1714      0.06340      0.1967      1.3870      1.342      13.54
## 4      0.1771      0.06072      0.3384      1.3430      1.851      26.33
## 5      0.1721      0.05544      0.1783      0.4125      1.338      17.72
## 6      0.2031      0.06267      0.2864      1.4400      2.206      20.30
## smoothness_se compactness_se concavity_se points_se symmetry_se
## 1      0.008045      0.011800      0.01683      0.012410      0.01924
## 2      0.007470      0.035810      0.03354      0.013650      0.03504
## 3      0.005158      0.009355      0.01056      0.007483      0.01718
## 4      0.011270      0.034980      0.02187      0.019650      0.01580
## 5      0.005012      0.014850      0.01551      0.009155      0.01647
## 6      0.007278      0.020470      0.04447      0.008799      0.01868
## dimension_se radius_worst texture_worst perimeter_worst area_worst
## 1      0.002248      13.50      15.64      86.97      549.1
## 2      0.003318      11.88      22.94      78.28      424.8
## 3      0.002198      12.41      26.44      79.93      471.4
## 4      0.003442      11.92      15.77      76.53      434.0
## 5      0.001767      16.20      15.73      104.50      819.1
## 6      0.003339      13.07      26.98      86.43      520.5
## smoothness_worst compactness_worst concavity_worst points_worst
## 1      0.1385      0.1266      0.12420      0.09391
## 2      0.1213      0.2515      0.19160      0.07926
## 3      0.1369      0.1482      0.10670      0.07431
## 4      0.1367      0.1822      0.08669      0.08611
## 5      0.1126      0.1737      0.13620      0.08178
## 6      0.1249      0.1937      0.25600      0.06664
## symmetry_worst dimension_worst
## 1      0.2827      0.06771
## 2      0.2940      0.07587
## 3      0.2998      0.07881
## 4      0.2102      0.06784
## 5      0.2487      0.06766
## 6      0.3035      0.08284
```

```
#Renmaing the dataset
cancer<-wisc_bc_df
library("ggplot2")
library("corrplot")
```

```
## corrplot 0.84 loaded
```

```
library("reshape")
```

```
#number of obsevation and data type
str(cancer)
```

```
## 'data.frame':   569 obs. of  32 variables:
## $ id           : int  87139402 8910251 905520 868871 9012568 906539 925291 87880 862989
89827 ...
## $ diagnosis     : Factor w/ 2 levels "B","M": 1 1 1 1 1 1 1 2 1 1 ...
## $ radius_mean   : num  12.3 10.6 11 11.3 15.2 ...
## $ texture_mean  : num  12.4 18.9 16.8 13.4 13.2 ...
## $ perimeter_mean : num  78.8 69.3 70.9 73 97.7 ...
## $ area_mean     : num  464 346 373 385 712 ...
## $ smoothness_mean : num  0.1028 0.0969 0.1077 0.1164 0.0796 ...
## $ compactness_mean : num  0.0698 0.1147 0.078 0.1136 0.0693 ...
## $ concavity_mean  : num  0.0399 0.0639 0.0305 0.0464 0.0339 ...
## $ points_mean    : num  0.037 0.0264 0.0248 0.048 0.0266 ...
## $ symmetry_mean   : num  0.196 0.192 0.171 0.177 0.172 ...
## $ dimension_mean  : num  0.0595 0.0649 0.0634 0.0607 0.0554 ...
## $ radius_se       : num  0.236 0.451 0.197 0.338 0.178 ...
## $ texture_se      : num  0.666 1.197 1.387 1.343 0.412 ...
## $ perimeter_se    : num  1.67 3.43 1.34 1.85 1.34 ...
## $ area_se         : num  17.4 27.1 13.5 26.3 17.7 ...
## $ smoothness_se   : num  0.00805 0.00747 0.00516 0.01127 0.00501 ...
## $ compactness_se  : num  0.0118 0.03581 0.00936 0.03498 0.01485 ...
## $ concavity_se    : num  0.0168 0.0335 0.0106 0.0219 0.0155 ...
## $ points_se       : num  0.01241 0.01365 0.00748 0.01965 0.00915 ...
## $ symmetry_se     : num  0.0192 0.035 0.0172 0.0158 0.0165 ...
## $ dimension_se    : num  0.00225 0.00332 0.0022 0.00344 0.00177 ...
## $ radius_worst    : num  13.5 11.9 12.4 11.9 16.2 ...
## $ texture_worst   : num  15.6 22.9 26.4 15.8 15.7 ...
## $ perimeter_worst : num  87 78.3 79.9 76.5 104.5 ...
## $ area_worst      : num  549 425 471 434 819 ...
## $ smoothness_worst : num  0.139 0.121 0.137 0.137 0.113 ...
## $ compactness_worst : num  0.127 0.252 0.148 0.182 0.174 ...
## $ concavity_worst : num  0.1242 0.1916 0.1067 0.0867 0.1362 ...
## $ points_worst    : num  0.0939 0.0793 0.0743 0.0861 0.0818 ...
## $ symmetry_worst  : num  0.283 0.294 0.3 0.21 0.249 ...
## $ dimension_worst : num  0.0677 0.0759 0.0788 0.0678 0.0677 ...
```

```
#gives you the summary of the dataset  
summary(cancer)
```

```

##          id          diagnosis radius_mean    texture_mean
## Min.      :    8670    B:357      Min.      : 6.981    Min.      : 9.71
## 1st Qu.:   869218    M:212      1st Qu.:11.700    1st Qu.:16.17
## Median :    906024                      Median :13.370    Median :18.84
## Mean      : 30371831                      Mean      :14.127    Mean      :19.29
## 3rd Qu.:   8813129                      3rd Qu.:15.780    3rd Qu.:21.80
## Max.      :911320502                      Max.      :28.110    Max.      :39.28
## perimeter_mean    area_mean    smoothness_mean    compactness_mean
## Min.      : 43.79    Min.      : 143.5    Min.      :0.05263    Min.      :0.01938
## 1st Qu.: 75.17    1st Qu.: 420.3    1st Qu.:0.08637    1st Qu.:0.06492
## Median : 86.24    Median : 551.1    Median :0.09587    Median :0.09263
## Mean      : 91.97    Mean      : 654.9    Mean      :0.09636    Mean      :0.10434
## 3rd Qu.:104.10    3rd Qu.: 782.7    3rd Qu.:0.10530    3rd Qu.:0.13040
## Max.      :188.50    Max.      :2501.0    Max.      :0.16340    Max.      :0.34540
## concavity_mean    points_mean    symmetry_mean    dimension_mean
## Min.      :0.00000    Min.      :0.00000    Min.      :0.1060    Min.      :0.04996
## 1st Qu.:0.02956    1st Qu.:0.02031    1st Qu.:0.1619    1st Qu.:0.05770
## Median :0.06154    Median :0.03350    Median :0.1792    Median :0.06154
## Mean      :0.08880    Mean      :0.04892    Mean      :0.1812    Mean      :0.06280
## 3rd Qu.:0.13070    3rd Qu.:0.07400    3rd Qu.:0.1957    3rd Qu.:0.06612
## Max.      :0.42680    Max.      :0.20120    Max.      :0.3040    Max.      :0.09744
## radius_se    texture_se    perimeter_se    area_se
## Min.      :0.1115    Min.      :0.3602    Min.      : 0.757    Min.      : 6.802
## 1st Qu.:0.2324    1st Qu.:0.8339    1st Qu.: 1.606    1st Qu.: 17.850
## Median :0.3242    Median :1.1080    Median : 2.287    Median : 24.530
## Mean      :0.4052    Mean      :1.2169    Mean      : 2.866    Mean      : 40.337
## 3rd Qu.:0.4789    3rd Qu.:1.4740    3rd Qu.: 3.357    3rd Qu.: 45.190
## Max.      :2.8730    Max.      :4.8850    Max.      :21.980    Max.      :542.200
## smoothness_se    compactness_se    concavity_se
## Min.      :0.001713    Min.      :0.002252    Min.      :0.00000
## 1st Qu.:0.005169    1st Qu.:0.013080    1st Qu.:0.01509
## Median :0.006380    Median :0.020450    Median :0.02589
## Mean      :0.007041    Mean      :0.025478    Mean      :0.03189
## 3rd Qu.:0.008146    3rd Qu.:0.032450    3rd Qu.:0.04205
## Max.      :0.031130    Max.      :0.135400    Max.      :0.39600
## points_se    symmetry_se    dimension_se    radius_worst
## Min.      :0.000000    Min.      :0.007882    Min.      :0.0008948    Min.      : 7.93
## 1st Qu.:0.007638    1st Qu.:0.015160    1st Qu.:0.0022480    1st Qu.:13.01
## Median :0.010930    Median :0.018730    Median :0.0031870    Median :14.97
## Mean      :0.011796    Mean      :0.020542    Mean      :0.0037949    Mean      :16.27
## 3rd Qu.:0.014710    3rd Qu.:0.023480    3rd Qu.:0.0045580    3rd Qu.:18.79
## Max.      :0.052790    Max.      :0.078950    Max.      :0.0298400    Max.      :36.04
## texture_worst    perimeter_worst    area_worst    smoothness_worst
## Min.      :12.02    Min.      : 50.41    Min.      : 185.2    Min.      :0.07117
## 1st Qu.:21.08    1st Qu.: 84.11    1st Qu.: 515.3    1st Qu.:0.11660
## Median :25.41    Median : 97.66    Median : 686.5    Median :0.13130
## Mean      :25.68    Mean      :107.26    Mean      : 880.6    Mean      :0.13237
## 3rd Qu.:29.72    3rd Qu.:125.40    3rd Qu.:1084.0    3rd Qu.:0.14600
## Max.      :49.54    Max.      :251.20    Max.      :4254.0    Max.      :0.22260
## compactness_worst    concavity_worst    points_worst    symmetry_worst
## Min.      :0.02729    Min.      :0.0000    Min.      :0.00000    Min.      :0.1565
## 1st Qu.:0.14720    1st Qu.:0.1145    1st Qu.:0.06493    1st Qu.:0.2504
## Median :0.21190    Median :0.2267    Median :0.09993    Median :0.2822

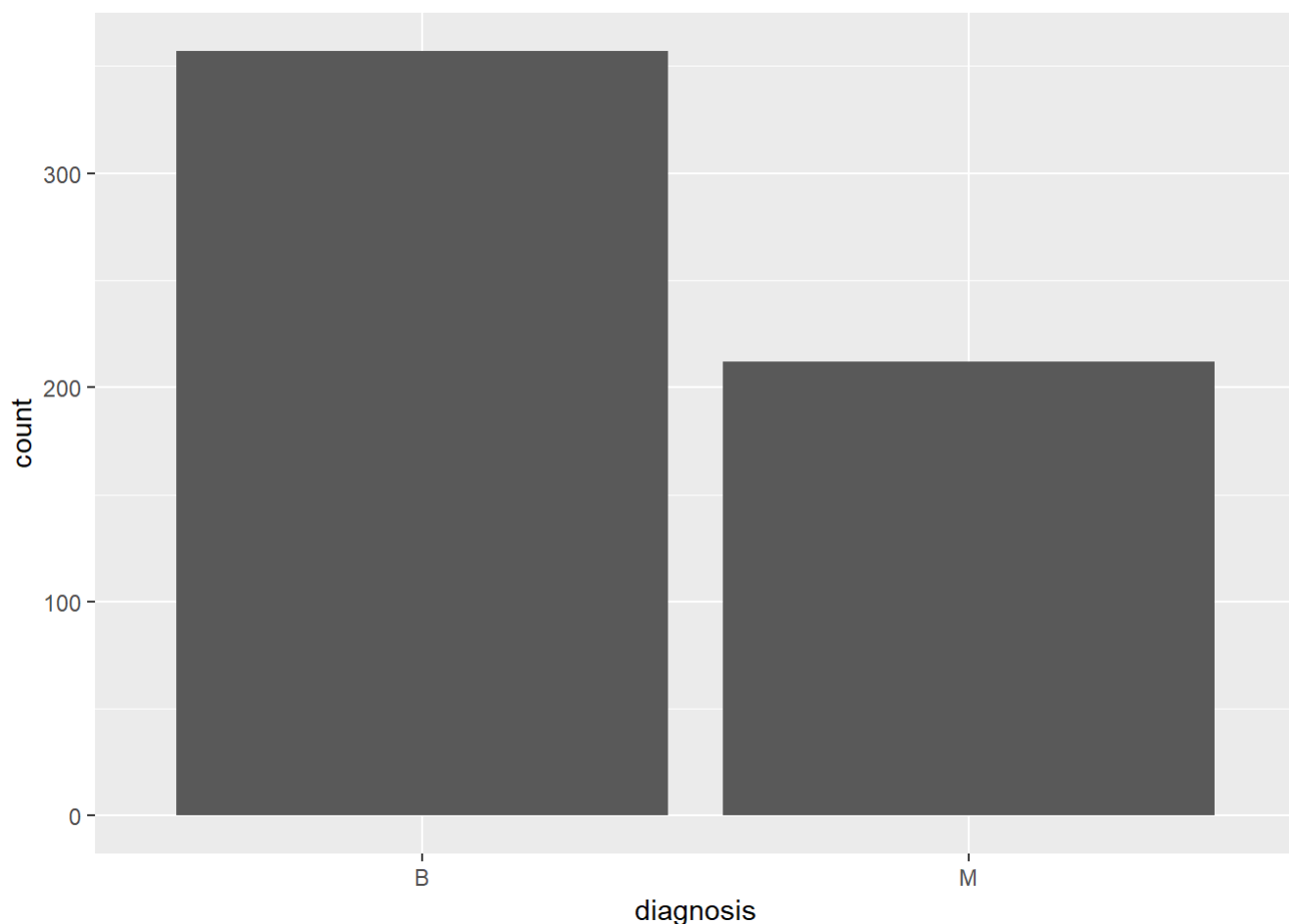
```

```
## Mean :0.25427 Mean :0.2722 Mean :0.11461 Mean :0.2901
## 3rd Qu.:0.33910 3rd Qu.:0.3829 3rd Qu.:0.16140 3rd Qu.:0.3179
## Max. :1.05800 Max. :1.2520 Max. :0.29100 Max. :0.6638
## dimension_worst
## Min. :0.05504
## 1st Qu.:0.07146
## Median :0.08004
## Mean :0.08395
## 3rd Qu.:0.09208
## Max. :0.20750
```

```
#Gives you frequency table
diagnosis.table <- table(cancer$diagnosis)
diagnosis.table
```

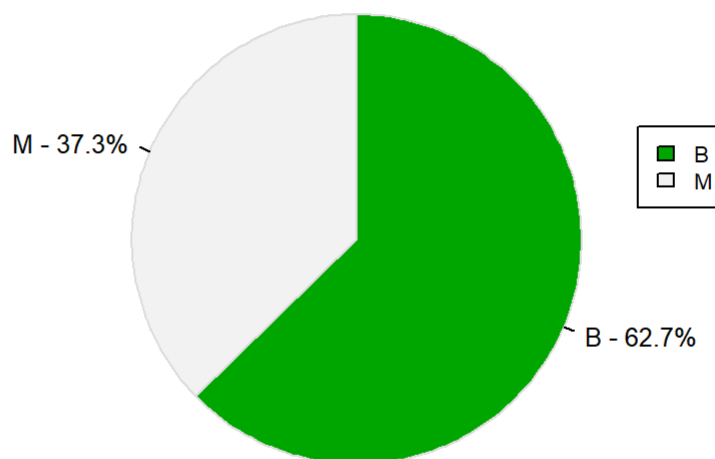
```
##
## B M
## 357 212
```

```
#Bar plot
ggplot(data=cancer, aes(x=diagnosis)) + geom_bar(stat = "count")
```



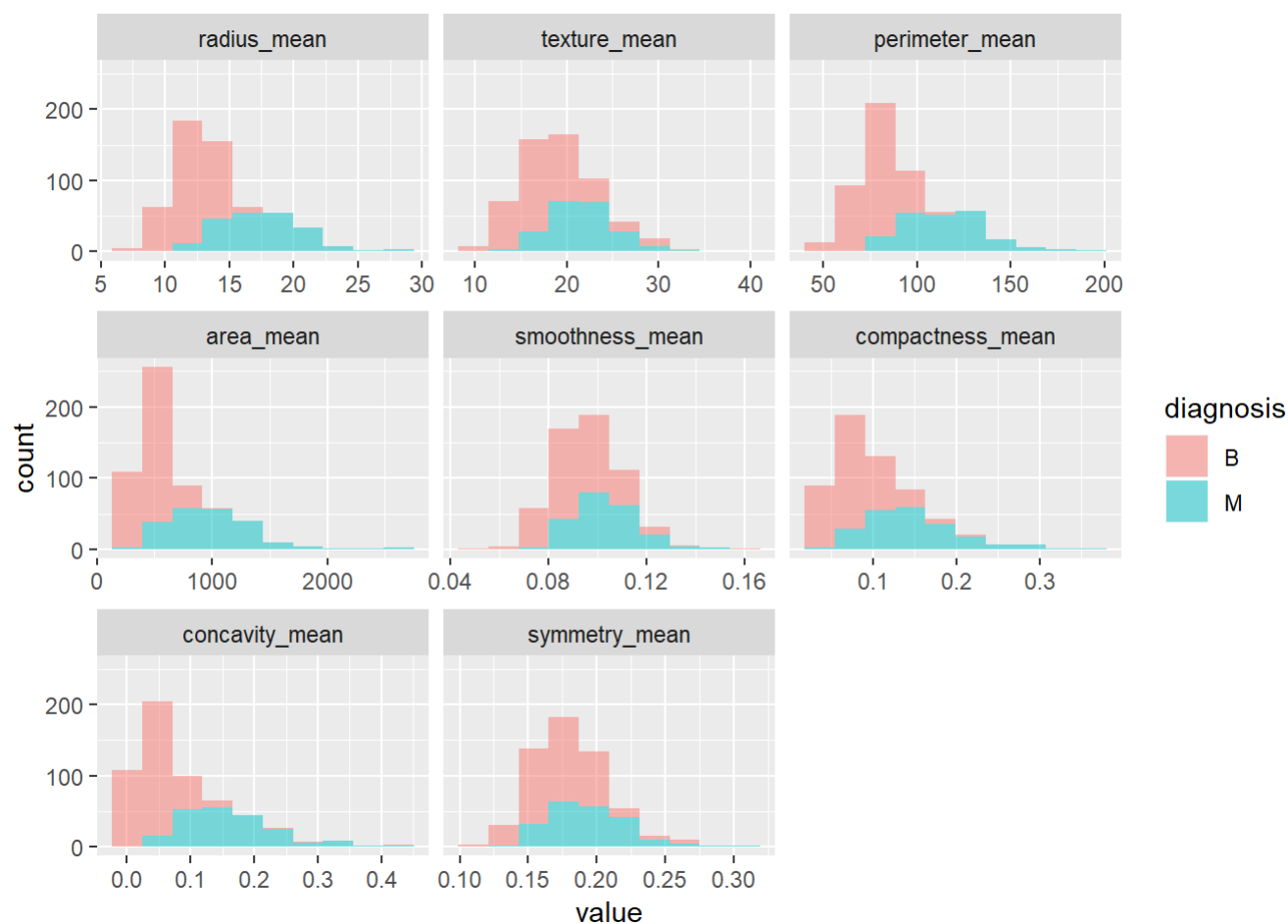
```
#Pie chart represented in frequency
diagnosis.prop.table <- prop.table(diagnosis.table)*100
diagnosis.prop.df <- as.data.frame(diagnosis.prop.table)
pielabels <- sprintf("%s - %3.1f%s", diagnosis.prop.df[,1], diagnosis.prop.table, "%")
colors <- terrain.colors(2)
pie(diagnosis.prop.table,
    labels=pielabels,
    clockwise=TRUE,
    col=colors,
    border="gainsboro",
    radius=0.8,
    cex=0.8,
    main="frequency of cancer diagnosis")
legend(1, .4, legend=diagnosis.prop.df[,1], cex = 0.7, fill = colors)
```

### frequency of cancer diagnosis



```
#Plot histograms of "mean" variables group by diagnosis
data_mean <- cancer[ ,c("diagnosis", "radius_mean", "texture_mean", "perimeter_mean", "area_mean",
    "smoothness_mean", "compactness_mean", "concavity_mean", "symmetry_mean" )]

#Plot histograms
ggplot(data = melt(data_mean, id.var = "diagnosis"), mapping = aes(x = value)) +
    geom_histogram(bins = 10, aes(fill=diagnosis), alpha=0.5) + facet_wrap(~variable, scales = 'free_x')
```

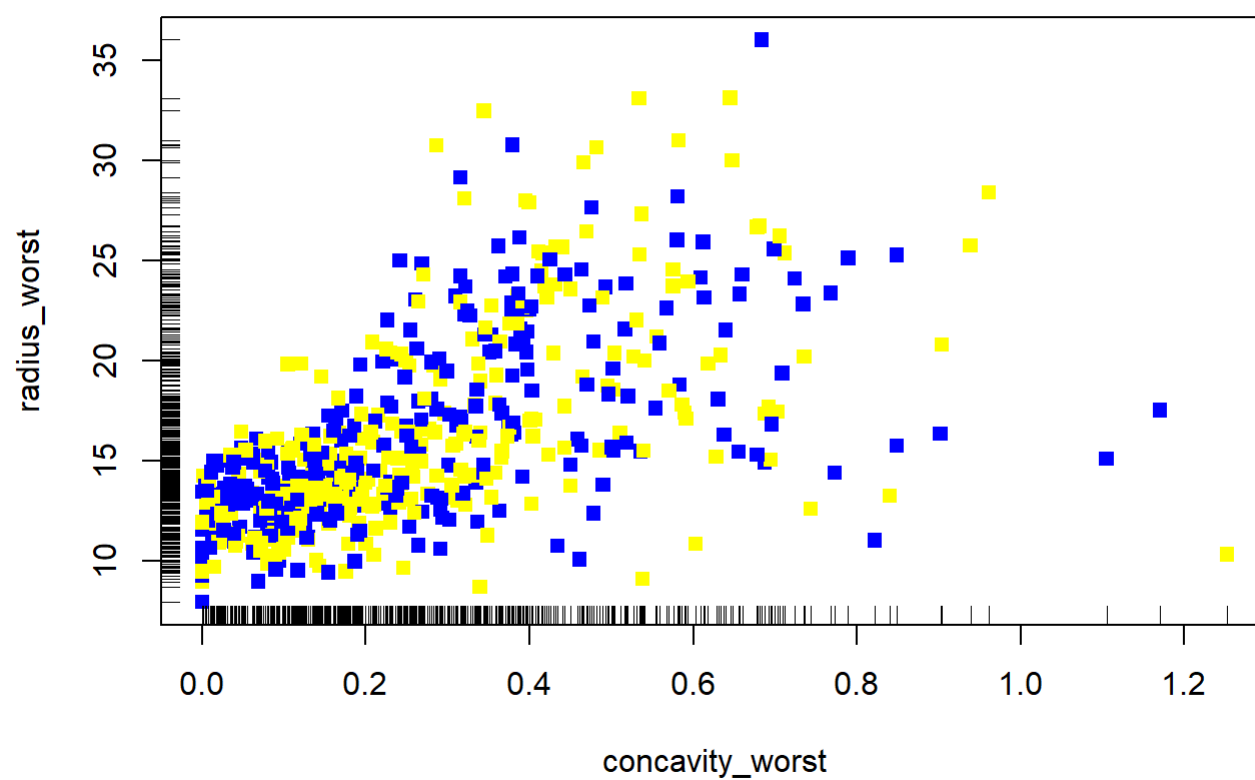


```
#Scatter plot of two variable (concavity again radius)
a <- cancer[,c('concavity_worst','radius_worst')]
plot(x = cancer$concavity_worst,y = cancer$radius_worst,
     xlab = "concavity_worst",
     ylab = "radius_worst",
     main = "Concavity_worst vs radius_worst",
     pch=15,col=c("blue","yellow"))
rug(cancer$concavity_worst, side = 1)

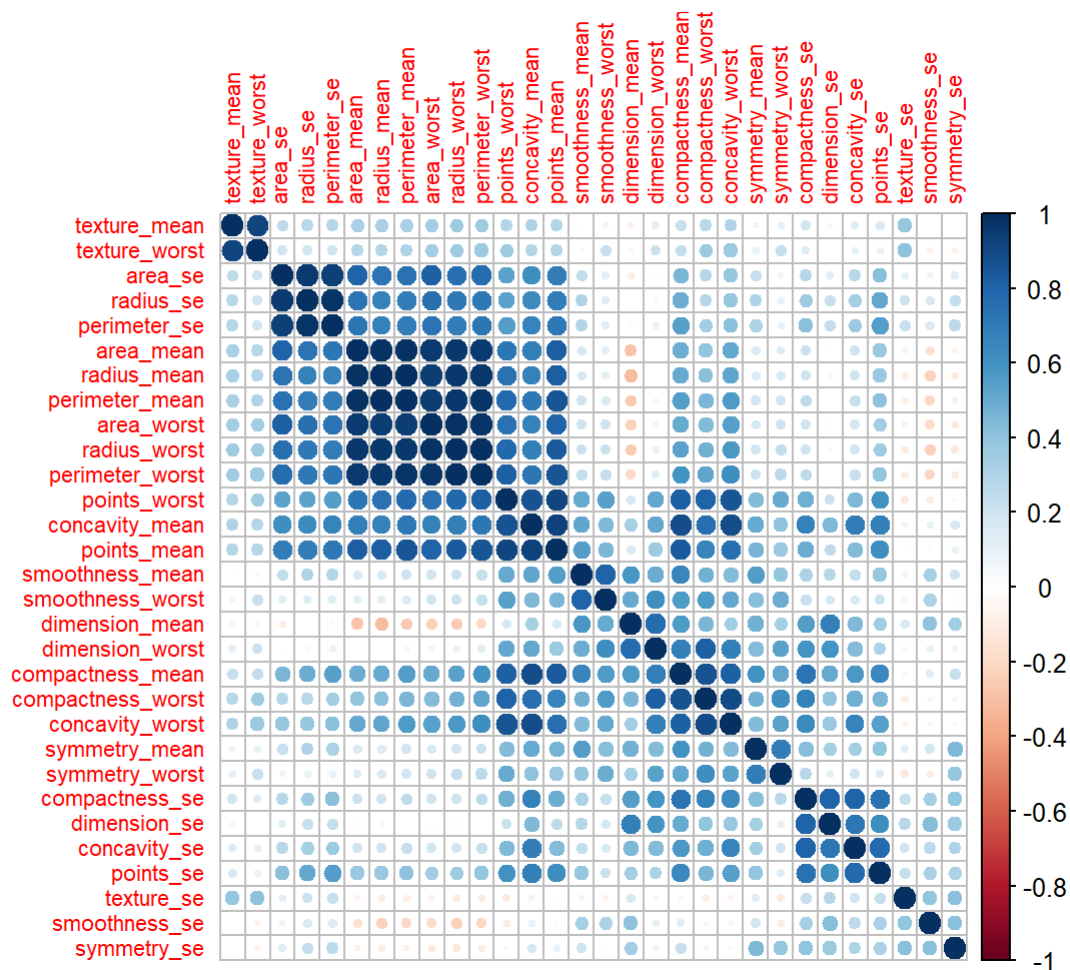
rug(cancer$radius_worst, side = 2)
```



## Concavity\_worst vs radius\_worst



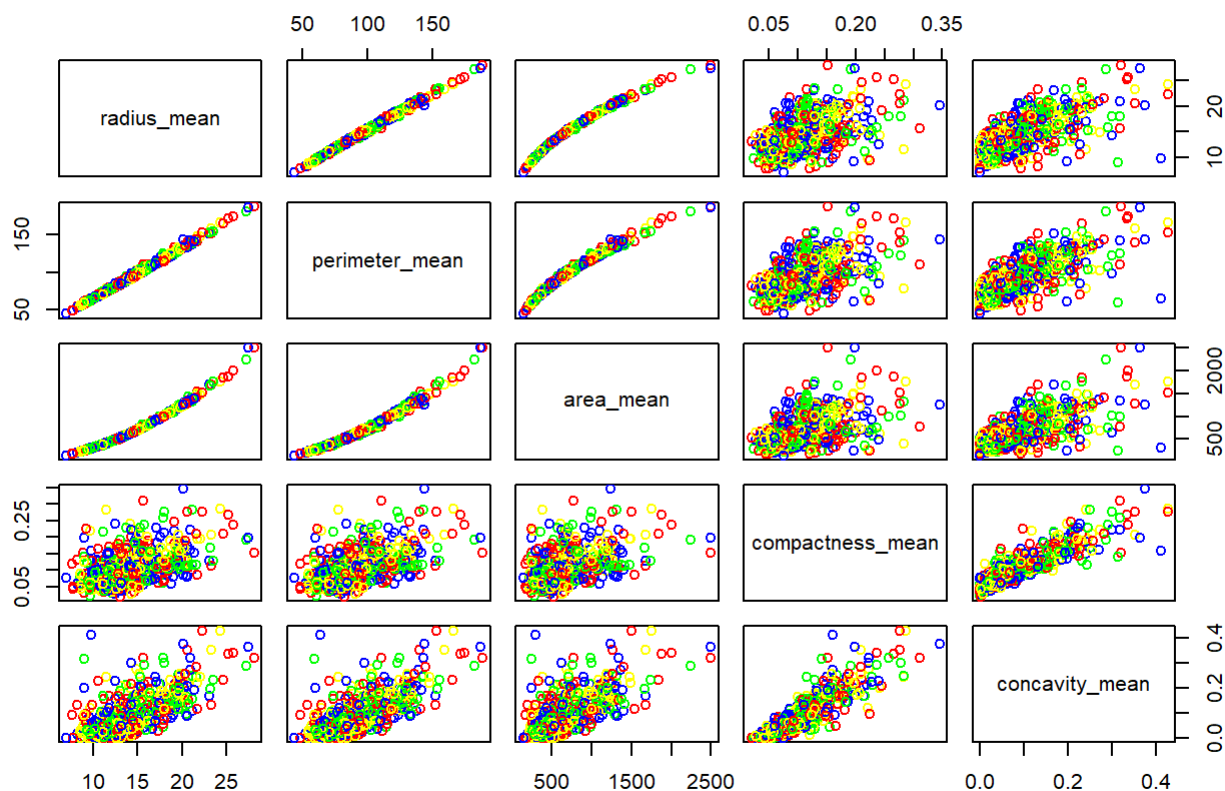
```
#Corelation Matrix of columns  
corMatMy <- cor(cancer[,3:32])  
corrplot(corMatMy, order = "hclust", tl.cex = 0.7)
```



```
#Scatterplot Matrix
```

```
pairs(~radius_mean+perimeter_mean+area_mean+compactness_mean+concavity_mean,data = cancer,main =  
"Scatterplot Matrix",col=c("blue","green","yellow","red"))
```

## Scatterplot Matrix



```
names(cancer)
```

```
## [1] "id"           "diagnosis"    "radius_mean"
## [4] "texture_mean" "perimeter_mean" "area_mean"
## [7] "smoothness_mean" "compactness_mean" "concavity_mean"
## [10] "points_mean" "symmetry_mean" "dimension_mean"
## [13] "radius_se" "texture_se" "perimeter_se"
## [16] "area_se" "smoothness_se" "compactness_se"
## [19] "concavity_se" "points_se" "symmetry_se"
## [22] "dimension_se" "radius_worst" "texture_worst"
## [25] "perimeter_worst" "area_worst" "smoothness_worst"
## [28] "compactness_worst" "concavity_worst" "points_worst"
## [31] "symmetry_worst" "dimension_worst"
```

```
#Multivariate analysis
```

```
#T TEST
```

```
with(data=cancer,t.test(radius_mean[diagnosis=="B"],radius_mean[diagnosis=="M"],var.equal=TRUE))
```

```
##
## Two Sample t-test
##
## data: radius_mean[diagnosis == "B"] and radius_mean[diagnosis == "M"]
## t = -25.436, df = 567, p-value < 2.2e-16
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -5.726832 -4.905781
## sample estimates:
## mean of x mean of y
## 12.14652 17.46283
```

```
with(data=cancer,t.test(texture_mean[diagnosis=="B"],texture_mean[diagnosis=="M"],var.equal=TRUE
))
```

```
##
## Two Sample t-test
##
## data: texture_mean[diagnosis == "B"] and texture_mean[diagnosis == "M"]
## t = -10.867, df = 567, p-value < 2.2e-16
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -4.357107 -3.023181
## sample estimates:
## mean of x mean of y
## 17.91476 21.60491
```

```
with(data=cancer,t.test(perimeter_mean[diagnosis=="B"],perimeter_mean[diagnosis=="M"],var.equal=
TRUE))
```

```
##
## Two Sample t-test
##
## data: perimeter_mean[diagnosis == "B"] and perimeter_mean[diagnosis == "M"]
## t = -26.405, df = 567, p-value < 2.2e-16
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -40.06379 -34.51615
## sample estimates:
## mean of x mean of y
## 78.07541 115.36538
```

```
with(data=cancer,t.test(area_mean[diagnosis=="B"],area_mean[diagnosis=="M"],var.equal=TRUE))
```

```
##
## Two Sample t-test
##
## data: area_mean[diagnosis == "B"] and area_mean[diagnosis == "M"]
## t = -23.939, df = 567, p-value < 2.2e-16
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -557.8898 -473.2826
## sample estimates:
## mean of x mean of y
## 462.7902 978.3764
```

```
with(data=cancer,t.test(smoothness_mean[diagnosis=="B"],smoothness_mean[diagnosis=="M"],var.equal=TRUE))
```

```
##
## Two Sample t-test
##
## data: smoothness_mean[diagnosis == "B"] and smoothness_mean[diagnosis == "M"]
## t = -9.1461, df = 567, p-value < 2.2e-16
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.012658756 -0.008182931
## sample estimates:
## mean of x mean of y
## 0.09247765 0.10289849
```

```
with(data=cancer,t.test(compactness_mean[diagnosis=="B"],compactness_mean[diagnosis=="M"],var.equal=TRUE))
```

```
##
## Two Sample t-test
##
## data: compactness_mean[diagnosis == "B"] and compactness_mean[diagnosis == "M"]
## t = -17.698, df = 567, p-value < 2.2e-16
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.07232827 -0.05787805
## sample estimates:
## mean of x mean of y
## 0.08008462 0.14518778
```

```
with(data=cancer,t.test(concavity_mean[diagnosis=="B"],concavity_mean[diagnosis=="M"],var.equal=TRUE))
```

```
##
## Two Sample t-test
##
## data: concavity_mean[diagnosis == "B"] and concavity_mean[diagnosis == "M"]
## t = -23.104, df = 567, p-value < 2.2e-16
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.1244696 -0.1049646
## sample estimates:
## mean of x mean of y
## 0.04605762 0.16077472
```

```
with(data=cancer,t.test(points_mean[diagnosis=="B"],points_mean[diagnosis=="M"],var.equal=TRUE))
```

```
##
## Two Sample t-test
##
## data: points_mean[diagnosis == "B"] and points_mean[diagnosis == "M"]
## t = -29.354, df = 567, p-value < 2.2e-16
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.06643938 -0.05810581
## sample estimates:
## mean of x mean of y
## 0.02571741 0.08799000
```

```
with(data=cancer,t.test(symmetry_mean[diagnosis=="B"],symmetry_mean[diagnosis=="M"],var.equal=TRUE))
```

```
##
## Two Sample t-test
##
## data: symmetry_mean[diagnosis == "B"] and symmetry_mean[diagnosis == "M"]
## t = -8.3383, df = 567, p-value = 5.733e-16
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.02313331 -0.01431262
## sample estimates:
## mean of x mean of y
## 0.174186 0.192909
```

```
with(data=cancer,t.test(dimension_mean[diagnosis=="B"],dimension_mean[diagnosis=="M"],var.equal=TRUE))
```

```
##
## Two Sample t-test
##
## data: dimension_mean[diagnosis == "B"] and dimension_mean[diagnosis == "M"]
## t = 0.30571, df = 567, p-value = 0.7599
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.001016083 0.001390684
## sample estimates:
## mean of x mean of y
## 0.06286739 0.06268009
```

```
#Hotelling's T2 test
#install.packages("Hotelling")
library(Hotelling)
```

```
## Loading required package: corpcor
```

```
t2testcan <- hotelling.test(radius_mean + texture_mean + perimeter_mean + area_mean + smoothness_
_mean + compactness_mean + concavity_mean + points_mean + symmetry_mean + dimension_mean ~ diagn
osis, data=cancer)
# Output of the function hotelling.test is given
cat("T2 statistic =",t2testcan$stat[[1]],"\n")
```

```
## T2 statistic = 1220.313
```

```
#print(t2testcan)
# T2 statistic is located in the first element of the list "stat"
#View(t2testcan)
```

```
## Levene's tests based on absolute differences around means using t-tests. Standarizing the spa
rrrows data set with scale()
matstand <- scale(cancer[,3:10])
matstand
```

##		radius_mean	texture_mean	perimeter_mean	area_mean
##	[1,]	-0.512845261	-1.604183e+00	-0.53990056	-0.542146756
##	[2,]	-1.000920224	-7.896900e-02	-0.93374423	-0.876603348
##	[3,]	-0.876063838	-5.718735e-01	-0.86625169	-0.800448406
##	[4,]	-0.807960355	-1.371681e+00	-0.78065139	-0.767485819
##	[5,]	0.301558892	-1.413531e+00	0.23379444	0.161718134
##	[6,]	-0.725668646	-5.804381e-02	-0.73126661	-0.696729922
##	[7,]	-0.742694517	1.078892e+00	-0.71809733	-0.714347856
##	[8,]	-0.090036136	1.037041e+00	-0.01683336	-0.162224529
##	[9,]	-1.032134320	8.172307e-05	-1.01070219	-0.905871851
##	[10,]	-0.870388548	-1.006653e+00	-0.84279392	-0.798459284
##	[11,]	1.833887264	4.534609e-01	1.88612710	1.889980655
##	[12,]	-0.532708777	-3.137962e-01	-0.56376987	-0.552944845
##	[13,]	-0.280158360	3.372098e-01	-0.24647261	-0.335278109
##	[14,]	-0.305697166	4.731766e-03	-0.38516156	-0.362841651
##	[15,]	1.550122751	1.327669e+00	1.47047181	1.523413958
##	[16,]	0.131300184	7.882640e-01	0.18194041	0.006282488
##	[17,]	0.449116439	-1.246130e+00	0.41281429	0.303514089
##	[18,]	-0.413527681	-4.625975e-01	-0.44113098	-0.468833417
##	[19,]	1.692005007	1.062616e+00	1.75854973	1.682543687
##	[20,]	-0.549734648	-1.394931e+00	-0.53043514	-0.565732056
##	[21,]	-0.685941614	-4.881728e-01	-0.71151269	-0.666608937
##	[22,]	-0.691616904	1.197468e+00	-0.64196245	-0.706107209
##	[23,]	-0.904440289	-1.626698e-01	-0.88806330	-0.809541533
##	[24,]	0.276020086	-6.741745e-01	0.31322164	0.055726368
##	[25,]	-1.026459030	2.093336e-01	-0.96008279	-0.911270896
##	[26,]	-0.092873781	-8.136758e-01	-0.06333736	-0.201154480
##	[27,]	-0.192191361	-2.300954e-01	-0.22095714	-0.283560947
##	[28,]	0.332772989	1.390444e+00	0.42927589	0.220255141
##	[29,]	-1.282982150	-5.695485e-01	-1.24816071	-1.063864939
##	[30,]	-0.206379587	-5.439733e-01	-0.26704961	-0.291233273
##	[31,]	-0.305697166	-1.267055e+00	-0.38104616	-0.353180203
##	[32,]	-0.385151230	7.394385e-01	-0.42178861	-0.422231139
##	[33,]	0.985431369	9.393903e-01	1.11243210	0.925256673
##	[34,]	-0.527033487	-3.184462e-01	-0.55800831	-0.536463552
##	[35,]	0.128462539	-1.308905e+00	0.09551703	0.011113212
##	[36,]	-0.132600813	-9.624771e-01	-0.15222998	-0.211100088
##	[37,]	1.365675817	4.697360e-01	1.30174045	1.350076217
##	[38,]	-0.632026357	-1.078728e+00	-0.57035451	-0.631088909
##	[39,]	0.752744468	-1.138443e-01	0.71323841	0.657577736
##	[40,]	0.599511631	-1.208194e-01	0.69266142	0.426839629
##	[41,]	1.754433200	1.806623e+00	1.68447255	1.799049381
##	[42,]	1.550122751	-2.649707e-01	1.59393378	1.588770811
##	[43,]	-0.768233323	2.535091e-01	-0.59216612	-0.763791736
##	[44,]	-0.322723037	-1.176379e+00	-0.32466519	-0.399498321
##	[45,]	-0.064497330	-6.206990e-01	-0.12342219	-0.157677965
##	[46,]	1.121638336	5.929622e-01	1.04658572	1.048866373
##	[47,]	-0.850525032	-6.206990e-01	-0.88477099	-0.777999748
##	[48,]	3.292436862	-4.253972e-01	3.38413230	3.850686244
##	[49,]	-0.175165490	-9.291913e-02	-0.15922616	-0.275036140
##	[50,]	-0.473118229	1.395830e-01	-0.47487725	-0.521687220
##	[51,]	-0.075847910	-5.486233e-01	-0.04152575	-0.215930812
##	[52,]	0.247643635	-8.787763e-01	0.22556364	0.084142391



##	[53,]	-0.660402808	-4.718976e-01	-0.68764338	-0.633646351
##	[54,]	0.026307314	1.990300e+00	0.02390909	-0.088058708
##	[55,]	2.600051450	1.715947e+00	2.75447627	2.927165495
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##	[57,]	-0.677428679	-1.069428e+00	-0.64443169	-0.650411804
##	[58,]	-1.148477771	-9.717772e-01	-1.16091425	-0.958725654
##	[59,]	2.872465383	2.116587e-01	3.05490039	3.143127271
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##	[61,]	1.402565204	1.283494e+00	1.49516420	1.276194557
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##	[64,]	-0.195029006	5.325116e-01	-0.23824182	-0.261112289
##	[65,]	0.344123569	-1.169404e+00	0.43339128	0.140690277
##	[66,]	-0.507169971	6.813130e-01	-0.49874657	-0.541010116
##	[67,]	-0.243268973	-5.276981e-01	-0.30532282	-0.308282887
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##	[70,]	-0.697292195	1.698083e-01	-0.68970108	-0.678259507
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##	[73,]	-1.443025336	-9.059411e-02	-1.31277247	-1.166162622
##	[74,]	1.056372498	-1.408881e+00	0.93135455	0.958219260
##	[75,]	0.769770339	3.960709e-02	0.67619982	0.640243962
##	[76,]	-0.501494680	5.836621e-01	-0.50162735	-0.536463552
##	[77,]	1.186904174	-1.649948e-01	1.09597051	1.097173612
##	[78,]	-0.799447419	-5.804381e-02	-0.83003618	-0.741058918
##	[79,]	-0.387988875	-1.376331e+00	-0.39833083	-0.428482664
##	[80,]	1.096099529	3.186096e-01	1.06304732	0.957082619
##	[81,]	0.239130699	-5.439733e-01	0.17494423	0.088120634
##	[82,]	-0.518520551	-7.881005e-01	-0.54072364	-0.543283397
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##	[88,]	-0.212054877	2.657581e+00	-0.23165718	-0.277593582
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##	[91,]	-0.373800649	-1.448407e+00	-0.43948482	-0.415127134
##	[92,]	-0.470280584	-4.602725e-01	-0.47405417	-0.496681120
##	[93,]	0.420739988	2.100692e-02	0.33050631	0.294705122
##	[94,]	-0.319885392	1.357894e+00	-0.38516156	-0.382732867
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##	[96,]	0.539921083	-8.787763e-01	0.56919945	0.393024562
##	[97,]	-0.331235972	-2.324204e-01	-0.32054980	-0.368524856
##	[98,]	-0.646214582	-4.253972e-01	-0.67612026	-0.631373069
##	[99,]	-1.120101319	-4.091220e-01	-1.10494483	-0.971228704
##	[100,]	3.147716961	1.306744e+00	3.27301653	3.475594740
##	[101,]	-0.969706127	2.558341e-01	-0.92469035	-0.880865751
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##	[103,]	-0.805122710	-1.453057e+00	-0.81233996	-0.758392692
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##	[105,]	-0.263132489	-4.323722e-01	-0.32260749	-0.321922578
##	[106,]	-0.748369807	-1.092678e+00	-0.73990894	-0.710369613

## [107,]	-0.444741778	-5.106875e-02	-0.41355781	-0.480483986
## [108,]	-0.541221712	1.744583e-01	-0.51438508	-0.573404382
## [109,]	-0.938492031	1.143992e+00	-0.94979429	-0.833410993
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## [112,]	-1.676563530	3.279097e-01	-1.59261960	-1.281531676
## [113,]	1.286221753	-5.044479e-01	1.21120168	1.199471295
## [114,]	-0.112737297	7.719888e-01	0.06712078	-0.217635773
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## [120,]	-0.305697166	-1.626698e-01	-0.28309967	-0.406034006
## [121,]	-0.078685556	-4.835227e-01	-0.14523380	-0.188083109
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## [123,]	-0.717155711	1.209093e+00	-0.73003199	-0.675417904
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## [137,]	-1.530424806	-5.695485e-01	-1.51031162	-1.195146966
## [138,]	-0.586624034	-1.522807e+00	-0.62262007	-0.586191592
## [139,]	0.832198532	3.976604e-01	0.81612338	0.749361490
## [140,]	-0.620675776	-2.440455e-01	-0.66912408	-0.617449218
## [141,]	1.272033528	2.232838e-01	1.24000947	1.247778534
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## [161,] -0.243268973 -1.053153e+00 -0.29750356 -0.293222395
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## [224,] -0.759720388 3.906853e-01 -0.74731666 -0.720031061
## [225,] -0.983894353 -9.624771e-01 -1.00740987 -0.867510220
## [226,] -1.569300544 -1.603448e-01 -1.55887333 -1.232371956
## [227,] -1.263118634 -1.429806e+00 -1.14609882 -1.086597758
## [228,] 1.717543814 5.820726e-02 1.72151114 1.691068494
## [229,] 0.968405498 7.056787e-03 0.95193155 0.843134366
## [230,] -0.816473290 -1.048503e+00 -0.84732086 -0.752709487
## [231,] -0.708642775 2.325103e+00 -0.70369343 -0.681385269
## [232,] -0.507169971 -1.008978e+00 -0.56294679 -0.527938745
## [233,] 0.037657895 8.378249e-02 0.24120216 -0.071009095
## [234,] 0.608024567 3.302348e-01 0.61446884 0.451277409
## [235,] -0.385151230 2.357653e+00 -0.43701558 -0.417684576
## [236,] -0.694454549 -7.253249e-01 -0.67817796 -0.666040617
## [237,] 0.207916603 9.114901e-01 0.34696791 0.046917401
## [238,] -1.576678421 -1.439106e+00 -1.54076557 -1.232087796
## [239,] -0.986731998 1.378819e+00 -0.98600980 -0.874898386
## [240,] -1.034971965 1.326079e-01 -1.03909844 -0.901325288
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## [243,] -1.342288933 5.557618e-01 -1.32594175 -1.097111686
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## [249,] -1.683090114 -5.695485e-01 -1.65681982 -1.287214880
## [250,] -0.603649905 2.078651e+00 -0.62550085 -0.603525366
## [251,] 0.258994215 -5.927987e-01 0.27824075 0.098066242
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## [258,] -0.785259194 -3.998219e-01 -0.80163993 -0.724861785
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## [263,] 0.378175311 4.425713e-02 0.40046809 0.267141579
## [264,] -0.064497330 -1.154338e-02 -0.13329914 -0.147732357
## [265,] 0.820847952 1.090517e+00 0.85727737 0.694518566
## [266,] -0.319885392 5.883121e-01 -0.18391855 -0.383869508
## [267,] -1.114426029 -4.207471e-01 -1.10782561 -0.948211726
## [268,] -1.486725071 -1.081053e+00 -1.36544958 -1.167583423

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## [269,]	-0.532708777	7.324634e-01	-0.56747373	-0.535326911
## [270,]	1.496207493	9.789157e-01	1.52808739	1.421116275
## [271,]	-0.376638295	-4.253972e-01	-0.36705380	-0.416547935
## [272,]	1.430941655	1.281168e+00	1.66389556	1.330185001
## [273,]	-0.019095008	-4.904978e-01	-0.09132208	-0.130114423
## [274,]	-0.515682906	-6.439492e-01	-0.52590820	-0.522823861
## [275,]	1.433779300	7.440886e-01	1.46224101	1.401225059
## [276,]	3.967796404	-1.905700e-01	3.97263434	5.240229770
## [277,]	0.210754248	2.139837e-01	0.17082883	0.073912623
## [278,]	0.701666856	2.043775e+00	0.67208442	0.577444551
## [279,]	-0.927141450	5.092614e-01	-0.96543280	-0.836536755
## [280,]	-1.815608141	1.441595e+00	-1.81032420	-1.352855894
## [281,]	1.113125400	-7.299750e-01	1.16181689	0.997717532
## [282,]	-0.813635645	1.256329e-01	-0.85061317	-0.758108532
## [283,]	-0.586624034	-9.059411e-02	-0.63002779	-0.595568880
## [284,]	-0.138276103	-8.578512e-01	-0.18885703	-0.226160580
## [285,]	0.869087919	6.464377e-01	0.80789259	0.776925033
## [286,]	0.145488410	-5.672235e-01	0.09222472	0.031572749
## [287,]	0.017794379	1.050991e+00	0.03707837	-0.125567859
## [288,]	1.635252105	2.256088e-01	1.58570298	1.588770811
## [289,]	1.933204844	9.928658e-01	1.93139649	2.015011156
## [290,]	-0.419202972	-2.603207e-01	-0.38186924	-0.481052307
## [291,]	-1.334911056	1.997275e+00	-1.34610720	-1.090007681
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## [294,]	-0.544059357	-2.951960e-01	-0.56212371	-0.558343890
## [295,]	2.236832873	6.069123e-01	2.27297460	2.350320228
## [296,]	2.980295898	5.371617e-01	3.02609260	3.370455455
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## [298,]	1.612550944	6.650378e-01	1.56512598	1.719484517
## [299,]	-0.583786389	-1.360056e+00	-0.58187763	-0.595853040
## [300,]	0.602349276	5.123219e-02	0.73381540	0.457244774
## [301,]	1.436616945	-7.788004e-01	1.41285622	1.426799479
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## [303,]	-0.915790870	-1.471657e+00	-0.95802509	-0.818634661
## [304,]	-0.206379587	2.860593e-01	-0.13700300	-0.279014383
## [305,]	0.460467020	2.232838e-01	0.43750668	0.302377448
## [306,]	1.811186103	1.981000e+00	1.74620354	1.887139053
## [307,]	0.310071828	2.634331e+00	0.47042987	0.176210306
## [308,]	-0.336911263	-7.253249e-01	-0.36170378	-0.418537056
## [309,]	0.233455409	-1.208194e-01	0.24161370	0.098350403
## [310,]	-0.160977264	-1.253105e+00	-0.13906070	-0.265943013
## [311,]	1.799835522	3.209347e-01	1.75854973	1.830307006
## [312,]	0.900302015	-5.137480e-01	0.86550817	0.776640872
## [313,]	-0.121250233	-3.835468e-01	-0.17321851	-0.238095310
## [314,]	-0.634864002	-4.486474e-01	-0.64895863	-0.623132422
## [315,]	-0.240431328	2.302588e-01	-0.19132627	-0.311692810
## [316,]	-0.189353716	2.074001e+00	-0.25017647	-0.263669731
## [317,]	1.748757910	-1.150804e+00	1.77501133	1.824623802
## [318,]	2.577350289	1.785698e+00	2.53224473	2.884541461
## [319,]	-0.850525032	7.324634e-01	-0.84279392	-0.785672074
## [320,]	0.179540151	-1.057803e+00	0.11938635	0.039245075
## [321,]	-0.475955874	-6.695244e-01	-0.37528460	-0.506342567
## [322,]	0.741393888	5.348366e-01	0.74616160	0.609838817

## [323,]	1.740244975	8.696397e-01	1.66389556	1.730850926
## [324,]	-0.623513421	5.208865e-01	-0.63537781	-0.614607615
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## [326,]	1.229468851	-1.789449e-01	1.19885548	1.193788091
## [327,]	-0.027607943	4.557859e-01	-0.08967592	-0.146311556
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## [329,]	-0.319885392	3.465099e-01	-0.34812297	-0.385006149
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## [331,]	-1.245525234	-1.701834e+00	-1.26462230	-1.041132121
## [332,]	-0.356774779	5.820726e-02	-0.38269232	-0.413990493
## [333,]	-0.944167321	-2.227289e+00	-0.95473277	-0.844777402
## [334,]	-0.552572293	-1.211254e+00	-0.60574694	-0.549819083
## [335,]	0.233455409	-3.998219e-01	0.20087125	0.065956136
## [336,]	0.324260053	-1.483282e+00	0.25519451	0.200648086
## [337,]	-0.450417068	-2.835709e-01	-0.51644278	-0.463150212
## [338,]	-1.446714274	-4.556225e-01	-1.36544958	-1.149113008
## [339,]	1.317435850	4.976363e-01	1.27293266	1.242095330
## [340,]	0.454791729	-1.862260e+00	0.44573748	0.262310856
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## [342,]	1.388376978	1.232343e+00	1.23589407	1.196629693
## [343,]	0.605186921	6.022623e-01	0.63916123	0.488502399
## [344,]	-0.802285065	-2.556706e-01	-0.74237818	-0.754414449
## [345,]	0.576810470	5.232115e-01	0.58566104	0.440195160
## [346,]	-1.234458418	-5.346732e-01	-1.21276828	-1.036301397
## [347,]	-1.489562716	-8.834264e-01	-1.44981526	-1.176108230
## [348,]	-0.765395678	-4.602725e-01	-0.75348976	-0.729976669
## [349,]	0.261831860	-5.106875e-02	0.21774438	0.133586271
## [350,]	-0.606487550	1.302094e+00	-0.59093150	-0.606935289
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## [353,]	-0.353937134	2.239077e+00	-0.38968850	-0.399498321
## [354,]	-0.790934484	4.581109e-01	-0.80205147	-0.734239072
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## [356,]	-1.322992946	3.999854e-01	-1.31112631	-1.095406725
## [357,]	-1.206365731	-4.695726e-01	-1.19548360	-1.021525065
## [358,]	-0.649052227	-8.129402e-02	-0.67735488	-0.644728600
## [359,]	1.169878303	1.605082e-01	1.13712450	1.094332010
## [360,]	-1.360449862	6.162124e-01	-1.35639570	-1.110751377
## [361,]	1.802673168	5.046114e-01	1.66801096	1.850198223
## [362,]	0.488843471	1.083542e+00	0.48277607	0.363187737
## [363,]	-0.527033487	2.483205e+00	-0.59875076	-0.538452673
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## [365,]	-0.552572293	-3.370464e-01	-0.58352379	-0.579087586
## [366,]	-0.734181581	-1.127554e+00	-0.71274731	-0.716052817
## [367,]	1.008132530	3.372098e-01	1.04658572	0.877517754
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## [370,]	1.510395719	9.381808e-03	1.42108702	1.460898707
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## [376,]	-0.473118229	-1.501882e+00	-0.54072364	-0.504637606

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## [377,] 0.173864861 1.425320e+00 0.11239017 0.038960915
## [378,] -0.492981745 -4.207471e-01 -0.46623492 -0.545556679
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## [431,] -0.146789039 1.255593e+00 -0.17321851 -0.233832907
## [432,] 1.186904174 3.000095e-01 1.18650928 1.128431238
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## [448,] -0.595136970 -3.161212e-01 -0.65348557 -0.593579758
## [449,] -0.634864002 -2.184703e-01 -0.60286616 -0.632793870
## [450,] 0.837873822 1.827549e+00 0.79143099 0.784313199
## [451,] -1.046322546 -8.904015e-01 -1.04321384 -0.924342266
## [452,] -0.507169971 1.760123e+00 -0.44524638 -0.504353446
## [453,] 1.538772170 9.114901e-01 1.51985660 1.475106719
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## [457,] -0.169490200 -1.941311e+00 -0.16704542 -0.271910377
## [458,] 1.873614296 2.750582e+00 1.79970372 2.171299283
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## [460,] -0.317047747 6.813130e-01 -0.40985395 -0.365114933
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## [463,] -0.876063838 -1.013628e+00 -0.87654019 -0.801869207
## [464,] -0.098549072 -8.136758e-01 -0.14811458 -0.196039596
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## [466,] -0.490144100 -3.742467e-01 -0.43207711 -0.531632828
## [467,] -0.263132489 -8.067007e-01 -0.32507673 -0.334141468
## [468,] 1.107450110 -5.672235e-01 1.05070112 0.952251895
## [469,] -1.100237803 -7.229999e-01 -1.04732924 -0.939686919
## [470,] -0.024770298 -7.695003e-01 -0.09008746 -0.124147058
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## [476,] 1.161365367 -9.756917e-02 1.10008591 1.057391180
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## [478,] 1.978607166 2.860593e-01 1.89847330 2.071843202
## [479,] 0.236293054 -4.409368e-02 0.20827896 0.092098878
## [480,] -0.087198491 1.209093e+00 0.01485522 -0.167623573
## [481,] 0.105761378 -1.952936e+00 0.09510549 -0.040319790
## [482,] 0.083060217 1.116827e-01 0.10333629 -0.035204906
## [483,] 1.277708818 1.353244e+00 1.35112524 1.230728920
## [484,] -1.198420325 -2.858959e-01 -1.12634490 -1.001633849

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## [485,] -0.700129840 -5.160730e-01 -0.75184360 -0.664619816
## [486,] 0.460467020 -1.619343e-02 0.62269963 0.294705122
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## [488,] 2.310611646 8.843253e-02 2.50343693 2.427043490
## [489,] -0.274483070 2.907094e-01 -0.32548827 -0.330163225
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## [493,] 0.378175311 -1.720434e+00 0.43339128 0.233042352
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## [495,] -1.569016779 3.930103e-01 -1.53541555 -1.230666995
## [496,] -0.353937134 -2.486956e-01 -0.30943822 -0.459740290
## [497,] -1.206365731 2.565696e-02 -1.15309499 -1.013284418
## [498,] -0.271645425 5.859871e-01 -0.26951885 -0.350622761
## [499,] 1.538772170 2.204202e+00 1.71328034 1.568879595
## [500,] 0.398038827 3.317887e+00 0.48277607 0.255775170
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## [511,] -0.297184231 -8.322759e-01 -0.26087651 -0.383301188
## [512,] 1.079073659 1.206768e+00 0.95604695 0.977542155
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## [514,] -0.135438458 -1.425156e+00 -0.16828004 -0.244346835
## [515,] 0.630725728 9.300903e-01 0.70089221 0.527148190
## [516,] -0.368125359 7.068882e-01 -0.27610349 -0.431040106
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## [526,] -0.356774779 -7.160249e-01 -0.39462698 -0.405465686
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## [539,] -0.073010265 3.279097e-01 -0.09049900 -0.199165358
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## [548,] -0.387988875 -1.045442e-01 -0.41561551 -0.449794682
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## [550,] -0.589461680 -1.083378e+00 -0.57323529 -0.584202471
## [551,] -0.362450069 4.836862e-01 -0.38433848 -0.398930000
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## [553,] -0.473118229 1.104467e+00 -0.32919213 -0.508615849
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## [567,] 0.327097698 7.254884e-01 0.28606000 0.158308211
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## [569,] 2.055223584 -9.741022e-01 2.03016606 2.077526407
##      smoothness_mean compactness_mean concavity_mean points_mean
## [1,] 0.457882546 -0.653837927 -0.613766097 -0.307171959
## [2,] 0.036953503 0.196146087 -0.312711686 -0.579832380
## [3,] 0.806286653 -0.498004369 -0.731804513 -0.621581896
## [4,] 1.424881700 0.175317786 -0.532481406 -0.024718442
## [5,] -1.189571158 -0.662737292 -0.688277063 -0.575966684
## [6,] -0.775041374 -0.513530920 -0.425857969 -0.892696038
## [7,] -0.266655790 -0.042432629 0.280992699 -0.202798168
## [8,] 2.555417474 1.371998332 0.840452144 1.104064774
## [9,] 0.250973169 -0.351448872 -0.738201920 -0.951196903
## [10,] 0.493433986 -0.253177162 -0.436896631 -0.399690949
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## [12,] -0.698250265 -0.711021080 -0.626560909 -0.659981142
## [13,] -0.683318660 0.086324138 0.247124077 -0.356137441
## [14,] -1.120601365 -1.258237342 -1.105212334 -1.153321259
## [15,] 0.486323698 -0.106621665 0.962128302 1.074943198
## [16,] -0.826946476 0.542653271 0.176878048 -0.297894289
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## [19,] 0.827617517 1.504542064 1.749887342 2.038016914
## [20,] 0.728073486 -0.175165709 -0.755763427 -0.517981244
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## [22,] 1.936822428 0.963006247 -0.547534126 -0.093012404

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##	[23,]	0.287235637	-0.563140145	-0.493720651	-0.505095591
##	[24,]	1.325337669	1.445844126	0.313606926	0.938612987
##	[25,]	1.126249608	0.491529260	-0.301547585	-0.470046615
##	[26,]	0.308566501	0.447979177	-0.136845735	0.045637224
##	[27,]	0.415220819	-0.429649673	-0.615396808	-0.544267977
##	[28,]	0.841838093	1.237561119	0.997251316	0.994536722
##	[29,]	-0.821258245	-0.228372550	-0.057442634	-0.670031952
##	[30,]	-1.208057907	-0.897150348	-0.840309540	-0.881098950
##	[31,]	-0.912980959	-1.268462144	-1.056704942	-1.033175429
##	[32,]	-0.413127720	-0.884842716	-0.522948016	-0.563854170
##	[33,]	-0.246746984	1.818860055	1.565491516	1.321574599
##	[34,]	-0.676208372	-0.739991353	-0.711107023	-0.576997536
##	[35,]	0.139341649	-0.287070488	-0.082530502	-0.139916181
##	[36,]	-0.972707377	-0.546477505	-0.580900990	-0.623901313
##	[37,]	-0.445835045	-0.027284774	0.240852111	0.788366272
##	[38,]	1.339558245	0.478274887	-0.648512793	-0.486797964
##	[39,]	-0.548223190	-0.237082566	-0.057442634	0.434010810
##	[40,]	0.728073486	1.436376716	1.329665561	1.072108354
##	[41,]	0.258794485	0.084430656	0.791530803	1.144525725
##	[42,]	1.112029032	1.178863181	2.032125852	2.053479698
##	[43,]	3.280666839	3.399917422	1.914212875	1.450431130
##	[44,]	-0.123739003	-0.088822935	-0.645000492	-0.720028286
##	[45,]	-1.996588834	-0.968534615	-0.834915649	-0.915632501
##	[46,]	-1.610500201	-0.339330588	0.269703158	0.228355786
##	[47,]	-1.055897746	-1.249716674	-0.942166283	-0.907643396
##	[48,]	1.318227381	2.498620049	3.110904155	3.669340602
##	[49,]	0.678301471	0.196146087	-0.037623219	0.126043700
##	[50,]	-0.842589109	-0.055687002	-0.257142060	-0.462057510
##	[51,]	0.443661971	0.896734381	0.128082146	0.182998287
##	[52,]	-0.899471412	0.099578511	-0.297909845	-0.286554914
##	[53,]	-0.390374799	-0.795659720	-0.756014306	-0.838576295
##	[54,]	-1.004703673	-0.008349956	0.269703158	-0.124711110
##	[55,]	1.261345078	1.970338605	3.305335129	2.914241328
##	[56,]	0.813396941	0.930817055	0.352493121	0.539930879
##	[57,]	-1.092871243	-0.146384784	-0.270187751	-0.580605519
##	[58,]	-0.262389617	-1.086687884	-1.093860074	-1.198756072
##	[59,]	3.437093173	3.452934915	4.239858194	3.924476535
##	[60,]	0.521875137	0.754723241	0.925750894	1.178286136
##	[61,]	-0.394640972	2.171047684	1.529114108	1.306369528
##	[62,]	0.607198592	1.059573823	1.594342564	1.427236955
##	[63,]	0.301456213	0.194252605	0.995996923	0.439422784
##	[64,]	-1.048076429	-0.833718706	-0.723776396	-0.737295061
##	[65,]	0.777845502	2.066906181	1.491482307	1.253538350
##	[66,]	0.344117940	-0.053793521	-0.440283493	-0.533444028
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##	[69,]	-0.085343448	-0.519968759	-0.552049943	-0.304337115
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##	[72,]	0.308566501	-0.588512803	-0.798914559	-0.803269605
##	[73,]	0.236041564	1.758268635	1.363534182	0.004145421
##	[74,]	-1.278449757	-0.798499943	-0.556314880	-0.183985115
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##	[76,]	-0.614348868	-0.187283993	-0.359375120	-0.295574871

## [77,]	-0.745178165	-0.372277172	-0.089178787	0.237633456
## [78,]	-1.064430091	-1.085551795	-0.648638233	-0.686010162
## [79,]	-0.598706234	-0.470738230	-0.605612540	-0.604057408
## [80,]	0.514764850	0.493422742	0.392633709	1.013349776
## [81,]	0.155695311	-0.482667166	-0.787499579	-0.286297201
## [82,]	-1.106380790	-0.602335220	-0.631703922	-0.834452886
## [83,]	-0.749444338	-0.768961625	-0.694423591	-0.636013827
## [84,]	1.197352487	0.559694607	0.136235703	0.559774785
## [85,]	1.943932716	0.127980740	-0.122921969	0.169597207
## [86,]	-1.906288177	-1.269598234	-0.830399833	-0.958928295
## [87,]	-0.450101217	-0.781458606	-0.742843175	-0.578543814
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## [90,]	0.199068067	0.050347983	-0.438401903	-0.285781775
## [91,]	-0.637812818	-1.261077565	-0.998576353	-0.917951918
## [92,]	-0.503428376	-0.530950954	-0.661182166	-0.650188046
## [93,]	-1.277027699	-0.912298203	-0.585918564	-0.527001202
## [94,]	-0.900893470	-1.015114269	-0.962612895	-0.806619875
## [95,]	0.792066077	2.593294143	1.371060543	0.444834759
## [96,]	-0.103119168	0.620286027	0.396396889	0.553847384
## [97,]	-1.624720777	-0.480016291	-0.604985343	-0.775436594
## [98,]	-0.898760383	-0.907375151	-0.776711796	-0.673124508
## [99,]	0.692522047	-0.365839334	-0.892115987	-0.767189776
## [100,]	0.706742623	3.070451576	3.074526748	3.494095720
## [101,]	0.841838093	0.465020514	-0.054181212	-0.521846940
## [102,]	-1.909843321	-1.531845474	-1.113892736	-1.260710292
## [103,]	0.140763706	-0.535116614	-0.704333298	-0.550710803
## [104,]	0.164227657	-0.612370674	-0.186268834	0.094602706
## [105,]	-1.721420692	-1.119066424	-0.569987768	-0.975937357
## [106,]	0.585867728	-0.417720737	-0.448060732	-0.753273271
## [107,]	-0.622881213	-0.010243437	0.178132442	-0.129092232
## [108,]	0.941382123	0.205613496	-0.088426151	-0.702503798
## [109,]	-1.026745565	-0.725600890	-0.919712641	-1.050416433
## [110,]	0.386779668	-0.843754160	-1.001561809	-0.983411036
## [111,]	1.268455366	-0.050006557	-0.227036619	-0.362580268
## [112,]	-0.164267644	0.495316224	0.543160914	-0.701988371
## [113,]	0.642750032	0.107152439	0.713758413	0.972373399
## [114,]	1.190242199	2.366076318	1.555456369	0.807437038
## [115,]	-0.710337754	-1.035374525	-0.906039753	-0.973360227
## [116,]	-0.927912564	0.124193776	0.396396889	0.217531837
## [117,]	0.167782800	0.307861518	0.366291448	0.280413825
## [118,]	1.396440548	0.981941066	1.258165139	1.087828851
## [119,]	-0.179910277	0.497209705	0.481695639	0.979073938
## [120,]	0.841838093	0.493422742	0.090701223	0.183256000
## [121,]	-0.605105493	-0.813837146	-0.935768876	-0.966659687
## [122,]	-0.388241713	0.576735944	0.943312401	1.203284303
## [123,]	-1.537264236	-0.898665134	-0.866275483	-0.922333040
## [124,]	-0.179199249	-0.354478443	0.351238728	0.920830786
## [125,]	-0.398196116	-0.861174193	-0.789381169	-0.662300560
## [126,]	-0.556755536	-0.518832670	-0.694423591	-0.873625271
## [127,]	3.088689066	1.366317887	1.483955946	1.213592825
## [128,]	-0.678341459	-0.719163052	-0.061456693	0.097695263
## [129,]	-1.008969846	-0.455590375	0.049055363	0.189441113
## [130,]	0.528985425	0.209400460	0.721284774	0.321390202

## [131,]	0.221109960	2.237319550	2.314364362	1.241941262
## [132,]	-0.411705663	0.196146087	0.097474948	-0.020595033
## [133,]	-0.686162775	-0.673530139	-0.739205434	-0.416700011
## [134,]	1.040926154	0.218867870	1.945572709	2.318924153
## [135,]	1.638190336	0.052241464	-0.604232707	-0.160790939
## [136,]	1.119139320	0.783125469	0.799057163	1.102518495
## [137,]	0.536095713	-0.569199287	-1.113892736	-1.260710292
## [138,]	-0.231104350	-0.983303774	-0.866526362	-0.754819549
## [139,]	1.104918745	0.023839236	0.777732476	1.299411275
## [140,]	-0.977684579	-1.076084386	-0.866526362	-0.913055370
## [141,]	-0.139381636	0.042774055	0.755153395	0.731669398
## [142,]	1.567087457	3.280628064	2.650541786	2.530248864
## [143,]	0.102368152	-0.017817365	0.692433726	1.262558307
## [144,]	0.607198592	1.826433983	1.564237123	0.969280842
## [145,]	0.642750032	1.561346520	0.673617825	1.002783540
## [146,]	0.308566501	-0.922523006	-0.818733974	-0.860481905
## [147,]	0.052596137	0.470700959	0.134730431	0.441742202
## [148,]	0.035531446	-0.372277172	-0.378567339	-0.014667633
## [149,]	-1.478248846	-1.321668985	-0.945553145	-0.822855798
## [150,]	-0.824102360	-0.685269726	-0.782356566	-0.765643498
## [151,]	-0.799927382	-1.249716674	-1.057783720	-1.095181192
## [152,]	0.792066077	-0.397839178	-1.001825232	-0.753788697
## [153,]	-0.681896603	-0.175165709	-0.499992617	-0.464892354
## [154,]	-0.143647809	-1.030072776	-0.986948126	-1.119096964
## [155,]	-0.625014299	1.197798000	0.594591043	0.440711350
## [156,]	0.322787076	-0.847919820	-0.773952131	-0.898365725
## [157,]	-1.200236590	-1.208438769	-0.863390379	-0.941661520
## [158,]	1.872829837	0.330583300	0.195693949	0.200265062
## [159,]	-1.062297005	-1.130806012	-0.863892136	-0.974391079
## [160,]	-0.628569443	-0.518075277	-0.517930443	-0.388609287
## [161,]	-1.621876662	-1.018522537	-0.704835056	-0.578286101
## [162,]	-1.149042517	0.260524471	0.049431681	0.179390304
## [163,]	-0.634968702	-0.935777379	-0.925482851	-0.722605416
## [164,]	-1.870736738	-1.385668673	-1.067718516	-1.171232316
## [165,]	-0.209062458	0.438511767	0.988470563	1.324151730
## [166,]	0.927161547	1.648446686	2.487470647	3.579141030
## [167,]	0.191957779	-0.532087043	-0.395877967	-0.074457063
## [168,]	-0.452945332	0.434724804	0.102492521	0.673941672
## [169,]	-0.179199249	-0.366596727	0.051815029	-0.363095694
## [170,]	-1.203080705	-0.768393581	-0.752502004	-0.918209631
## [171,]	1.382219972	0.355198565	0.423993544	0.630903590
## [172,]	0.685411759	0.169637341	0.298554206	0.404889234
## [173,]	1.602638897	1.139100062	0.060972100	0.281702390
## [174,]	-1.194548360	-0.411850943	-0.603103753	-0.708688911
## [175,]	-0.418104922	-0.785056221	-0.379069096	-0.374692781
## [176,]	0.211866585	-0.168159826	-0.626059152	-0.664104551
## [177,]	0.635639744	0.423363912	0.545669701	1.057160996
## [178,]	-1.347419549	-1.072865467	-0.773701252	-1.073971407
## [179,]	0.962712987	1.216732819	1.362279789	1.339614513
## [180,]	-1.154019719	-1.211089644	-0.814970794	-0.804558170
## [181,]	-0.035571433	-0.444418832	-0.588678229	-0.202282742
## [182,]	-0.332781467	-0.380608493	0.111524153	0.449989020
## [183,]	-0.311450603	-0.797742550	-0.980550720	-0.766674350
## [184,]	-0.540401874	-0.160207202	-0.166825737	-0.209498708

## [185,]	0.642750032	-0.692086261	-1.051097803	-1.065286476
## [186,]	-0.794950180	-1.081764831	-0.958849714	-0.907901109
## [187,]	1.261345078	1.000875885	1.281998613	1.548362094
## [188,]	-0.146491924	-0.137296071	0.332422827	0.503851050
## [189,]	-1.149042517	-0.354099746	0.334931614	0.730380832
## [190,]	-0.425926238	-1.087823973	-0.975533146	-0.898108012
## [191,]	0.060417453	0.177211268	0.071132687	0.270878441
## [192,]	-0.543245989	-0.983114426	-0.786997822	-0.797857631
## [193,]	-1.093582271	-0.356939969	-0.419084245	-0.430616516
## [194,]	1.247124502	1.044425968	0.942058008	0.637088704
## [195,]	-0.027750117	-0.309602922	-0.286871183	0.076562792
## [196,]	1.787506382	1.415548416	1.315867234	2.525094603
## [197,]	0.429441395	-0.125935180	0.435283084	0.428083410
## [198,]	-0.470721052	-0.346147122	-0.724779910	-0.498652765
## [199,]	0.792066077	0.179104750	-0.586922078	-0.448398717
## [200,]	-1.086471984	-0.494406753	-0.256013106	-0.607665390
## [201,]	-0.177066162	-1.004132074	-0.813089204	-0.513600122
## [202,]	-0.593729033	-0.888250984	-0.660554970	-0.898881152
## [203,]	-0.797083266	-0.034858702	-0.253504319	-0.261814460
## [204,]	0.211155557	0.313541963	0.222036210	0.290980060
## [205,]	1.325337669	-0.597033471	-0.611382749	-0.423142837
## [206,]	1.559977170	1.565133484	1.432525818	0.935005004
## [207,]	-0.802060468	-0.867043987	-0.691538486	-0.802754179
## [208,]	0.236041564	-0.855872444	-0.777088114	-0.354848876
## [209,]	-1.606945057	-1.291373275	-1.079296566	-1.146826889
## [210,]	1.261345078	3.386663049	2.005783591	2.594677130
## [211,]	-1.292670332	-0.161721988	0.284755879	-0.387063009
## [212,]	1.232903927	0.608925136	0.508037900	0.832692918
## [213,]	0.763624926	1.489394209	1.008540857	0.786562280
## [214,]	-0.905159642	-0.352016916	-0.477037219	-0.522620080
## [215,]	0.308566501	0.048454501	-0.472270524	-0.855843070
## [216,]	1.211573063	-0.449341885	-0.977916494	-0.928260441
## [217,]	1.147580472	0.139341631	-0.627188106	-0.488859668
## [218,]	-0.501295290	0.122300294	-0.478793369	-0.472623745
## [219,]	2.235454519	1.243241565	0.865540012	0.823930674
## [220,]	-0.851121454	0.192359123	0.546924094	1.239621845
## [221,]	0.022021899	-0.386478286	-0.952326869	-0.764870359
## [222,]	-0.605105493	-0.878594226	-0.817855899	-0.641683515
## [223,]	1.325337669	1.133419616	1.642009512	1.476202437
## [224,]	0.984043850	-0.202999892	-0.538000737	-0.685237022
## [225,]	-0.600128292	-1.161101722	-1.113892736	-1.260710292
## [226,]	0.784955789	-0.868558772	-1.113892736	-1.260710292
## [227,]	2.071917898	2.197556431	0.376326595	0.553074245
## [228,]	1.204462775	0.843716889	1.561728336	1.983897171
## [229,]	-0.474987225	0.292713663	0.185658802	0.669045123
## [230,]	-0.945688283	-1.131563405	-1.101678707	-1.184916880
## [231,]	-0.198397026	-0.352206264	-0.215747078	-0.740903044
## [232,]	-0.678341459	-1.110167060	-0.849341173	-0.731367661
## [233,]	-1.279160785	2.252467405	2.653050573	0.748936173
## [234,]	1.460433139	0.521824970	0.740100674	0.926758186
## [235,]	-0.967019147	-1.173977399	-0.863390379	-0.874398411
## [236,]	1.168911336	-0.221745363	-0.577137810	-0.453552979
## [237,]	0.571647153	1.773416490	1.014812824	1.027266281
## [238,]	0.514764850	-0.530572257	-0.792140835	-0.871563567

## [239,]	0.014911611	-0.605932836	-0.815472552	-0.844503695
## [240,]	0.756514638	-0.845079597	-0.507895296	-0.469531189
## [241,]	0.941382123	0.446085695	0.114032940	0.091252436
## [242,]	1.325337669	-0.422833138	-0.595577393	-0.764870359
## [243,]	-1.185304985	-0.829553045	-0.645376810	-1.128555033
## [244,]	-0.692562034	-0.784677525	-0.751247611	-0.529578332
## [245,]	0.699632335	1.525370364	1.917976055	1.249414941
## [246,]	-0.814147957	-1.023256241	-0.820741004	-1.012919182
## [247,]	-1.080072724	-1.234947515	-1.082909219	-1.127756123
## [248,]	-0.568131996	0.353305083	0.151790181	-0.258206477
## [249,]	-0.736645819	-0.850381346	-0.914695068	-1.108221473
## [250,]	-0.852543512	-0.754381815	-0.605236222	-0.759458384
## [251,]	0.175604117	0.607031654	-0.145375610	0.322163341
## [252,]	1.033815866	3.920624938	2.870060627	2.287998585
## [253,]	-0.903737585	0.133661185	0.149281394	-0.550195377
## [254,]	1.894160700	2.901931689	2.886367741	1.826692202
## [255,]	2.022145883	-0.128586055	0.153044574	0.444061620
## [256,]	0.571647153	-0.809482138	-0.857118412	-0.936764972
## [257,]	-0.887383923	-0.498761762	-0.007894096	-0.506899583
## [258,]	-0.553200392	-0.969670704	-0.764795059	-0.719512860
## [259,]	0.138630620	-0.984629211	-0.655662835	-0.522620080
## [260,]	0.101657123	-0.436466208	-0.277964990	-0.028584138
## [261,]	0.464992834	-0.128018010	-0.513916384	-0.403556645
## [262,]	-0.430903440	-0.525649204	-0.361382149	-0.555091926
## [263,]	0.912940971	0.340050710	0.725047954	0.823415248
## [264,]	-1.169662352	-0.967209178	-0.738201920	-0.727244252
## [265,]	1.659521200	0.856971262	1.917976055	1.839577855
## [266,]	2.199903080	1.682529360	1.218024551	1.149679986
## [267,]	-1.124867538	-0.857197881	-0.389606000	-0.984699602
## [268,]	0.104501238	0.923243128	-0.034361796	-0.520558375
## [269,]	-1.026745565	-0.991067050	-0.898889711	-0.935734120
## [270,]	0.450772259	0.974367138	1.456359292	1.029327985
## [271,]	-1.131977826	-0.291425496	-0.186896031	-0.208467856
## [272,]	0.073927000	2.678500827	1.476429586	1.620521752
## [273,]	-1.131266797	-0.960581991	-0.777589872	-0.422885124
## [274,]	-0.329937352	-0.682618852	-0.690911289	-0.675186213
## [275,]	-0.791395036	0.728214494	0.283501485	0.484522570
## [276,]	1.268455366	0.894840900	2.901420462	2.849813062
## [277,]	-0.034860404	-0.395566999	-0.257894696	0.015227083
## [278,]	-0.839744994	-0.038645666	0.046546577	0.105684368
## [279,]	-1.567838474	-1.175302836	-1.113892736	-1.260710292
## [280,]	-1.093582271	-1.052037166	-1.113892736	-1.260710292
## [281,]	0.720963198	2.087734482	0.998505710	1.522590788
## [282,]	-0.799927382	-1.140084073	-1.050332623	-1.114741613
## [283,]	-0.888805980	-0.878594226	-1.019687793	-1.041963444
## [284,]	-0.151469126	-0.720299141	-0.523700652	-0.299182854
## [285,]	0.063972597	-0.272490677	0.022713102	0.421382870
## [286,]	-0.707493639	-0.707423464	-0.462611695	-0.541433133
## [287,]	-0.123027974	0.497209705	0.284755879	0.404631521
## [288,]	0.521875137	0.504783633	0.656056318	1.169781605
## [289,]	0.308566501	1.065254268	2.288022101	2.115330833
## [290,]	0.799176365	0.550227198	-0.108245566	0.046925790
## [291,]	-1.075806552	-1.034427785	-1.113892736	-1.260710292
## [292,]	-0.948532398	-0.768772277	-0.793269789	-0.737295061

## [293,]	1.680852064	0.423363912	0.623442090	0.421125157
## [294,]	-0.287986653	-0.617104379	-0.562963165	-0.738325913
## [295,]	0.706742623	1.724185962	1.956862249	2.607562783
## [296,]	0.472103122	2.011995207	1.783755963	2.530248864
## [297,]	0.585867728	1.317087358	1.501517454	2.146256400
## [298,]	0.138630620	-0.031071738	0.741355068	1.187048380
## [299,]	0.969823275	-0.269839803	-0.639606600	-0.539629142
## [300,]	0.443661971	1.608683567	1.690930854	1.108703609
## [301,]	-0.669809113	0.268098398	0.382598562	1.230601888
## [302,]	-2.175768089	-0.987280086	-0.803430375	-0.906612543
## [303,]	-1.508112056	-1.271681064	-1.075131980	-1.090928926
## [304,]	1.012485002	0.805847251	0.698705693	0.845320859
## [305,]	0.436551683	0.304074554	0.324896467	0.404631521
## [306,]	-0.339180726	0.057921910	0.835434571	0.888616653
## [307,]	0.600088304	1.976019051	2.084810374	1.169266179
## [308,]	0.172760002	-0.302597039	-0.700444679	-0.644776071
## [309,]	-1.065141120	0.234015725	0.021333270	-0.342736362
## [310,]	0.621419168	0.281352772	-0.127939542	-0.113629449
## [311,]	-0.341313813	0.510464079	0.796548376	1.355077297
## [312,]	0.315676789	-0.004562992	0.474169279	0.891966923
## [313,]	0.223243046	-0.469034096	-0.543394628	-0.446337013
## [314,]	1.858609261	-0.610477192	-0.370162903	0.647397226
## [315,]	0.550316289	0.743362349	0.121308422	0.326286750
## [316,]	-1.506689998	-1.080818091	-0.954459338	-0.972844801
## [317,]	0.280125349	0.538866307	1.369806149	1.427236955
## [318,]	-0.090320650	1.209158891	1.332174348	1.927200297
## [319,]	-0.049792009	-0.424158576	-0.508773371	-0.679051909
## [320,]	-0.541112902	-0.502548725	-0.535868268	-0.351498606
## [321,]	-0.086765506	0.885373490	0.822890637	-0.011832789
## [322,]	-0.018506742	0.554014162	0.577029535	0.290206921
## [323,]	-0.396774058	0.510464079	0.723793560	0.977012234
## [324,]	0.093835806	-0.489483700	-0.696430620	-0.743222462
## [325,]	-1.215879223	-1.333219225	-0.981805113	-0.975164218
## [326,]	0.169204858	0.018158791	0.560722422	1.005876097
## [327,]	-0.402462288	-0.660654462	-0.930500424	-0.772086325
## [328,]	1.360889109	1.341702622	1.561728336	1.182151832
## [329,]	1.218683351	-0.538714229	-0.720514973	-0.579059240
## [330,]	0.749404350	0.453659622	1.781247177	2.373043896
## [331,]	-0.274477106	-1.198971360	-1.113892736	-1.260710292
## [332,]	-0.355534388	-0.483045862	-0.888478246	-0.722089990
## [333,]	-0.029883203	-0.889576421	-0.796405772	-0.823113511
## [334,]	-1.352396751	-1.367491247	-0.973024360	-1.130539424
## [335,]	1.446212563	0.495316224	0.816618670	0.961807163
## [336,]	-1.033855853	-0.796038416	-0.374804158	-0.447110152
## [337,]	-1.564283330	-1.473904928	-1.098915279	-1.120282444
## [338,]	0.728073486	0.699812266	2.812358532	-0.133215642
## [339,]	-0.369754964	0.678983966	0.215764243	0.308762261
## [340,]	0.564536865	0.483955332	0.380089775	0.339945542
## [341,]	-0.100275053	-0.366028682	-0.423976379	-0.093785543
## [342,]	-0.431614469	0.307861518	0.727556741	0.870834452
## [343,]	1.431991988	0.453659622	1.142760948	0.796097664
## [344,]	-0.031305261	0.533185861	0.827908211	-0.525197210
## [345,]	0.315676789	0.455553104	0.194439556	0.185833130
## [346,]	0.521875137	-0.384395456	-0.570238647	-0.802496466



## [347,]	-0.954931658	-0.518075277	-0.521693623	-0.647095489
## [348,]	0.912940971	-0.179520717	-0.859125441	-0.781106282
## [349,]	-0.299363114	-0.347851256	-0.174853854	-0.143524164
## [350,]	0.472103122	-0.230266032	-0.431377300	-0.159244661
## [351,]	-1.187438072	-0.918925390	-0.852100838	-0.577255249
## [352,]	0.150007081	0.215080906	0.124820723	0.788881698
## [353,]	-1.075806552	-0.872913780	-0.336796039	-0.656888585
## [354,]	-0.623592242	-0.730713292	-0.470012616	-0.771313185
## [355,]	1.481764003	0.824782070	0.475423672	1.066180953
## [356,]	0.571647153	-0.503874163	-0.841438494	-0.873109845
## [357,]	0.891610108	-0.606311532	-0.893621259	-0.757654393
## [358,]	-0.543957017	-0.669175131	-0.779095144	-0.901715995
## [359,]	-0.123027974	0.088217620	0.299808599	0.646366374
## [360,]	-0.281587394	-0.914381034	-0.612637143	-0.930322145
## [361,]	-0.910847873	-0.394998955	0.020329755	0.291237773
## [362,]	-0.878140548	-0.078408785	0.132723402	0.121662578
## [363,]	-1.377282758	-1.332272484	-1.113892736	-1.260710292
## [364,]	0.255950370	-0.547613594	-0.872672890	-0.753530984
## [365,]	0.578757441	-0.639447465	-0.801548785	-0.502776174
## [366,]	0.247418025	0.145022076	-0.268807918	-0.592202607
## [367,]	1.076477593	1.176969699	1.213006977	1.455585392
## [368,]	-1.174639553	-1.099752909	-0.920590716	-0.991915567
## [369,]	-0.738778906	-0.845458293	-0.942417161	-1.031165267
## [370,]	0.507654562	0.273778844	0.615915730	0.953302632
## [371,]	1.382219972	0.078750211	-0.370288342	-0.415669158
## [372,]	-1.361640125	-0.318691635	-0.362761982	-0.698895815
## [373,]	-0.940711082	-1.180036541	-1.016601986	-1.040752193
## [374,]	-0.390374799	-0.491566530	-0.748111627	-0.867182445
## [375,]	-0.748733309	-0.947516966	-0.741839660	-0.675186213
## [376,]	-1.609789172	-1.210142903	-1.023915099	-0.964597983
## [377,]	-0.967730176	-0.609719800	-0.598964255	-0.480612850
## [378,]	0.557426577	0.480168369	-0.374804158	-0.518496671
## [379,]	-0.182754393	-1.242521443	-1.095239906	-1.174814528
## [380,]	0.351228228	-0.497246976	-0.570991283	-0.505868731
## [381,]	-0.676919401	-0.777103597	-0.945553145	-0.669774239
## [382,]	0.365448804	-0.688677994	-0.800921588	-0.777498299
## [383,]	-0.136537521	-0.092231203	0.396396889	0.011876813
## [384,]	0.543206001	0.976260620	0.584555896	0.737081372
## [385,]	0.607198592	-0.366407378	-0.574252705	-0.592202607
## [386,]	-0.539690845	-0.448395144	-0.567228102	-0.632405844
## [387,]	-0.167111759	1.737440335	1.639500725	1.543207833
## [388,]	0.742294062	-0.711210428	-0.825758577	-0.801981040
## [389,]	-0.105252255	-0.364135200	-0.031978449	-0.103836352
## [390,]	-0.148625011	-0.704772590	-0.420714956	-0.084765586
## [391,]	0.256661399	0.512357560	1.016067217	0.876504139
## [392,]	-1.555039956	-1.301976774	-1.113892736	-1.260710292
## [393,]	-1.387237161	-0.828416956	-0.880951886	-0.816670684
## [394,]	0.401000243	0.775551541	1.295796940	1.229828748
## [395,]	-0.255279329	-0.601956524	-0.894123016	-0.776209734
## [396,]	-1.855805133	-1.060936531	-0.857369290	-1.041473789
## [397,]	0.884499820	0.235909207	-0.223649757	-0.101774648
## [398,]	-0.310028546	-0.014030401	0.293536632	0.667756558
## [399,]	0.114455641	0.559694607	1.223042124	1.581864792
## [400,]	0.429441395	-0.971942883	-1.028230212	-1.056163434

## [401,]	-0.102408139	-0.381555233	-0.821619079	-0.638075532
## [402,]	-1.792523571	-0.588702151	-0.098837616	-0.539113716
## [403,]	-0.167111759	1.279217721	0.964637089	0.696104995
## [404,]	-0.135115464	0.061708874	0.801565950	1.043502204
## [405,]	-0.961330917	0.340050710	0.153044574	-0.530609185
## [406,]	-0.345579985	0.165850377	0.115287334	0.745585903
## [407,]	0.173471031	0.747149313	-0.279595701	0.130167109
## [408,]	-0.187020565	-0.709884991	-0.673349782	-0.584728928
## [409,]	1.410661124	1.146673989	1.006032070	1.038863369
## [410,]	-0.833345735	-1.201811582	-0.906666950	-0.831102616
## [411,]	-0.622881213	0.572948981	0.609643763	-0.235012301
## [412,]	-1.957482250	-1.253692986	-0.909050297	-1.180174960
## [413,]	-1.310446052	-1.002617289	-0.831528787	-1.057761255
## [414,]	0.621419168	-0.821600422	-0.663314635	-0.590656328
## [415,]	-1.296225476	-1.153906491	-0.832281423	-0.548649099
## [416,]	0.891610108	0.766084132	1.716018721	1.816383680
## [417,]	0.002113093	-0.671257961	-0.674478736	-0.519785236
## [418,]	0.081748317	0.180998232	-0.109499959	-0.172388027
## [419,]	0.191246750	1.184543627	0.944566795	1.999359954
## [420,]	0.905830684	1.243241565	0.967145875	0.650232070
## [421,]	0.770735214	1.051999895	4.039155254	0.764141244
## [422,]	-0.412416691	-0.634903109	-0.454959895	-0.401494940
## [423,]	0.083881403	-1.007540342	-0.865271969	-0.800434761
## [424,]	4.766717009	2.263828296	0.106632019	0.092798715
## [425,]	-0.410283605	-0.431543155	-0.338552190	-0.652249750
## [426,]	1.126249608	0.413896503	0.301062993	0.510551590
## [427,]	1.382219972	0.307861518	-0.967003271	-0.800177048
## [428,]	-0.506272492	-0.636228546	-0.694172712	-0.519269810
## [429,]	0.280125349	-0.554808825	-1.050859469	-0.973102514
## [430,]	2.640740929	2.349034981	1.956862249	1.940085950
## [431,]	-0.268788876	-0.487022174	-0.450945836	-0.465665493
## [432,]	0.742294062	0.387387757	0.854250472	1.174935866
## [433,]	0.061839511	-0.618997861	-0.593194045	-0.780590856
## [434,]	0.344117940	0.518038006	0.756407788	1.105868765
## [435,]	-0.512671751	0.131767703	0.072387080	-0.329592995
## [436,]	-0.232526408	-0.970996142	-0.892492305	-0.556380491
## [437,]	-0.506983520	-0.861552889	-0.107869248	0.245107135
## [438,]	-1.205213791	-0.959635250	-0.628066181	-0.648126341
## [439,]	0.082459346	-0.977433980	-0.855362261	-1.059719874
## [440,]	0.891610108	0.184785196	-0.255511348	-0.297378863
## [441,]	-0.040548635	0.154489486	-0.222395363	-0.500456756
## [442,]	-0.277321222	-0.698145403	-0.740836146	-0.631117279
## [443,]	0.536095713	0.964899729	1.018576004	1.011030358
## [444,]	0.763624926	0.211293942	-0.388100728	0.096406698
## [445,]	0.125121073	0.482061850	0.663582678	1.009999506
## [446,]	0.429441395	-0.746429191	-0.743094054	-0.725697973
## [447,]	-1.132688855	-0.686784512	-0.524704167	-0.656630872
## [448,]	-1.388659219	-1.238734479	-1.094499814	-1.116597147
## [449,]	-0.194130853	0.209400460	-0.281477291	-0.450975848
## [450,]	0.186269549	0.126087258	0.149281394	0.396642416
## [451,]	0.635639744	-0.513530920	-1.030563384	-0.947331207
## [452,]	0.500544274	0.586203354	0.247124077	-0.085023299
## [453,]	0.329897364	0.519931488	1.214261371	1.370540081
## [454,]	-2.149460023	0.038987091	-0.012911669	-0.645806924

## [455,]	0.097390950	-0.438170342	-0.793395228	-0.699153528
## [456,]	0.237463622	-0.042432629	-0.049289077	0.164958372
## [457,]	2.327888262	0.006797899	-0.251246411	0.428856549
## [458,]	-0.118761802	0.188572160	0.600863010	0.967476850
## [459,]	-0.354112331	-1.166024775	-1.113892736	-1.260710292
## [460,]	-2.406852445	-1.608720838	-1.093885161	-1.212981833
## [461,]	0.856058668	1.788564345	3.445827187	3.092063341
## [462,]	0.386779668	0.654368701	0.885610306	0.992732731
## [463,]	-1.172506467	-0.635281805	-0.669084845	-0.726213399
## [464,]	-0.582352572	-0.703636501	-0.981554235	-1.004620821
## [465,]	1.581308033	2.333887126	1.682150100	2.349849720
## [466,]	0.642750032	0.516144524	-0.142866823	-0.539371429
## [467,]	-0.799927382	-0.981410292	-1.095566049	-1.176670062
## [468,]	-0.489918829	0.357092047	0.253396044	0.351027204
## [469,]	0.692522047	0.127980740	-0.270187751	-0.238877997
## [470,]	-0.837611907	-0.859470059	-0.670590117	-0.502003035
## [471,]	-0.630702530	-0.725790239	-0.723525517	-0.522620080
## [472,]	-0.863919973	-0.962286125	-0.869662345	-0.761004663
## [473,]	-0.464321793	-1.262592351	-0.792517153	-0.507415009
## [474,]	-0.864631001	0.163956895	0.322387680	0.449731307
## [475,]	-0.628569443	-0.839588499	-0.816977824	-0.648126341
## [476,]	0.078193173	0.139341631	0.303571779	0.788108559
## [477,]	-1.920508753	0.056028428	-0.117528077	-0.493240790
## [478,]	0.034109388	0.249163580	0.858013652	1.715875585
## [479,]	-0.457922534	-0.115710378	-0.368783070	-0.018791042
## [480,]	1.410661124	1.207265409	0.588319076	0.481172301
## [481,]	0.976933562	0.105258957	-0.004758112	0.228355786
## [482,]	0.082459346	0.184785196	0.063731766	0.244076283
## [483,]	0.713852911	1.597322676	1.795045504	1.945240211
## [484,]	0.044774820	0.474487923	0.525599407	-0.303048550
## [485,]	-1.475404731	-1.288343704	-1.009702822	-0.961247713
## [486,]	1.986594443	2.500513531	2.541409563	1.940085950
## [487,]	-0.490629858	-0.790736667	-0.744097568	-0.870532715
## [488,]	2.576748338	3.265480209	4.234840621	3.437398846
## [489,]	-1.636097238	-0.976865935	-0.888101928	-0.937022685
## [490,]	1.794616670	2.102882337	1.004777677	0.380148780
## [491,]	0.265904773	0.465020514	0.353747514	0.739658503
## [492,]	1.524425730	3.269267173	3.294045588	2.656528265
## [493,]	2.086138474	0.968686693	1.435034605	1.566402009
## [494,]	0.036242474	-0.129154099	-0.453705502	-0.542206272
## [495,]	1.986594443	-0.278549819	-0.737574723	-1.022093767
## [496,]	1.808837246	1.169395772	-0.508647932	0.105942081
## [497,]	0.294345925	-0.139568250	-0.341939052	-0.480097424
## [498,]	0.055440252	0.006797899	-0.077889246	0.092798715
## [499,]	-0.267366818	1.930575486	1.123945047	1.687527148
## [500,]	0.706742623	1.127739170	1.082550066	0.903821724
## [501,]	-1.520910574	-0.629033315	-0.656164593	-0.666166256
## [502,]	-1.016791162	-0.712914562	-0.700068361	-0.404329784
## [503,]	1.467543427	1.852942729	1.046172658	1.388579995
## [504,]	-0.400329202	1.167502290	1.746124162	0.270363015
## [505,]	1.503094866	0.832355998	0.165588508	0.173205190
## [506,]	-1.319689426	-1.298947203	-1.051587017	-1.094897707
## [507,]	-2.280289321	-1.469171223	-1.022949216	-1.099639628
## [508,]	-0.827657504	-1.025907116	-0.685391958	-0.605861399

## [509,]	0.962712987	2.258147851	2.867551840	2.537980256
## [510,]	1.112029032	0.998982403	0.795293983	0.924954195
## [511,]	0.792066077	0.429044358	-0.540885842	-0.459222666
## [512,]	-0.555333478	-0.645127911	-0.399013951	-0.038119521
## [513,]	1.033815866	0.894840900	0.413958397	0.074758800
## [514,]	0.007090294	-0.326265563	-0.626184591	-0.600191712
## [515,]	0.075349058	0.858864744	1.157813669	1.000206409
## [516,]	0.884499820	1.430696271	1.012304037	0.507459033
## [517,]	-0.826235447	-0.486643478	-0.023824892	0.547662271
## [518,]	0.941382123	1.051999895	1.362279789	2.035439783
## [519,]	1.311117093	0.836142961	1.108892327	1.471048175
## [520,]	0.273015061	0.832355998	-0.021943302	0.054141755
## [521,]	0.127965188	-0.057580484	-0.319234532	-0.689102718
## [522,]	0.233908478	0.027626200	-0.109750838	-0.275988678
## [523,]	-0.935733880	-1.103729221	-0.526084000	-0.554834212
## [524,]	-3.109348889	-1.149740831	-1.113892736	-1.260710292
## [525,]	1.467543427	-0.542690541	-1.113892736	-1.260710292
## [526,]	-0.150047068	-0.798121246	-0.624679319	-0.844503695
## [527,]	-1.232232885	-0.550075120	-0.431753618	-0.736006496
## [528,]	-0.877429520	-0.702879108	-0.199063646	0.181452008
## [529,]	-0.656299566	-1.027421902	-0.812963765	-0.700699806
## [530,]	-0.942133139	-0.947895663	-0.928367955	-1.112035626
## [531,]	-0.733090675	-0.061367448	-0.289254530	-0.283720070
## [532,]	-0.688295862	0.294607145	0.046672016	-0.909189674
## [533,]	-1.237210087	-1.119445121	-0.938026784	-0.787806821
## [534,]	0.138630620	0.970580175	1.135234588	1.024173724
## [535,]	0.365448804	1.033065077	2.078538407	1.700412801
## [536,]	-0.423793152	-0.409957462	-0.381954201	-0.467469484
## [537,]	-0.079655218	-0.939374994	-0.733058907	-0.673639935
## [538,]	-0.584485658	-0.981031596	-0.915322264	-0.964855696
## [539,]	-0.041259664	-0.048113075	-0.651272459	-0.650188046
## [540,]	-0.464321793	-0.550832513	-0.587549275	-0.397371531
## [541,]	-0.614348868	-0.592678463	-0.242089339	0.128363117
## [542,]	2.896711293	0.343837673	-0.695928863	-0.636786967
## [543,]	-0.883828779	-1.177385666	-1.090561019	-1.185354992
## [544,]	1.467543427	1.574600893	2.103626274	2.615294175
## [545,]	2.292336822	4.564408776	3.595099999	2.873007238
## [546,]	0.294345925	-0.471684971	-0.341813613	-0.392217270
## [547,]	-0.123739003	0.377920347	0.048051849	-0.665908543
## [548,]	0.028421158	-0.469980837	-0.776711796	-0.801723327
## [549,]	0.208311441	0.156382968	-0.554182411	-0.151513269
## [550,]	0.479213410	-0.254123903	-0.286996622	-0.552257082
## [551,]	-1.482515019	-0.401058097	-0.345451353	-0.779560003
## [552,]	-1.679469994	-0.827470215	-0.548788520	-0.881614376
## [553,]	1.581308033	2.561104951	1.737343408	0.940932405
## [554,]	0.777845502	-0.136538679	-0.451322154	-0.116464292
## [555,]	-0.600839321	-0.990120309	-0.766174892	-0.727759678
## [556,]	1.446212563	1.976019051	2.410952652	2.764767751
## [557,]	-0.206929371	-0.841292633	-0.782983763	-0.727501965
## [558,]	0.479213410	1.500755100	0.704977660	0.362882005
## [559,]	0.301456213	-0.888250984	-0.817479581	-0.595037450
## [560,]	-0.324960150	-0.292372237	-0.603480071	-0.678278770
## [561,]	0.132942390	0.103365475	0.540652128	0.181967434
## [562,]	-0.684740718	-0.736393737	-0.863766697	-0.824659789

```
## [563,] -1.877847026 -0.986712041 -0.677865598 -0.813062702
## [564,]  1.211573063 -0.302975736 -0.637223253 -0.384485878
## [565,] -1.542952466 -0.840724589 -0.504382994 -0.521073801
## [566,]  0.174893088 -0.241437575 -0.664694468 -0.735748783
## [567,] -0.411705663  0.016265309 -0.439656296 -0.419792568
## [568,]  0.962712987 -0.225721675 -0.248988503  0.413136052
## [569,]  0.265904773  0.892947418  1.309595267  1.973588648
## attr(,"scaled:center")
##      radius_mean      texture_mean      perimeter_mean      area_mean
##      14.12729174      19.28964851      91.96903339      654.88910369
## smoothness_mean compactness_mean      concavity_mean      points_mean
##      0.09636028      0.10434098      0.08879932      0.04891915
## attr(,"scaled:scale")
##      radius_mean      texture_mean      perimeter_mean      area_mean
##      3.52404883      4.30103577      24.29898104      351.91412918
## smoothness_mean compactness_mean      concavity_mean      points_mean
##      0.01406413      0.05281276      0.07971981      0.03880284
```

```
matsurv <- matstand[cancer$diagnosis == "B",]
matsurv
```

##		radius_mean	texture_mean	perimeter_mean	area_mean
##	[1,]	-0.512845261	-1.604183e+00	-0.53990056	-0.542146756
##	[2,]	-1.000920224	-7.896900e-02	-0.93374423	-0.876603348
##	[3,]	-0.876063838	-5.718735e-01	-0.86625169	-0.800448406
##	[4,]	-0.807960355	-1.371681e+00	-0.78065139	-0.767485819
##	[5,]	0.301558892	-1.413531e+00	0.23379444	0.161718134
##	[6,]	-0.725668646	-5.804381e-02	-0.73126661	-0.696729922
##	[7,]	-0.742694517	1.078892e+00	-0.71809733	-0.714347856
##	[8,]	-1.032134320	8.172307e-05	-1.01070219	-0.905871851
##	[9,]	-0.870388548	-1.006653e+00	-0.84279392	-0.798459284
##	[10,]	-0.532708777	-3.137962e-01	-0.56376987	-0.552944845
##	[11,]	-0.280158360	3.372098e-01	-0.24647261	-0.335278109
##	[12,]	-0.305697166	4.731766e-03	-0.38516156	-0.362841651
##	[13,]	0.131300184	7.882640e-01	0.18194041	0.006282488
##	[14,]	0.449116439	-1.246130e+00	0.41281429	0.303514089
##	[15,]	-0.413527681	-4.625975e-01	-0.44113098	-0.468833417
##	[16,]	-0.549734648	-1.394931e+00	-0.53043514	-0.565732056
##	[17,]	-0.685941614	-4.881728e-01	-0.71151269	-0.666608937
##	[18,]	-0.691616904	1.197468e+00	-0.64196245	-0.706107209
##	[19,]	-0.904440289	-1.626698e-01	-0.88806330	-0.809541533
##	[20,]	0.276020086	-6.741745e-01	0.31322164	0.055726368
##	[21,]	-1.026459030	2.093336e-01	-0.96008279	-0.911270896
##	[22,]	-0.192191361	-2.300954e-01	-0.22095714	-0.283560947
##	[23,]	-1.282982150	-5.695485e-01	-1.24816071	-1.063864939
##	[24,]	-0.206379587	-5.439733e-01	-0.26704961	-0.291233273
##	[25,]	-0.305697166	-1.267055e+00	-0.38104616	-0.353180203
##	[26,]	-0.527033487	-3.184462e-01	-0.55800831	-0.536463552
##	[27,]	0.128462539	-1.308905e+00	0.09551703	0.011113212
##	[28,]	-0.132600813	-9.624771e-01	-0.15222998	-0.211100088
##	[29,]	-0.632026357	-1.078728e+00	-0.57035451	-0.631088909
##	[30,]	-0.322723037	-1.176379e+00	-0.32466519	-0.399498321
##	[31,]	-0.064497330	-6.206990e-01	-0.12342219	-0.157677965
##	[32,]	-0.850525032	-6.206990e-01	-0.88477099	-0.777999748
##	[33,]	-0.175165490	-9.291913e-02	-0.15922616	-0.275036140
##	[34,]	-0.473118229	1.395830e-01	-0.47487725	-0.521687220
##	[35,]	0.247643635	-8.787763e-01	0.22556364	0.084142391
##	[36,]	-0.660402808	-4.718976e-01	-0.68764338	-0.633646351
##	[37,]	0.026307314	1.990300e+00	0.02390909	-0.088058708
##	[38,]	-0.223405457	-7.974006e-01	-0.22548408	-0.383301188
##	[39,]	-0.677428679	-1.069428e+00	-0.64443169	-0.650411804
##	[40,]	-1.148477771	-9.717772e-01	-1.16091425	-0.958725654
##	[41,]	-0.507169971	6.813130e-01	-0.49874657	-0.541010116
##	[42,]	-0.243268973	-5.276981e-01	-0.30532282	-0.308282887
##	[43,]	0.136975474	-8.369260e-01	0.02925911	0.028446986
##	[44,]	-0.078685556	-9.555021e-01	-0.12259911	-0.191777192
##	[45,]	-0.697292195	1.698083e-01	-0.68970108	-0.678259507
##	[46,]	-1.156990706	-4.091220e-01	-1.13416416	-0.977764390
##	[47,]	-1.443025336	-9.059411e-02	-1.31277247	-1.166162622
##	[48,]	1.056372498	-1.408881e+00	0.93135455	0.958219260
##	[49,]	0.769770339	3.960709e-02	0.67619982	0.640243962
##	[50,]	-0.501494680	5.836621e-01	-0.50162735	-0.536463552
##	[51,]	-0.799447419	-5.804381e-02	-0.83003618	-0.741058918
##	[52,]	-0.387988875	-1.376331e+00	-0.39833083	-0.428482664

##	[53,]	0.239130699	-5.439733e-01	0.17494423	0.088120634
##	[54,]	-0.518520551	-7.881005e-01	-0.54072364	-0.543283397
##	[55,]	-0.234756038	5.301866e-01	-0.27692657	-0.309135368
##	[56,]	0.145488410	-9.415519e-01	0.15642494	-0.008493844
##	[57,]	-0.810798000	-1.471657e+00	-0.77406675	-0.763223416
##	[58,]	-0.351099488	-1.434456e+00	-0.41479243	-0.394951757
##	[59,]	-0.507169971	-1.632083e+00	-0.53619670	-0.529643706
##	[60,]	-0.212054877	2.657581e+00	-0.23165718	-0.277593582
##	[61,]	-0.118412587	-1.417446e-01	-0.13329914	-0.238379470
##	[62,]	-0.373800649	-1.448407e+00	-0.43948482	-0.415127134
##	[63,]	-0.470280584	-4.602725e-01	-0.47405417	-0.496681120
##	[64,]	-0.319885392	1.357894e+00	-0.38516156	-0.382732867
##	[65,]	-0.331235972	-2.324204e-01	-0.32054980	-0.368524856
##	[66,]	-0.646214582	-4.253972e-01	-0.67612026	-0.631373069
##	[67,]	-1.120101319	-4.091220e-01	-1.10494483	-0.971228704
##	[68,]	-0.969706127	2.558341e-01	-0.92469035	-0.880865751
##	[69,]	-1.250632996	-2.486956e-01	-1.28561084	-1.042268762
##	[70,]	-0.805122710	-1.453057e+00	-0.81233996	-0.758392692
##	[71,]	-0.263132489	-4.323722e-01	-0.32260749	-0.321922578
##	[72,]	-0.748369807	-1.092678e+00	-0.73990894	-0.710369613
##	[73,]	-0.444741778	-5.106875e-02	-0.41355781	-0.480483986
##	[74,]	-0.541221712	1.744583e-01	-0.51438508	-0.573404382
##	[75,]	-0.938492031	1.143992e+00	-0.94979429	-0.833410993
##	[76,]	-0.842012096	4.929862e-01	-0.86501707	-0.780273029
##	[77,]	-0.705805130	-2.231203e-01	-0.69134724	-0.688773435
##	[78,]	-1.676563530	3.279097e-01	-1.59261960	-1.281531676
##	[79,]	-0.671753388	5.371617e-01	-0.70986653	-0.645012760
##	[80,]	-0.305697166	-1.626698e-01	-0.28309967	-0.406034006
##	[81,]	-0.078685556	-4.835227e-01	-0.14523380	-0.188083109
##	[82,]	-0.717155711	1.209093e+00	-0.73003199	-0.675417904
##	[83,]	-0.754045097	-7.578752e-01	-0.77982831	-0.716621138
##	[84,]	-0.756882742	-2.626457e-01	-0.75637054	-0.715484497
##	[85,]	-0.132600813	-3.711862e-02	-0.10325673	-0.226160580
##	[86,]	-0.260294844	2.039125e+00	-0.29174200	-0.331015705
##	[87,]	-0.870388548	-5.044479e-01	-0.85267087	-0.819487141
##	[88,]	-1.530424806	-5.695485e-01	-1.51031162	-1.195146966
##	[89,]	-0.586624034	-1.522807e+00	-0.62262007	-0.586191592
##	[90,]	-0.620675776	-2.440455e-01	-0.66912408	-0.617449218
##	[91,]	-0.657565163	-4.416723e-01	-0.68723184	-0.642171158
##	[92,]	0.673290405	-2.324204e-01	0.60212264	0.520612505
##	[93,]	-0.481631164	-5.323482e-01	-0.55018905	-0.504637606
##	[94,]	-0.501494680	-1.742949e-01	-0.53331592	-0.534758590
##	[95,]	-0.464605294	-5.672235e-01	-0.52590820	-0.492418716
##	[96,]	-1.244390176	-3.944364e-02	-1.23622605	-1.037722198
##	[97,]	-0.348261843	-7.834505e-01	-0.33865755	-0.405465686
##	[98,]	-1.080374288	-6.834746e-01	-1.09712557	-0.937697797
##	[99,]	0.080222572	1.023827e-01	0.16712498	-0.011051286
##	[100,]	-1.331222117	-2.254453e-01	-1.32306097	-1.069263984
##	[101,]	-0.152464329	-3.370464e-01	-0.23577258	-0.234685387
##	[102,]	-1.009433159	-2.254453e-01	-1.03498305	-0.892232160
##	[103,]	-0.180840780	6.999132e-01	-0.20819940	-0.266795493
##	[104,]	-0.243268973	-1.053153e+00	-0.29750356	-0.293222395
##	[105,]	-0.813635645	1.558582e-01	-0.75102052	-0.741058918
##	[106,]	-0.073010265	-7.160249e-01	-0.14194148	-0.173875098

## [107,]	-1.454943445	-1.136854e+00	-1.46545377	-1.161047738
## [108,]	0.060359056	-1.353081e+00	0.02226293	-0.038898989
## [109,]	-0.277320715	-9.183017e-01	-0.27404579	-0.329594904
## [110,]	-0.109899652	-3.207712e-01	-0.15840308	-0.198597038
## [111,]	-0.152464329	5.929622e-01	-0.19791091	-0.266795493
## [112,]	-0.359612424	-2.998460e-01	-0.36129224	-0.422231139
## [113,]	-0.870388548	-1.036878e+00	-0.89135562	-0.786240394
## [114,]	-0.552572293	2.860593e-01	-0.60698156	-0.557491409
## [115,]	-0.538384067	6.285730e-02	-0.55265829	-0.550955724
## [116,]	-0.101386717	-1.399581e+00	-0.16087232	-0.205132723
## [117,]	-0.824986226	1.326079e-01	-0.82427462	-0.760381813
## [118,]	-0.912953225	-1.613483e+00	-0.93950579	-0.827443628
## [119,]	-1.244390176	-8.415760e-01	-1.25392227	-1.037153878
## [120,]	-0.623513421	-1.948286e+00	-0.65142787	-0.602957046
## [121,]	0.224942474	-1.013628e+00	0.18440965	0.090962237
## [122,]	0.139813120	1.099817e+00	0.10704015	0.022195461
## [123,]	-0.189353716	-1.254694e-01	-0.18638779	-0.294927356
## [124,]	-0.544059357	-1.208929e+00	-0.54278134	-0.548114121
## [125,]	-0.944167321	6.255125e-01	-0.95390969	-0.838241716
## [126,]	0.244805990	6.557377e-01	0.22885596	0.110285132
## [127,]	-0.424878262	3.418599e-01	-0.40409239	-0.495828639
## [128,]	-0.685941614	-8.927265e-01	-0.69710880	-0.666608937
## [129,]	-0.717155711	-2.161453e-01	-0.74443588	-0.688205115
## [130,]	-0.178003135	-1.529782e+00	-0.25840727	-0.252019161
## [131,]	-0.351099488	-8.346009e-01	-0.32466519	-0.392962636
## [132,]	-0.240431328	-1.294955e+00	-0.25429187	-0.321354258
## [133,]	-0.921466160	-8.532011e-01	-0.88724022	-0.841083319
## [134,]	-1.122938965	-1.025253e+00	-1.12840260	-0.974638627
## [135,]	-0.390826520	-6.020988e-01	-0.38927696	-0.457751168
## [136,]	0.020632024	2.883844e-01	0.01814753	-0.103687521
## [137,]	-0.399339456	-1.281005e+00	-0.41931937	-0.462581892
## [138,]	-0.405014746	-1.655333e+00	-0.45635796	-0.454341245
## [139,]	-0.759720388	3.906853e-01	-0.74731666	-0.720031061
## [140,]	-0.983894353	-9.624771e-01	-1.00740987	-0.867510220
## [141,]	-1.569300544	-1.603448e-01	-1.55887333	-1.232371956
## [142,]	-1.263118634	-1.429806e+00	-1.14609882	-1.086597758
## [143,]	-0.816473290	-1.048503e+00	-0.84732086	-0.752709487
## [144,]	-0.708642775	2.325103e+00	-0.70369343	-0.681385269
## [145,]	-0.507169971	-1.008978e+00	-0.56294679	-0.527938745
## [146,]	0.037657895	8.378249e-02	0.24120216	-0.071009095
## [147,]	-0.385151230	2.357653e+00	-0.43701558	-0.417684576
## [148,]	-0.694454549	-7.253249e-01	-0.67817796	-0.666040617
## [149,]	-1.576678421	-1.439106e+00	-1.54076557	-1.232087796
## [150,]	-0.986731998	1.378819e+00	-0.98600980	-0.874898386
## [151,]	-1.034971965	1.326079e-01	-1.03909844	-0.901325288
## [152,]	-1.532694922	-8.043757e-01	-1.48685385	-1.204808414
## [153,]	-1.342288933	5.557618e-01	-1.32594175	-1.097111686
## [154,]	-1.261132283	1.170683e-02	-1.27244156	-1.049088607
## [155,]	-1.162665996	4.627610e-01	-1.18437203	-0.987709998
## [156,]	0.097248443	1.325344e+00	0.15807110	0.004293366
## [157,]	-1.683090114	-5.695485e-01	-1.65681982	-1.287214880
## [158,]	-0.603649905	2.078651e+00	-0.62550085	-0.603525366
## [159,]	0.258994215	-5.927987e-01	0.27824075	0.098066242
## [160,]	-0.810798000	-8.811014e-01	-0.76501288	-0.747026283



## [161,]	-0.053146749	-1.422831e+00	-0.06827584	-0.172454297
## [162,]	-1.340018817	5.604119e-01	-1.33211485	-1.090291841
## [163,]	0.114274313	1.170683e-02	0.09387087	0.013670654
## [164,]	-0.785259194	-3.998219e-01	-0.80163993	-0.724861785
## [165,]	-0.382313585	-6.509243e-01	-0.43619250	-0.433029228
## [166,]	-0.166652555	-1.146154e+00	-0.18556471	-0.251735001
## [167,]	-0.575273454	-3.649466e-01	-0.57200067	-0.593011438
## [168,]	-1.088887223	1.934499e+00	-1.08231013	-0.947643405
## [169,]	-0.064497330	-1.154338e-02	-0.13329914	-0.147732357
## [170,]	-1.114426029	-4.207471e-01	-1.10782561	-0.948211726
## [171,]	-1.486725071	-1.081053e+00	-1.36544958	-1.167583423
## [172,]	-0.532708777	7.324634e-01	-0.56747373	-0.535326911
## [173,]	-0.376638295	-4.253972e-01	-0.36705380	-0.416547935
## [174,]	-0.019095008	-4.904978e-01	-0.09132208	-0.130114423
## [175,]	-0.515682906	-6.439492e-01	-0.52590820	-0.522823861
## [176,]	0.210754248	2.139837e-01	0.17082883	0.073912623
## [177,]	-0.927141450	5.092614e-01	-0.96543280	-0.836536755
## [178,]	-1.815608141	1.441595e+00	-1.81032420	-1.352855894
## [179,]	-0.813635645	1.256329e-01	-0.85061317	-0.758108532
## [180,]	-0.586624034	-9.059411e-02	-0.63002779	-0.595568880
## [181,]	-0.138276103	-8.578512e-01	-0.18885703	-0.226160580
## [182,]	0.145488410	-5.672235e-01	0.09222472	0.031572749
## [183,]	-0.419202972	-2.603207e-01	-0.38186924	-0.481052307
## [184,]	-1.334911056	1.997275e+00	-1.34610720	-1.090007681
## [185,]	-0.124087878	-7.485752e-01	-0.16992620	-0.215362492
## [186,]	-0.544059357	-2.951960e-01	-0.56212371	-0.558343890
## [187,]	-0.583786389	-1.360056e+00	-0.58187763	-0.595853040
## [188,]	0.037657895	-2.603207e-01	-0.03082571	-0.061915967
## [189,]	-0.915790870	-1.471657e+00	-0.95802509	-0.818634661
## [190,]	-0.336911263	-7.253249e-01	-0.36170378	-0.418537056
## [191,]	0.233455409	-1.208194e-01	0.24161370	0.098350403
## [192,]	-0.160977264	-1.253105e+00	-0.13906070	-0.265943013
## [193,]	-0.121250233	-3.835468e-01	-0.17321851	-0.238095310
## [194,]	-0.634864002	-4.486474e-01	-0.64895863	-0.623132422
## [195,]	-0.189353716	2.074001e+00	-0.25017647	-0.263669731
## [196,]	-0.850525032	7.324634e-01	-0.84279392	-0.785672074
## [197,]	0.179540151	-1.057803e+00	0.11938635	0.039245075
## [198,]	-0.475955874	-6.695244e-01	-0.37528460	-0.506342567
## [199,]	-0.623513421	5.208865e-01	-0.63537781	-0.614607615
## [200,]	-0.484468810	-9.880524e-01	-0.54977751	-0.506910888
## [201,]	-0.027607943	4.557859e-01	-0.08967592	-0.146311556
## [202,]	-0.319885392	3.465099e-01	-0.34812297	-0.385006149
## [203,]	-1.245525234	-1.701834e+00	-1.26462230	-1.041132121
## [204,]	-0.356774779	5.820726e-02	-0.38269232	-0.413990493
## [205,]	-0.944167321	-2.227289e+00	-0.95473277	-0.844777402
## [206,]	-0.552572293	-1.211254e+00	-0.60574694	-0.549819083
## [207,]	0.324260053	-1.483282e+00	0.25519451	0.200648086
## [208,]	-0.450417068	-2.835709e-01	-0.51644278	-0.463150212
## [209,]	-1.446714274	-4.556225e-01	-1.36544958	-1.149113008
## [210,]	0.454791729	-1.862260e+00	0.44573748	0.262310856
## [211,]	0.571135180	-1.029903e+00	0.50746846	0.412347457
## [212,]	-0.802285065	-2.556706e-01	-0.74237818	-0.754414449
## [213,]	-1.234458418	-5.346732e-01	-1.21276828	-1.036301397
## [214,]	-1.489562716	-8.834264e-01	-1.44981526	-1.176108230

## [215,]	-0.765395678	-4.602725e-01	-0.75348976	-0.729976669
## [216,]	-0.606487550	1.302094e+00	-0.59093150	-0.606935289
## [217,]	-0.030445588	-8.439010e-01	-0.09790671	-0.137502588
## [218,]	-0.353937134	2.239077e+00	-0.38968850	-0.399498321
## [219,]	-0.790934484	4.581109e-01	-0.80205147	-0.734239072
## [220,]	-1.322992946	3.999854e-01	-1.31112631	-1.095406725
## [221,]	-1.206365731	-4.695726e-01	-1.19548360	-1.021525065
## [222,]	-0.649052227	-8.129402e-02	-0.67735488	-0.644728600
## [223,]	-1.360449862	6.162124e-01	-1.35639570	-1.110751377
## [224,]	-0.527033487	2.483205e+00	-0.59875076	-0.538452673
## [225,]	-1.097400158	-1.643708e+00	-1.07901781	-0.947075085
## [226,]	-0.552572293	-3.370464e-01	-0.58352379	-0.579087586
## [227,]	-0.734181581	-1.127554e+00	-0.71274731	-0.716052817
## [228,]	-1.240701238	2.071676e+00	-1.24651455	-1.034312275
## [229,]	-0.734181581	-1.992462e+00	-0.75060898	-0.698434883
## [230,]	-0.450417068	-6.904496e-01	-0.44113098	-0.507479208
## [231,]	-1.405852184	-1.262405e+00	-1.34857644	-1.119560344
## [232,]	-0.518520551	-6.269385e-02	-0.57981993	-0.541294276
## [233,]	-0.558247583	-2.928710e-01	-0.56294679	-0.567152857
## [234,]	-0.427715907	-4.974728e-01	-0.46705800	-0.460308610
## [235,]	-0.473118229	-1.501882e+00	-0.54072364	-0.504637606
## [236,]	0.173864861	1.425320e+00	0.11239017	0.038960915
## [237,]	-0.492981745	-4.207471e-01	-0.46623492	-0.545556679
## [238,]	-0.793772129	-1.192654e+00	-0.83044772	-0.733954912
## [239,]	-0.739856872	-1.013628e+00	-0.74484742	-0.706391370
## [240,]	-0.078685556	7.215739e-02	-0.13535684	-0.177000861
## [241,]	-1.026459030	8.835898e-01	-1.03374843	-0.911270896
## [242,]	-0.790934484	-1.580197e-01	-0.79052835	-0.749299564
## [243,]	-1.097400158	-6.299991e-01	-1.07490241	-0.949348367
## [244,]	-1.032134320	-1.580197e-01	-1.03333689	-0.910986735
## [245,]	0.616537502	-8.346009e-01	0.52393006	0.468611183
## [246,]	-0.830661516	2.343703e+00	-0.87654019	-0.764075896
## [247,]	-0.138276103	-6.857996e-01	-0.19585321	-0.236106188
## [248,]	-0.126925523	-6.881246e-01	-0.17321851	-0.225592260
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## [250,]	-0.714318065	-7.602003e-01	-0.67941258	-0.700992325
## [251,]	-1.231620773	1.512081e-01	-1.22881833	-1.024082507
## [252,]	-1.214594902	-8.392510e-01	-1.19219128	-1.027776590
## [253,]	-0.214892522	-6.741745e-01	-0.24153414	-0.288107511
## [254,]	-0.251781909	1.953835e-01	-0.20984556	-0.318228495
## [255,]	0.579648115	-7.485752e-01	0.58977644	0.379669031
## [256,]	-0.771070968	-1.969211e+00	-0.76665904	-0.714916176
## [257,]	-1.294048966	-7.857755e-01	-1.30701091	-1.066422381
## [258,]	-0.351099488	-1.204279e+00	-0.28886122	-0.405465686
## [259,]	-0.796609774	1.811273e+00	-0.83168234	-0.736512354
## [260,]	-0.958355547	-1.004328e+00	-0.97572130	-0.851313087
## [261,]	-0.685941614	-6.090739e-01	-0.70986653	-0.657231650
## [262,]	-0.677428679	-1.225205e+00	-0.72962045	-0.646717721
## [263,]	-0.765395678	-9.066766e-01	-0.77818215	-0.724861785
## [264,]	0.083060217	-6.392991e-01	0.08975548	-0.038898989
## [265,]	-1.247511586	-9.183017e-01	-1.16009117	-1.007885374
## [266,]	-0.844849742	-1.443757e+00	-0.86830939	-0.775726466
## [267,]	-1.378894556	-1.492582e+00	-1.25433381	-1.154227893
## [268,]	-0.771070968	-1.015953e+00	-0.75883978	-0.718610259

## [269,]	-0.617838131	-1.006653e+00	-0.60657002	-0.648422683
## [270,]	0.207916603	-5.462983e-01	0.12020943	0.053453086
## [271,]	-1.125776610	6.983236e-02	-1.12099488	-0.975206947
## [272,]	-0.603649905	-8.462260e-01	-0.61809314	-0.601252084
## [273,]	-0.895927354	-4.858477e-01	-0.83291696	-0.805279130
## [274,]	-0.004906782	-1.490257e+00	-0.07979896	-0.109086565
## [275,]	-0.345424198	-6.881246e-01	-0.38845388	-0.393530956
## [276,]	-1.563341489	-1.743684e+00	-1.54858483	-1.222994668
## [277,]	-0.674591034	2.070086e-01	-0.65307403	-0.668029738
## [278,]	-0.325560682	1.403185e-02	-0.30655744	-0.400350802
## [279,]	-0.143951394	9.161401e-01	-0.19667629	-0.232127945
## [280,]	-0.186516071	-1.215904e+00	-0.19132627	-0.308567047
## [281,]	-1.311926130	-1.592558e+00	-1.30166089	-1.082619515
## [282,]	-0.107062007	1.041691e+00	-0.14111840	-0.184389026
## [283,]	-0.595136970	-3.161212e-01	-0.65348557	-0.593579758
## [284,]	-0.634864002	-2.184703e-01	-0.60286616	-0.632793870
## [285,]	-1.046322546	-8.904015e-01	-1.04321384	-0.924342266
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## [288,]	0.088735507	-9.555021e-01	0.08234776	-0.042024751
## [289,]	-0.169490200	-1.941311e+00	-0.16704542	-0.271910377
## [290,]	-1.548301970	-1.125229e+00	-1.54529251	-1.215322342
## [291,]	-0.317047747	6.813130e-01	-0.40985395	-0.365114933
## [292,]	-0.876063838	-1.013628e+00	-0.87654019	-0.801869207
## [293,]	-0.098549072	-8.136758e-01	-0.14811458	-0.196039596
## [294,]	-0.490144100	-3.742467e-01	-0.43207711	-0.531632828
## [295,]	-0.263132489	-8.067007e-01	-0.32507673	-0.334141468
## [296,]	-1.100237803	-7.229999e-01	-1.04732924	-0.939686919
## [297,]	-0.024770298	-7.695003e-01	-0.09008746	-0.124147058
## [298,]	-0.385151230	4.929862e-01	-0.40944241	-0.419105377
## [299,]	0.239130699	1.093577e-01	0.14531336	0.100339524
## [300,]	-0.311372457	-2.021951e-01	-0.38516156	-0.372503099
## [301,]	-0.592299325	2.057726e+00	-0.62220853	-0.582497509
## [302,]	-0.589461680	7.975640e-01	-0.54401596	-0.588464874
## [303,]	0.236293054	-4.409368e-02	0.20827896	0.092098878
## [304,]	0.105761378	-1.952936e+00	0.09510549	-0.040319790
## [305,]	-1.198420325	-2.858959e-01	-1.12634490	-1.001633849
## [306,]	-0.700129840	-5.160730e-01	-0.75184360	-0.664619816
## [307,]	-1.265672515	-1.859200e-01	-1.25433381	-1.039427160
## [308,]	-0.274483070	2.907094e-01	-0.32548827	-0.330163225
## [309,]	-0.898764999	-3.881968e-01	-0.87160171	-0.822044583
## [310,]	-1.569016779	3.930103e-01	-1.53541555	-1.230666995
## [311,]	-0.353937134	-2.486956e-01	-0.30943822	-0.459740290
## [312,]	-1.206365731	2.565696e-02	-1.15309499	-1.013284418
## [313,]	-1.009433159	2.163087e-01	-0.89794026	-0.899620326
## [314,]	-0.711480420	-2.579956e-01	-0.64155091	-0.699287364
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## [316,]	0.046170830	-5.741986e-01	-0.06868738	-0.063336768
## [317,]	0.193728377	-1.067103e+00	0.11074401	0.073344302
## [318,]	-0.297184231	-8.322759e-01	-0.26087651	-0.383301188
## [319,]	-0.135438458	-1.425156e+00	-0.16828004	-0.244346835
## [320,]	-0.288671295	7.557137e-01	-0.20367247	-0.356590126
## [321,]	-1.034971965	-1.002002e+00	-1.00740987	-0.912975857
## [322,]	-0.470280584	-1.603448e-01	-0.44771562	-0.491566235

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## [323,] -1.806811442 1.220718e+00 -1.81279344 -1.346604368
## [324,] -2.027863997 -1.362381e+00 -1.98275941 -1.453164455
## [325,] -0.356774779 -7.160249e-01 -0.39462698 -0.405465686
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## [351,] 0.190890732 -3.788968e-01 0.16095188 0.056578849
## [352,] -0.546897003 -9.485270e-01 -0.57446991 -0.559764691
## [353,] 0.077384927 1.790348e+00 0.01156290 -0.024975137
## [354,] -0.359612424 -1.387956e+00 -0.37651922 -0.426493543
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##      smoothness_mean compactness_mean concavity_mean points_mean
## [1,] 0.457882546 -0.653837927 -0.613766097 -0.307171959
## [2,] 0.036953503 0.196146087 -0.312711686 -0.579832380
## [3,] 0.806286653 -0.498004369 -0.731804513 -0.621581896
## [4,] 1.424881700 0.175317786 -0.532481406 -0.024718442
## [5,] -1.189571158 -0.662737292 -0.688277063 -0.575966684
## [6,] -0.775041374 -0.513530920 -0.425857969 -0.892696038
## [7,] -0.266655790 -0.042432629 0.280992699 -0.202798168
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## [18,] 1.936822428 0.963006247 -0.547534126 -0.093012404

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##	[19,]	0.287235637	-0.563140145	-0.493720651	-0.505095591
##	[20,]	1.325337669	1.445844126	0.313606926	0.938612987
##	[21,]	1.126249608	0.491529260	-0.301547585	-0.470046615
##	[22,]	0.415220819	-0.429649673	-0.615396808	-0.544267977
##	[23,]	-0.821258245	-0.228372550	-0.057442634	-0.670031952
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##	[33,]	0.678301471	0.196146087	-0.037623219	0.126043700
##	[34,]	-0.842589109	-0.055687002	-0.257142060	-0.462057510
##	[35,]	-0.899471412	0.099578511	-0.297909845	-0.286554914
##	[36,]	-0.390374799	-0.795659720	-0.756014306	-0.838576295
##	[37,]	-1.004703673	-0.008349956	0.269703158	-0.124711110
##	[38,]	0.813396941	0.930817055	0.352493121	0.539930879
##	[39,]	-1.092871243	-0.146384784	-0.270187751	-0.580605519
##	[40,]	-0.262389617	-1.086687884	-1.093860074	-1.198756072
##	[41,]	0.344117940	-0.053793521	-0.440283493	-0.533444028
##	[42,]	-0.846855282	-1.030072776	-0.668081330	-0.627767009
##	[43,]	-1.434876090	-1.310118746	-0.932382014	-0.776982873
##	[44,]	-0.085343448	-0.519968759	-0.552049943	-0.304337115
##	[45,]	0.372559092	-0.185769207	-0.587047518	-0.704823215
##	[46,]	0.308566501	-0.588512803	-0.798914559	-0.803269605
##	[47,]	0.236041564	1.758268635	1.363534182	0.004145421
##	[48,]	-1.278449757	-0.798499943	-0.556314880	-0.183985115
##	[49,]	-1.557884071	-0.608015666	-0.467880147	-0.546587394
##	[50,]	-0.614348868	-0.187283993	-0.359375120	-0.295574871
##	[51,]	-1.064430091	-1.085551795	-0.648638233	-0.686010162
##	[52,]	-0.598706234	-0.470738230	-0.605612540	-0.604057408
##	[53,]	0.155695311	-0.482667166	-0.787499579	-0.286297201
##	[54,]	-1.106380790	-0.602335220	-0.631703922	-0.834452886
##	[55,]	-0.749444338	-0.768961625	-0.694423591	-0.636013827
##	[56,]	1.197352487	0.559694607	0.136235703	0.559774785
##	[57,]	1.943932716	0.127980740	-0.122921969	0.169597207
##	[58,]	-1.906288177	-1.269598234	-0.830399833	-0.958928295
##	[59,]	-0.450101217	-0.781458606	-0.742843175	-0.578543814
##	[60,]	-0.278032250	-0.569577984	-0.760279243	-0.419534854
##	[61,]	0.199068067	0.050347983	-0.438401903	-0.285781775
##	[62,]	-0.637812818	-1.261077565	-0.998576353	-0.917951918
##	[63,]	-0.503428376	-0.530950954	-0.661182166	-0.650188046
##	[64,]	-0.900893470	-1.015114269	-0.962612895	-0.806619875
##	[65,]	-1.624720777	-0.480016291	-0.604985343	-0.775436594
##	[66,]	-0.898760383	-0.907375151	-0.776711796	-0.673124508
##	[67,]	0.692522047	-0.365839334	-0.892115987	-0.767189776
##	[68,]	0.841838093	0.465020514	-0.054181212	-0.521846940
##	[69,]	-1.909843321	-1.531845474	-1.113892736	-1.260710292
##	[70,]	0.140763706	-0.535116614	-0.704333298	-0.550710803
##	[71,]	-1.721420692	-1.119066424	-0.569987768	-0.975937357
##	[72,]	0.585867728	-0.417720737	-0.448060732	-0.753273271

## [73,]	-0.622881213	-0.010243437	0.178132442	-0.129092232
## [74,]	0.941382123	0.205613496	-0.088426151	-0.702503798
## [75,]	-1.026745565	-0.725600890	-0.919712641	-1.050416433
## [76,]	0.386779668	-0.843754160	-1.001561809	-0.983411036
## [77,]	1.268455366	-0.050006557	-0.227036619	-0.362580268
## [78,]	-0.164267644	0.495316224	0.543160914	-0.701988371
## [79,]	-0.710337754	-1.035374525	-0.906039753	-0.973360227
## [80,]	0.841838093	0.493422742	0.090701223	0.183256000
## [81,]	-0.605105493	-0.813837146	-0.935768876	-0.966659687
## [82,]	-1.537264236	-0.898665134	-0.866275483	-0.922333040
## [83,]	-0.398196116	-0.861174193	-0.789381169	-0.662300560
## [84,]	-0.556755536	-0.518832670	-0.694423591	-0.873625271
## [85,]	-0.411705663	0.196146087	0.097474948	-0.020595033
## [86,]	-0.686162775	-0.673530139	-0.739205434	-0.416700011
## [87,]	1.638190336	0.052241464	-0.604232707	-0.160790939
## [88,]	0.536095713	-0.569199287	-1.113892736	-1.260710292
## [89,]	-0.231104350	-0.983303774	-0.866526362	-0.754819549
## [90,]	-0.977684579	-1.076084386	-0.866526362	-0.913055370
## [91,]	0.308566501	-0.922523006	-0.818733974	-0.860481905
## [92,]	0.035531446	-0.372277172	-0.378567339	-0.014667633
## [93,]	-1.478248846	-1.321668985	-0.945553145	-0.822855798
## [94,]	-0.824102360	-0.685269726	-0.782356566	-0.765643498
## [95,]	-0.799927382	-1.249716674	-1.057783720	-1.095181192
## [96,]	0.792066077	-0.397839178	-1.001825232	-0.753788697
## [97,]	-0.681896603	-0.175165709	-0.499992617	-0.464892354
## [98,]	-0.143647809	-1.030072776	-0.986948126	-1.119096964
## [99,]	-0.625014299	1.197798000	0.594591043	0.440711350
## [100,]	0.322787076	-0.847919820	-0.773952131	-0.898365725
## [101,]	-1.200236590	-1.208438769	-0.863390379	-0.941661520
## [102,]	-1.062297005	-1.130806012	-0.863892136	-0.974391079
## [103,]	-0.628569443	-0.518075277	-0.517930443	-0.388609287
## [104,]	-1.621876662	-1.018522537	-0.704835056	-0.578286101
## [105,]	-1.149042517	0.260524471	0.049431681	0.179390304
## [106,]	-0.634968702	-0.935777379	-0.925482851	-0.722605416
## [107,]	-1.870736738	-1.385668673	-1.067718516	-1.171232316
## [108,]	0.191957779	-0.532087043	-0.395877967	-0.074457063
## [109,]	-0.179199249	-0.366596727	0.051815029	-0.363095694
## [110,]	-1.203080705	-0.768393581	-0.752502004	-0.918209631
## [111,]	-1.194548360	-0.411850943	-0.603103753	-0.708688911
## [112,]	0.211866585	-0.168159826	-0.626059152	-0.664104551
## [113,]	-1.347419549	-1.072865467	-0.773701252	-1.073971407
## [114,]	-1.154019719	-1.211089644	-0.814970794	-0.804558170
## [115,]	-0.035571433	-0.444418832	-0.588678229	-0.202282742
## [116,]	-0.311450603	-0.797742550	-0.980550720	-0.766674350
## [117,]	0.642750032	-0.692086261	-1.051097803	-1.065286476
## [118,]	-0.794950180	-1.081764831	-0.958849714	-0.907901109
## [119,]	-0.425926238	-1.087823973	-0.975533146	-0.898108012
## [120,]	-0.543245989	-0.983114426	-0.786997822	-0.797857631
## [121,]	-1.093582271	-0.356939969	-0.419084245	-0.430616516
## [122,]	-0.470721052	-0.346147122	-0.724779910	-0.498652765
## [123,]	0.792066077	0.179104750	-0.586922078	-0.448398717
## [124,]	-1.086471984	-0.494406753	-0.256013106	-0.607665390
## [125,]	-0.593729033	-0.888250984	-0.660554970	-0.898881152
## [126,]	-0.797083266	-0.034858702	-0.253504319	-0.261814460

## [127,]	0.211155557	0.313541963	0.222036210	0.290980060
## [128,]	1.325337669	-0.597033471	-0.611382749	-0.423142837
## [129,]	-0.802060468	-0.867043987	-0.691538486	-0.802754179
## [130,]	-1.606945057	-1.291373275	-1.079296566	-1.146826889
## [131,]	-1.292670332	-0.161721988	0.284755879	-0.387063009
## [132,]	-0.905159642	-0.352016916	-0.477037219	-0.522620080
## [133,]	0.308566501	0.048454501	-0.472270524	-0.855843070
## [134,]	1.211573063	-0.449341885	-0.977916494	-0.928260441
## [135,]	1.147580472	0.139341631	-0.627188106	-0.488859668
## [136,]	-0.501295290	0.122300294	-0.478793369	-0.472623745
## [137,]	0.022021899	-0.386478286	-0.952326869	-0.764870359
## [138,]	-0.605105493	-0.878594226	-0.817855899	-0.641683515
## [139,]	0.984043850	-0.202999892	-0.538000737	-0.685237022
## [140,]	-0.600128292	-1.161101722	-1.113892736	-1.260710292
## [141,]	0.784955789	-0.868558772	-1.113892736	-1.260710292
## [142,]	2.071917898	2.197556431	0.376326595	0.553074245
## [143,]	-0.945688283	-1.131563405	-1.101678707	-1.184916880
## [144,]	-0.198397026	-0.352206264	-0.215747078	-0.740903044
## [145,]	-0.678341459	-1.110167060	-0.849341173	-0.731367661
## [146,]	-1.279160785	2.252467405	2.653050573	0.748936173
## [147,]	-0.967019147	-1.173977399	-0.863390379	-0.874398411
## [148,]	1.168911336	-0.221745363	-0.577137810	-0.453552979
## [149,]	0.514764850	-0.530572257	-0.792140835	-0.871563567
## [150,]	0.014911611	-0.605932836	-0.815472552	-0.844503695
## [151,]	0.756514638	-0.845079597	-0.507895296	-0.469531189
## [152,]	1.325337669	-0.422833138	-0.595577393	-0.764870359
## [153,]	-1.185304985	-0.829553045	-0.645376810	-1.128555033
## [154,]	-0.814147957	-1.023256241	-0.820741004	-1.012919182
## [155,]	-1.080072724	-1.234947515	-1.082909219	-1.127756123
## [156,]	-0.568131996	0.353305083	0.151790181	-0.258206477
## [157,]	-0.736645819	-0.850381346	-0.914695068	-1.108221473
## [158,]	-0.852543512	-0.754381815	-0.605236222	-0.759458384
## [159,]	0.175604117	0.607031654	-0.145375610	0.322163341
## [160,]	-0.903737585	0.133661185	0.149281394	-0.550195377
## [161,]	2.022145883	-0.128586055	0.153044574	0.444061620
## [162,]	0.571647153	-0.809482138	-0.857118412	-0.936764972
## [163,]	-0.887383923	-0.498761762	-0.007894096	-0.506899583
## [164,]	-0.553200392	-0.969670704	-0.764795059	-0.719512860
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## [166,]	0.101657123	-0.436466208	-0.277964990	-0.028584138
## [167,]	0.464992834	-0.128018010	-0.513916384	-0.403556645
## [168,]	-0.430903440	-0.525649204	-0.361382149	-0.555091926
## [169,]	-1.169662352	-0.967209178	-0.738201920	-0.727244252
## [170,]	-1.124867538	-0.857197881	-0.389606000	-0.984699602
## [171,]	0.104501238	0.923243128	-0.034361796	-0.520558375
## [172,]	-1.026745565	-0.991067050	-0.898889711	-0.935734120
## [173,]	-1.131977826	-0.291425496	-0.186896031	-0.208467856
## [174,]	-1.131266797	-0.960581991	-0.777589872	-0.422885124
## [175,]	-0.329937352	-0.682618852	-0.690911289	-0.675186213
## [176,]	-0.034860404	-0.395566999	-0.257894696	0.015227083
## [177,]	-1.567838474	-1.175302836	-1.113892736	-1.260710292
## [178,]	-1.093582271	-1.052037166	-1.113892736	-1.260710292
## [179,]	-0.799927382	-1.140084073	-1.050332623	-1.114741613
## [180,]	-0.888805980	-0.878594226	-1.019687793	-1.041963444

## [181,]	-0.151469126	-0.720299141	-0.523700652	-0.299182854
## [182,]	-0.707493639	-0.707423464	-0.462611695	-0.541433133
## [183,]	0.799176365	0.550227198	-0.108245566	0.046925790
## [184,]	-1.075806552	-1.034427785	-1.113892736	-1.260710292
## [185,]	-0.948532398	-0.768772277	-0.793269789	-0.737295061
## [186,]	-0.287986653	-0.617104379	-0.562963165	-0.738325913
## [187,]	0.969823275	-0.269839803	-0.639606600	-0.539629142
## [188,]	-2.175768089	-0.987280086	-0.803430375	-0.906612543
## [189,]	-1.508112056	-1.271681064	-1.075131980	-1.090928926
## [190,]	0.172760002	-0.302597039	-0.700444679	-0.644776071
## [191,]	-1.065141120	0.234015725	0.021333270	-0.342736362
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## [194,]	1.858609261	-0.610477192	-0.370162903	0.647397226
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## [196,]	-0.049792009	-0.424158576	-0.508773371	-0.679051909
## [197,]	-0.541112902	-0.502548725	-0.535868268	-0.351498606
## [198,]	-0.086765506	0.885373490	0.822890637	-0.011832789
## [199,]	0.093835806	-0.489483700	-0.696430620	-0.743222462
## [200,]	-1.215879223	-1.333219225	-0.981805113	-0.975164218
## [201,]	-0.402462288	-0.660654462	-0.930500424	-0.772086325
## [202,]	1.218683351	-0.538714229	-0.720514973	-0.579059240
## [203,]	-0.274477106	-1.198971360	-1.113892736	-1.260710292
## [204,]	-0.355534388	-0.483045862	-0.888478246	-0.722089990
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## [209,]	0.728073486	0.699812266	2.812358532	-0.133215642
## [210,]	0.564536865	0.483955332	0.380089775	0.339945542
## [211,]	-0.100275053	-0.366028682	-0.423976379	-0.093785543
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## [213,]	0.521875137	-0.384395456	-0.570238647	-0.802496466
## [214,]	-0.954931658	-0.518075277	-0.521693623	-0.647095489
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## [225,]	0.255950370	-0.547613594	-0.872672890	-0.753530984
## [226,]	0.578757441	-0.639447465	-0.801548785	-0.502776174
## [227,]	0.247418025	0.145022076	-0.268807918	-0.592202607
## [228,]	-1.174639553	-1.099752909	-0.920590716	-0.991915567
## [229,]	-0.738778906	-0.845458293	-0.942417161	-1.031165267
## [230,]	1.382219972	0.078750211	-0.370288342	-0.415669158
## [231,]	-1.361640125	-0.318691635	-0.362761982	-0.698895815
## [232,]	-0.940711082	-1.180036541	-1.016601986	-1.040752193
## [233,]	-0.390374799	-0.491566530	-0.748111627	-0.867182445
## [234,]	-0.748733309	-0.947516966	-0.741839660	-0.675186213



## [235,]	-1.609789172	-1.210142903	-1.023915099	-0.964597983
## [236,]	-0.967730176	-0.609719800	-0.598964255	-0.480612850
## [237,]	0.557426577	0.480168369	-0.374804158	-0.518496671
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## [244,]	0.742294062	-0.711210428	-0.825758577	-0.801981040
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## [246,]	-1.555039956	-1.301976774	-1.113892736	-1.260710292
## [247,]	-1.387237161	-0.828416956	-0.880951886	-0.816670684
## [248,]	-0.255279329	-0.601956524	-0.894123016	-0.776209734
## [249,]	-1.855805133	-1.060936531	-0.857369290	-1.041473789
## [250,]	0.884499820	0.235909207	-0.223649757	-0.101774648
## [251,]	0.429441395	-0.971942883	-1.028230212	-1.056163434
## [252,]	-0.102408139	-0.381555233	-0.821619079	-0.638075532
## [253,]	-1.792523571	-0.588702151	-0.098837616	-0.539113716
## [254,]	-0.961330917	0.340050710	0.153044574	-0.530609185
## [255,]	0.173471031	0.747149313	-0.279595701	0.130167109
## [256,]	-0.187020565	-0.709884991	-0.673349782	-0.584728928
## [257,]	-0.833345735	-1.201811582	-0.906666950	-0.831102616
## [258,]	-0.622881213	0.572948981	0.609643763	-0.235012301
## [259,]	-1.957482250	-1.253692986	-0.909050297	-1.180174960
## [260,]	-1.310446052	-1.002617289	-0.831528787	-1.057761255
## [261,]	0.621419168	-0.821600422	-0.663314635	-0.590656328
## [262,]	-1.296225476	-1.153906491	-0.832281423	-0.548649099
## [263,]	0.002113093	-0.671257961	-0.674478736	-0.519785236
## [264,]	0.081748317	0.180998232	-0.109499959	-0.172388027
## [265,]	0.770735214	1.051999895	4.039155254	0.764141244
## [266,]	0.083881403	-1.007540342	-0.865271969	-0.800434761
## [267,]	4.766717009	2.263828296	0.106632019	0.092798715
## [268,]	-0.410283605	-0.431543155	-0.338552190	-0.652249750
## [269,]	1.382219972	0.307861518	-0.967003271	-0.800177048
## [270,]	-0.506272492	-0.636228546	-0.694172712	-0.519269810
## [271,]	0.280125349	-0.554808825	-1.050859469	-0.973102514
## [272,]	0.061839511	-0.618997861	-0.593194045	-0.780590856
## [273,]	-0.512671751	0.131767703	0.072387080	-0.329592995
## [274,]	-0.232526408	-0.970996142	-0.892492305	-0.556380491
## [275,]	-1.205213791	-0.959635250	-0.628066181	-0.648126341
## [276,]	0.082459346	-0.977433980	-0.855362261	-1.059719874
## [277,]	0.891610108	0.184785196	-0.255511348	-0.297378863
## [278,]	-0.040548635	0.154489486	-0.222395363	-0.500456756
## [279,]	-0.277321222	-0.698145403	-0.740836146	-0.631117279
## [280,]	0.763624926	0.211293942	-0.388100728	0.096406698
## [281,]	0.429441395	-0.746429191	-0.743094054	-0.725697973
## [282,]	-1.132688855	-0.686784512	-0.524704167	-0.656630872
## [283,]	-1.388659219	-1.238734479	-1.094499814	-1.116597147
## [284,]	-0.194130853	0.209400460	-0.281477291	-0.450975848
## [285,]	0.635639744	-0.513530920	-1.030563384	-0.947331207
## [286,]	-2.149460023	0.038987091	-0.012911669	-0.645806924
## [287,]	0.097390950	-0.438170342	-0.793395228	-0.699153528
## [288,]	0.237463622	-0.042432629	-0.049289077	0.164958372

## [289,]	2.327888262	0.006797899	-0.251246411	0.428856549
## [290,]	-0.354112331	-1.166024775	-1.113892736	-1.260710292
## [291,]	-2.406852445	-1.608720838	-1.093885161	-1.212981833
## [292,]	-1.172506467	-0.635281805	-0.669084845	-0.726213399
## [293,]	-0.582352572	-0.703636501	-0.981554235	-1.004620821
## [294,]	0.642750032	0.516144524	-0.142866823	-0.539371429
## [295,]	-0.799927382	-0.981410292	-1.095566049	-1.176670062
## [296,]	0.692522047	0.127980740	-0.270187751	-0.238877997
## [297,]	-0.837611907	-0.859470059	-0.670590117	-0.502003035
## [298,]	-0.630702530	-0.725790239	-0.723525517	-0.522620080
## [299,]	-0.863919973	-0.962286125	-0.869662345	-0.761004663
## [300,]	-0.464321793	-1.262592351	-0.792517153	-0.507415009
## [301,]	-0.628569443	-0.839588499	-0.816977824	-0.648126341
## [302,]	-1.920508753	0.056028428	-0.117528077	-0.493240790
## [303,]	-0.457922534	-0.115710378	-0.368783070	-0.018791042
## [304,]	0.976933562	0.105258957	-0.004758112	0.228355786
## [305,]	0.044774820	0.474487923	0.525599407	-0.303048550
## [306,]	-1.475404731	-1.288343704	-1.009702822	-0.961247713
## [307,]	-0.490629858	-0.790736667	-0.744097568	-0.870532715
## [308,]	-1.636097238	-0.976865935	-0.888101928	-0.937022685
## [309,]	0.036242474	-0.129154099	-0.453705502	-0.542206272
## [310,]	1.986594443	-0.278549819	-0.737574723	-1.022093767
## [311,]	1.808837246	1.169395772	-0.508647932	0.105942081
## [312,]	0.294345925	-0.139568250	-0.341939052	-0.480097424
## [313,]	-0.400329202	1.167502290	1.746124162	0.270363015
## [314,]	1.503094866	0.832355998	0.165588508	0.173205190
## [315,]	-1.319689426	-1.298947203	-1.051587017	-1.094897707
## [316,]	-2.280289321	-1.469171223	-1.022949216	-1.099639628
## [317,]	-0.827657504	-1.025907116	-0.685391958	-0.605861399
## [318,]	0.792066077	0.429044358	-0.540885842	-0.459222666
## [319,]	0.007090294	-0.326265563	-0.626184591	-0.600191712
## [320,]	0.273015061	0.832355998	-0.021943302	0.054141755
## [321,]	0.127965188	-0.057580484	-0.319234532	-0.689102718
## [322,]	0.233908478	0.027626200	-0.109750838	-0.275988678
## [323,]	-3.109348889	-1.149740831	-1.113892736	-1.260710292
## [324,]	1.467543427	-0.542690541	-1.113892736	-1.260710292
## [325,]	-0.150047068	-0.798121246	-0.624679319	-0.844503695
## [326,]	-1.232232885	-0.550075120	-0.431753618	-0.736006496
## [327,]	-0.656299566	-1.027421902	-0.812963765	-0.700699806
## [328,]	-0.942133139	-0.947895663	-0.928367955	-1.112035626
## [329,]	-0.733090675	-0.061367448	-0.289254530	-0.283720070
## [330,]	-0.688295862	0.294607145	0.046672016	-0.909189674
## [331,]	-1.237210087	-1.119445121	-0.938026784	-0.787806821
## [332,]	-0.423793152	-0.409957462	-0.381954201	-0.467469484
## [333,]	-0.079655218	-0.939374994	-0.733058907	-0.673639935
## [334,]	-0.584485658	-0.981031596	-0.915322264	-0.964855696
## [335,]	-0.041259664	-0.048113075	-0.651272459	-0.650188046
## [336,]	-0.464321793	-0.550832513	-0.587549275	-0.397371531
## [337,]	2.896711293	0.343837673	-0.695928863	-0.636786967
## [338,]	-0.883828779	-1.177385666	-1.090561019	-1.185354992
## [339,]	0.294345925	-0.471684971	-0.341813613	-0.392217270
## [340,]	-0.123739003	0.377920347	0.048051849	-0.665908543
## [341,]	0.028421158	-0.469980837	-0.776711796	-0.801723327
## [342,]	0.208311441	0.156382968	-0.554182411	-0.151513269

```
## [343,] 0.479213410 -0.254123903 -0.286996622 -0.552257082
## [344,] -1.482515019 -0.401058097 -0.345451353 -0.779560003
## [345,] -1.679469994 -0.827470215 -0.548788520 -0.881614376
## [346,] 0.777845502 -0.136538679 -0.451322154 -0.116464292
## [347,] -0.600839321 -0.990120309 -0.766174892 -0.727759678
## [348,] -0.206929371 -0.841292633 -0.782983763 -0.727501965
## [349,] 0.479213410 1.500755100 0.704977660 0.362882005
## [350,] 0.301456213 -0.888250984 -0.817479581 -0.595037450
## [351,] -0.324960150 -0.292372237 -0.603480071 -0.678278770
## [352,] -0.684740718 -0.736393737 -0.863766697 -0.824659789
## [353,] -1.877847026 -0.986712041 -0.677865598 -0.813062702
## [354,] 1.211573063 -0.302975736 -0.637223253 -0.384485878
## [355,] -1.542952466 -0.840724589 -0.504382994 -0.521073801
## [356,] 0.174893088 -0.241437575 -0.664694468 -0.735748783
## [357,] 0.962712987 -0.225721675 -0.248988503 0.413136052
```

```
matnosurv <- matstand[cancer$diagnosis == "M",]
vecmediansurv <- apply(matsurv, 2, median)
# in the above 2 represents column. Hence, we are asking for column median
vecmediansurv
```

```
##      radius_mean      texture_mean      perimeter_mean      area_mean
##      -0.5468970      -0.4416723      -0.5674737      -0.5583439
## smoothness_mean compactness_mean      concavity_mean      points_mean
##      -0.3981961      -0.5500751      -0.6486382      -0.6566309
```

```
vecmediannosurv <- apply(matnosurv, 2, median)
matabsdevsurv <- abs(matsurv - matrix(rep(vecmediansurv,nrow(matsurv)),nrow=nrow(matsurv), byrow
=TRUE))

matabsdevnosurv <- abs(matnosurv - matrix(rep(vecmediannosurv,nrow(matnosurv)),nrow=nrow(matnosu
rv), byrow=TRUE))

matabsdevnosurv
```

##		radius_mean	texture_mean	perimeter_mean	area_mean	smoothness_mean
##	[1,]	0.997432264	0.532429890	0.931726312	0.949663490	2.14019666
##	[2,]	0.926491136	0.051150470	0.971234142	1.102541694	0.44794814
##	[3,]	0.642726623	0.823057559	0.555578852	0.735974997	0.07110288
##	[4,]	0.784608879	0.558005125	0.843656776	0.895104725	0.41239670
##	[5,]	1.000269909	1.318287107	0.978230320	0.988593441	0.10665432
##	[6,]	0.574623139	0.885833135	0.485617071	0.567183820	0.42661727
##	[7,]	1.292547358	0.234827157	1.336681565	1.209670100	0.82834854
##	[8,]	0.078035241	0.434778993	0.197539148	0.137817712	0.66196780
##	[9,]	0.458279689	0.034875320	0.386847497	0.562637256	0.86105586
##	[10,]	0.154651660	0.618455680	0.201654546	0.129861225	0.96344401
##	[11,]	0.307884497	0.625430744	0.222231541	0.360599332	0.31285267
##	[12,]	0.847037072	1.302011958	0.769579596	1.011610420	0.15642633
##	[13,]	0.642726623	0.769582068	0.679040820	0.801331849	0.69680821
##	[14,]	1.675629451	0.251102306	1.507059080	1.551230697	2.86544602
##	[15,]	0.214242208	0.088350811	0.131692765	0.261427412	2.02572102
##	[16,]	2.385040734	0.930008541	2.469239344	3.063247283	0.90300656
##	[17,]	0.983244039	1.053234673	0.956418706	1.003369773	0.02844115
##	[18,]	1.692655322	1.211336125	1.839583311	2.139726534	0.84612426
##	[19,]	1.965069255	0.292952690	2.140007431	2.355688309	3.02187235
##	[20,]	0.588811365	0.762607004	0.535001858	0.605261291	0.10665432
##	[21,]	0.495169076	0.778882153	0.580271246	0.488755596	0.80986179
##	[22,]	0.041145854	0.748656876	0.078192579	0.149468281	0.19197777
##	[23,]	0.026957629	0.953258755	0.012346197	0.045465637	0.11376461
##	[24,]	1.102425134	0.027900256	1.153134774	1.048551250	1.46329725
##	[25,]	0.563272559	1.674015374	0.481501672	0.646748684	0.36262468
##	[26,]	1.091074554	0.148801367	1.061772918	1.059349339	0.04266173
##	[27,]	0.279508046	0.669606150	0.181077552	0.309734651	1.16039898
##	[28,]	0.188703401	0.186001708	0.148154361	0.169643657	0.09954403
##	[29,]	1.088236908	0.367353374	0.946541749	1.341236287	0.56313480
##	[30,]	0.486656140	0.483604441	0.584386645	0.492733839	1.69224852
##	[31,]	0.881088814	0.385953545	0.816083603	0.915280102	0.37684526
##	[32,]	0.367475045	1.383387705	0.345693508	0.394414400	0.51833999
##	[33,]	2.240320832	0.802132367	2.358123574	2.688155779	0.29152180
##	[34,]	0.750557138	0.309227840	0.800856627	0.703296570	0.25099316
##	[35,]	0.378825625	1.009059267	0.296308721	0.412032334	0.22752921
##	[36,]	1.020133425	0.267377456	0.847772175	1.005074735	0.77502138
##	[37,]	0.015607048	0.920708456	0.074077180	0.009093127	1.34313338
##	[38,]	0.815822976	0.288302648	0.811145125	0.822075546	0.24743802
##	[39,]	0.520707882	0.346428182	0.485617071	0.532232111	0.98121973
##	[40,]	0.702317170	0.023250214	0.637886831	0.846797486	0.59513110
##	[41,]	0.923653491	0.158101452	0.843656776	1.017293625	0.80346253
##	[42,]	1.244307391	0.978833990	1.098811508	1.744743814	0.59442007
##	[43,]	1.196067424	1.371762598	1.110746165	1.141755805	2.67346825
##	[44,]	0.773258299	0.425478908	0.832545199	0.759560296	1.09356228
##	[45,]	0.475305560	0.592880445	0.378616699	0.585370074	1.42419066
##	[46,]	0.866900588	0.253427327	0.840775997	0.858732216	0.11376461
##	[47,]	0.688128945	0.248777285	0.497963268	0.701875769	0.19411086
##	[48,]	1.201742714	0.216226986	1.144080896	1.554356460	0.62570533
##	[49,]	0.191541046	0.018600171	0.172846754	0.077859903	0.70391850
##	[50,]	0.075197596	0.106950982	0.098769574	0.038077471	0.68969793
##	[51,]	0.364637400	0.281327584	0.325116514	0.460339573	0.55460246
##	[52,]	0.188703401	2.576123659	0.353924306	0.196070559	1.15186664

##	[53,]	0.795959460	1.578689499	0.699617814	0.934887158	0.31285267
##	[54,]	0.872575878	0.160426473	0.731717926	0.813550739	0.19197777
##	[55,]	0.778933589	0.016275149	0.690975476	0.816108181	0.22752921
##	[56,]	0.438416173	0.830032623	0.436232284	0.429081948	0.36262468
##	[57,]	1.808998772	0.025575235	1.740813738	1.593854732	1.45760902
##	[58,]	1.635902419	0.378978481	1.559736186	2.131201727	0.62428328
##	[59,]	2.807849859	0.095325875	2.794355858	3.745231836	0.51194073
##	[60,]	0.009931758	0.155776431	0.008230798	0.044897316	0.86816615
##	[61,]	1.179041553	0.651005979	1.161365571	1.129252755	0.96699915
##	[62,]	0.949192297	0.427803929	0.949834068	0.944832766	0.27019094
##	[63,]	1.025808716	0.146476345	0.987695738	1.006211376	1.18741808
##	[64,]	1.105262779	0.425478908	1.167127130	1.041731404	0.83332574
##	[65,]	0.534896108	0.671931171	0.465040076	0.625152507	0.22041892
##	[66,]	0.375987980	0.897458242	0.390962896	0.409190732	0.54749217
##	[67,]	0.356124464	0.420828865	0.415655290	0.324795143	0.74800229
##	[68,]	0.625700752	1.111360207	0.634594511	0.612081136	0.95562269
##	[69,]	0.078035241	0.553355082	0.032923191	0.105139285	0.84612426
##	[70,]	0.319235077	0.104625961	0.246923934	0.406349129	0.56171274
##	[71,]	0.804472395	0.418503843	0.695502415	0.971827988	1.56426334
##	[72,]	0.344773884	0.792832281	0.374501301	0.338150674	0.35480337
##	[73,]	0.790284170	1.413612982	0.718960189	0.776325749	0.83190368
##	[74,]	0.461117334	0.267377456	0.535001858	0.470001021	0.44297094
##	[75,]	0.503682011	1.122985313	0.613194437	0.568320461	1.37228556
##	[76,]	0.637051332	0.995109139	0.666694623	0.612081136	0.01422058
##	[77,]	0.662590139	0.869557986	0.767933436	0.662661657	0.59228698
##	[78,]	0.529220817	0.578930317	0.428001486	0.570309582	1.14475635
##	[79,]	1.579149516	0.771907089	1.613236371	1.423358594	0.17917925
##	[80,]	1.068373393	1.188085911	1.172888688	1.076967273	0.84612426
##	[81,]	0.742044202	0.030225278	0.767521896	0.781724794	0.81768311
##	[82,]	0.035470564	0.711456534	0.000000000	0.007388166	0.34840411
##	[83,]	1.383352002	1.339212299	1.301700674	1.292644888	1.82023370
##	[84,]	1.686980032	0.134851238	1.559736186	2.142568137	1.26634227
##	[85,]	0.625700752	0.595205466	0.629656033	0.809856656	0.91011685
##	[86,]	0.810147685	0.446404100	0.806618186	0.903629532	0.78924196
##	[87,]	0.061009370	0.497554569	0.037038590	0.055695405	0.89020804
##	[88,]	0.299371562	0.174376601	0.300424120	0.336161552	1.04521232
##	[89,]	0.699479525	0.406878737	0.567925049	0.740521560	0.15642633
##	[90,]	0.954867587	1.025334417	0.937076331	0.936592119	0.52616130
##	[91,]	0.007094113	0.372003416	0.131692765	0.003125763	1.10778285
##	[92,]	0.682453654	0.381303502	0.679040820	0.778599031	0.28441152
##	[93,]	0.472467915	0.404553715	0.164615956	0.450393965	0.61859505
##	[94,]	0.166002240	0.102300940	0.419770688	0.176179343	1.47893988
##	[95,]	0.529220817	0.460354228	0.514424863	0.520297382	0.49772015
##	[96,]	0.086548177	0.585905381	0.057615585	0.092920395	1.24430038
##	[97,]	1.227281520	0.083700769	1.098811508	1.171308469	1.78468226
##	[98,]	0.588811365	0.474304356	0.613194437	0.633677314	0.03555144
##	[99,]	0.523545527	0.776557132	0.749002601	0.542746040	0.34129382
##	[100,]	0.526383172	0.239477199	0.547348055	0.613786097	1.20661586
##	[101,]	3.060400276	0.695181384	3.057741388	4.452790809	0.85323455
##	[102,]	0.205729272	1.539164136	0.242808535	0.209994410	1.25496581
##	[103,]	0.205729272	1.234586338	0.246923934	0.210278570	0.30574238
##	[104,]	0.038308209	0.141826303	0.107000372	0.010513929	0.35124822
##	[105,]	0.889601749	0.546380018	0.877814587	0.913006820	0.53824879
##	[106,]	0.727855977	0.279002562	0.670810022	0.801331849	0.10665432

## [107,]	1.025808716	0.488254484	1.016503530	1.227572195	0.10665432
## [108,]	1.008782845	0.192976772	0.969999522	0.974953750	1.26563124
## [109,]	1.329436745	0.102300940	1.358081639	1.562881267	0.29152180
## [110,]	2.072899770	0.032550299	2.111199639	2.583016494	0.05688230
## [111,]	0.915140555	0.139501281	0.971234142	1.068442466	0.17064691
## [112,]	0.705154816	0.160426473	0.650233027	0.932045555	0.27659020
## [113,]	0.305046852	0.453379164	0.181077552	0.330194188	0.02844115
## [114,]	0.529220817	1.283411787	0.497963268	0.639360518	1.08502993
## [115,]	1.113775715	0.218552007	1.051895961	1.066453344	0.59726418
## [116,]	0.446929108	0.281327584	0.477386273	0.485061513	0.02133086
## [117,]	0.903789975	1.476388559	0.831310579	1.099700091	0.75440155
## [118,]	0.597324300	2.129719559	0.444463082	0.611228655	0.18486749
## [119,]	0.892439394	0.183676687	0.843656776	1.042868045	0.75653463
## [120,]	0.007094113	1.018359353	0.049384787	0.010798089	0.09954403
## [121,]	1.147827456	0.274352520	1.106219226	1.099131771	0.13509547
## [122,]	0.841361782	1.655415203	0.860118371	1.037184841	0.13509547
## [123,]	1.669954161	1.281086765	1.617351770	2.097102500	0.50554147
## [124,]	0.166002240	0.030225278	0.168731355	0.177600144	0.43372756
## [125,]	0.832848847	0.365028352	0.749002601	0.943411965	0.81199488
## [126,]	0.322072723	0.683556278	0.283962525	0.406349129	0.24601596
## [127,]	0.438416173	0.337128096	0.349808907	0.424535384	0.94566829
## [128,]	1.755083515	0.653331000	1.683198153	2.315905877	0.33418353
## [129,]	0.673940719	0.904433306	0.714021710	0.721482825	1.03099174
## [130,]	0.410039722	0.006975064	0.358039705	0.454656369	0.78497578
## [131,]	0.480980850	0.727731683	0.321001115	0.409190732	0.84683529
## [132,]	0.302209207	0.097650897	0.275731727	0.298936562	1.01677117
## [133,]	0.330585658	0.018600171	0.329231913	0.347243801	0.09954403
## [134,]	0.645564268	0.555680103	0.697148575	0.653852690	0.71458393
## [135,]	0.069522306	1.490338687	0.032923191	0.065641013	0.26521374
## [136,]	0.722180686	0.576605295	0.691387016	0.749330527	1.06654318
## [137,]	0.262482175	0.344103160	0.222231541	0.306893049	0.53824879
## [138,]	0.895277039	0.000000000	0.753118000	1.062759261	1.32606869
## [139,]	0.418552657	0.578930317	0.432116885	0.424251224	1.29336137
## [140,]	0.100736402	0.167401537	0.131692765	0.090078793	0.66125677
## [141,]	0.602999591	0.495229548	0.506194066	0.673459746	0.09243374
## [142,]	0.807310040	0.000000000	0.821022082	0.806446734	0.55175834
## [143,]	0.339098593	0.832357644	0.296308721	0.354631967	0.12798518
## [144,]	1.255657971	0.109276004	1.362197038	1.588455687	0.58233258
## [145,]	1.054185167	0.818407516	1.076176814	0.992571684	0.52047307
## [146,]	0.120599918	1.527539029	0.127577366	0.140943474	0.15855942
## [147,]	0.520707882	1.195060975	0.493847869	0.585370074	0.01422058
## [148,]	0.554759623	0.302252776	0.576155847	0.579118549	0.72524936
## [149,]	0.668265429	0.051150470	0.646117628	0.744499803	0.30076518
## [150,]	0.551921978	1.164835698	0.563809650	0.653568530	0.58233258
## [151,]	0.940679362	0.955583776	0.847772175	1.145165728	0.55033628
## [152,]	0.883926459	0.074400683	0.806618186	1.025818431	0.76080080
## [153,]	0.696641880	1.113685228	0.640356070	0.708979775	0.99544030
## [154,]	0.600161946	0.613805637	0.572040448	0.667776541	0.47638929
## [155,]	0.815822976	1.248536466	0.802502787	0.858163896	0.22397407
## [156,]	1.567798936	1.134610420	1.449031955	1.420801152	0.49060986
## [157,]	0.631376042	0.130201196	0.697148575	0.622879225	0.82763751
## [158,]	1.318086164	0.553355082	1.296762195	1.230413797	0.71102879
## [159,]	0.568947849	0.974183947	0.452693880	0.621458424	2.22552011
## [160,]	1.054185167	0.750981897	1.088111471	1.021271868	0.68400970

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## [161,] 0.279508046 0.204601879 0.271616328 0.340992276 0.32707324
## [162,] 0.330585658 0.916058413 0.292193322 0.386457913 0.07110288
## [163,] 0.421390302 0.344103160 0.275731727 0.483072392 0.92220434
## [164,] 0.642726623 0.378978481 0.572040448 0.643338761 0.12087489
## [165,] 0.038308209 4.143188051 0.032923191 0.032394266 0.29009975
## [166,] 0.069522306 1.322937150 0.123461967 0.003125763 0.22895127
## [167,] 1.414566099 1.255511530 1.360139339 1.291792407 0.08532345
## [168,] 0.631376042 0.406878737 0.604963639 0.687667757 0.08532345
## [169,] 0.966218168 2.245970627 0.884810765 1.383860322 0.53398262
## [170,] 2.864602762 1.118335271 2.991895005 4.458474014 0.44083785
## [171,] 0.424227947 0.118576089 0.390962896 0.505805210 0.02844115
## [172,] 0.052496435 1.176460804 0.074077180 0.054842924 1.16608721
## [173,] 0.200053982 1.071834844 0.135808164 0.164812934 0.90513965
## [174,] 0.625700752 2.559848509 0.567925049 0.826906270 1.27985182
## [175,] 0.253969239 0.602180530 0.185192951 0.269952219 0.33702765
## [176,] 1.071211038 0.218552007 0.983580339 1.284404241 0.38111143
## [177,] 0.994594619 0.704481470 0.900037741 0.955062534 0.99544030
## [178,] 0.824335911 0.392928609 0.811556664 0.822643867 0.33276147
## [179,] 0.370312690 0.848632794 0.436232284 0.443289959 0.29863209
## [180,] 0.446929108 0.520804783 0.292193322 0.492733839 1.57137362
## [181,] 1.403215518 0.416178822 1.588543978 1.639604529 2.16152752
## [182,] 1.772109386 0.611480616 1.683198153 1.620849954 1.37939585
## [183,] 0.194378692 0.209251922 0.172846754 0.213120173 0.14931605
## [184,] 0.929328781 1.829791805 1.065888317 0.946253567 1.10920491
## [185,] 0.529220817 2.225045435 0.481501672 0.554396609 1.67091765
## [186,] 1.179041553 0.081375747 1.184411805 1.138061722 0.35978057
## [187,] 0.631376042 1.699590609 0.798387388 0.781440633 0.68258764
## [188,] 0.509357301 2.813275837 0.432116885 0.531663791 0.29152180
## [189,] 0.180190466 0.292952690 0.292193322 0.211415211 1.93613139
## [190,] 0.370312690 0.413853801 0.473270874 0.381343029 1.43201198
## [191,] 0.339098593 0.181351666 0.251039333 0.378501427 1.05232261
## [192,] 1.020133425 0.843982751 1.185234885 1.179264956 0.54749217
## [193,] 0.517870237 0.088350811 0.465040076 0.366282537 0.69680821
## [194,] 0.171677531 0.702156449 0.041153989 0.190103194 0.97055430
## [195,] 1.556448355 0.641705893 1.492655183 1.396363372 0.61859505
## [196,] 0.276670400 0.425478908 0.214000743 0.260290771 0.33987176
## [197,] 1.275521487 0.202276858 1.190996444 1.218479068 0.46927900
## [198,] 0.920815846 0.857932879 0.769579596 1.119591307 1.24145627
## [199,] 0.671103074 0.048825448 0.650233027 0.770074224 0.52616130
## [200,] 0.253969239 0.641705893 0.251039333 0.287001833 0.89589627
## [201,] 0.622863107 1.941392830 0.719783269 0.603840489 1.35095470
## [202,] 0.177352821 0.337128096 0.000000000 0.142080115 1.29265034
## [203,] 0.245456304 0.313877883 0.201654546 0.281602788 0.27659020
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## [207,] 0.810147685 0.583580360 1.214042677 0.889421521 1.87711600
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## [210,] 0.872575878 0.060450555 0.846537555 0.849639089 0.28227843
## [211,] 0.580298430 0.220877029 0.628832953 0.629130750 0.82692648
## [212,] 1.147827456 1.478713580 1.115273104 1.290087446 0.14931605
## compactness_mean concavity_mean points_mean
## [1,] 0.841652694 0.055820505 0.141226758

```

##	[2,]	0.606860941	0.846088332	0.665415129
##	[3,]	0.636967303	0.177496663	0.112105182
##	[4,]	0.974196426	0.965255703	1.075178899
##	[5,]	0.082366462	0.921477374	0.917200791
##	[6,]	0.707215481	0.212619677	0.031698707
##	[7,]	1.415188355	1.307579655	1.526692185
##	[8,]	1.288514417	0.780859877	0.358736584
##	[9,]	0.557630413	0.543779529	0.174471744
##	[10,]	0.767428205	0.842074273	0.528827205
##	[11,]	0.906031078	0.545033922	0.109270339
##	[12,]	0.445914982	0.006899164	0.181687709
##	[13,]	0.648517543	1.247494213	1.090641682
##	[14,]	2.869571784	1.129581235	0.487593115
##	[15,]	0.869676226	0.514928481	0.734482229
##	[16,]	1.968274411	2.326272516	2.706502587
##	[17,]	0.366388743	0.656549493	0.779839729
##	[18,]	1.439992967	2.520703490	1.951403313
##	[19,]	2.922589277	3.455226555	2.961638519
##	[20,]	0.224377602	0.141119255	0.215448121
##	[21,]	1.640702046	0.744482469	0.343531513
##	[22,]	0.529228185	0.809710924	0.464398939
##	[23,]	0.336093033	0.211365284	0.523415231
##	[24,]	1.364064344	1.508408035	1.700133076
##	[25,]	1.536560543	0.706850668	0.290700335
##	[26,]	0.129703509	0.565104216	0.821846958
##	[27,]	0.902622811	0.873810426	0.725204559
##	[28,]	0.036922897	0.391997930	0.050511760
##	[29,]	0.570884786	0.522454841	0.001030852
##	[30,]	1.442643842	1.370550203	1.489839217
##	[31,]	2.062948505	0.586428903	0.518003257
##	[32,]	0.089940389	0.388234750	0.408990631
##	[33,]	2.540105937	2.289895108	2.531257704
##	[34,]	1.142716313	0.970900473	0.868235309
##	[35,]	0.423193199	0.070873226	0.009535383
##	[36,]	1.835730679	0.770824730	0.155400977
##	[37,]	0.406151863	0.388234750	0.745306178
##	[38,]	0.222484121	0.418340191	0.682424191
##	[39,]	0.451595428	0.473533500	0.124990836
##	[40,]	0.033135933	0.302936000	0.016235923
##	[41,]	0.046390306	0.158680762	0.240446288
##	[42,]	0.884824081	0.433392911	0.042007229
##	[43,]	0.835972249	0.699324307	0.250754810
##	[44,]	1.249508690	0.846088332	0.865142752
##	[45,]	0.985936013	0.735576276	0.773396902
##	[46,]	0.320945178	0.063346866	0.641447814
##	[47,]	1.706973912	1.529732722	0.279103247
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##	[49,]	0.252779831	0.014425524	0.139680480
##	[50,]	0.506506402	0.006899164	0.336573260
##	[51,]	0.487571583	0.029478244	0.231168617
##	[52,]	2.750282426	1.865910147	1.567410849
##	[53,]	0.548163003	0.092197913	0.299720292
##	[54,]	1.296088345	0.779605483	0.006442827
##	[55,]	1.031000882	0.111013814	0.039945525



##	[56,]	0.059644679	0.649901208	0.521095813
##	[57,]	0.199762338	0.588937690	0.762572953
##	[58,]	0.091833871	0.203838924	0.361313714
##	[59,]	1.118101048	1.702839008	2.616303015
##	[60,]	0.095620835	0.682139118	0.288896344
##	[61,]	0.175147074	0.360638096	0.331934425
##	[62,]	0.360708297	0.486077433	0.557948781
##	[63,]	0.608754423	0.723659539	0.681135625
##	[64,]	1.315401860	1.163700735	1.337530797
##	[65,]	0.106981726	0.238961938	0.094322981
##	[66,]	0.686387180	0.577648150	0.376776498
##	[67,]	0.910954131	0.673107486	0.512848995
##	[68,]	0.690552840	0.951457376	1.172336723
##	[69,]	0.470530246	0.497366974	0.585524079
##	[70,]	0.667641710	0.452208812	0.458986965
##	[71,]	0.884445385	0.449700025	0.232457183
##	[72,]	0.353134370	0.713498952	0.691959574
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##	[74,]	0.839948560	1.071502822	0.886275224
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##	[76,]	0.656280818	0.349348555	0.534754606
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##	[78,]	1.034787846	0.647894179	0.027833011
##	[79,]	1.386218082	1.561719753	1.317686891
##	[80,]	2.856317411	1.221151952	1.631839115
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##	[84,]	0.337986515	0.237707545	0.276783830
##	[85,]	0.603073978	0.857377873	0.513364421
##	[86,]	0.313371251	0.777096697	1.021059155
##	[87,]	0.237631976	0.598972837	0.293792892
##	[88,]	0.008520668	0.044530965	0.036079829
##	[89,]	1.243070852	0.230181185	0.064428266
##	[90,]	0.084259944	0.670598699	0.871585579
##	[91,]	1.315023163	1.535879250	1.492416348
##	[92,]	0.995024726	1.133344415	0.286576926
##	[93,]	3.390279300	2.085428988	1.325160570
##	[94,]	2.371586050	2.101736102	0.863854187
##	[95,]	0.190294929	0.059583685	0.139422767
##	[96,]	0.326625624	1.133344415	0.876739840
##	[97,]	1.152183722	0.433392911	0.186841971
##	[98,]	0.444021500	0.671727653	0.066489970
##	[99,]	2.148155189	0.691797947	0.657683737
##	[100,]	0.197868856	0.501130154	0.478315445
##	[101,]	0.364495261	2.116788822	1.886975047
##	[102,]	0.568991304	0.738085063	0.857153647
##	[103,]	1.557388844	0.213874071	0.559752773
##	[104,]	0.802836316	0.761918537	0.541455145
##	[105,]	0.033135933	0.499875760	0.558206494
##	[106,]	0.025562005	0.128575321	0.206943590
##	[107,]	0.534908630	1.503390461	1.152492818
##	[108,]	0.106981726	0.161189549	0.541712858
##	[109,]	1.193840323	1.172230610	1.644724768

## [110,]	1.481649568	0.999124324	1.567410849
## [111,]	0.786741720	0.716885815	1.183418385
## [112,]	0.561417376	0.043276571	0.224210365
## [113,]	1.078337929	0.906299214	0.145865594
## [114,]	0.262247240	0.402033077	0.267763872
## [115,]	0.275501613	0.085925946	0.117517157
## [116,]	0.226271084	0.459735172	0.558206494
## [117,]	0.472423728	0.050802932	0.074221362
## [118,]	1.445673413	1.300178734	0.206428163
## [119,]	0.019881560	0.011916737	0.392239282
## [120,]	0.534908630	0.310462361	0.070871092
## [121,]	0.213016711	0.663323217	0.636551265
## [122,]	0.008520668	0.585174510	0.464398939
## [123,]	0.678813253	0.547542709	0.964362282
## [124,]	0.023668523	0.207602104	0.672631094
## [125,]	0.019881560	0.060838079	0.014174218
## [126,]	0.512186848	0.223909218	0.043038082
## [127,]	0.811356984	0.777096697	0.219313817
## [128,]	0.076686016	0.996615537	1.410205880
## [129,]	0.035029415	0.031987031	0.001030852
## [130,]	0.148638327	0.568867396	0.654075754
## [131,]	0.222484121	0.057074899	0.092003563
## [132,]	0.076686016	0.358129309	0.166740352
## [133,]	0.074792534	0.590192084	0.777004885
## [134,]	0.878196894	0.959485494	1.106362179
## [135,]	0.315264732	0.659810916	0.173956317
## [136,]	0.294436432	0.309207967	0.103342938
## [137,]	0.442128018	0.484823040	0.316471641
## [138,]	0.925344593	0.764301884	0.671600242
## [139,]	0.608754423	0.651908238	0.841175437
## [140,]	0.646624061	0.428375338	0.492747376
## [141,]	0.256566794	0.168715909	0.009535383
## [142,]	0.622576841	0.388234750	0.950961202
## [143,]	0.445914982	0.200075744	0.225756643
## [144,]	1.207094696	0.854869086	0.580369818
## [145,]	0.894480839	0.816610088	1.066674368
## [146,]	0.017988078	0.231435578	0.086333876
## [147,]	0.245205903	0.511165301	0.266990733
## [148,]	0.544376040	0.491095007	0.295081457
## [149,]	0.029348969	0.438410485	0.619026777
## [150,]	0.748872082	0.180005449	0.266733020
## [151,]	0.468636764	0.016934311	0.080664189
## [152,]	0.364495261	0.669344306	0.217252112
## [153,]	0.616328351	0.221400431	0.076025354
## [154,]	0.235738494	0.931387082	0.853545665
## [155,]	0.654197988	0.159935155	1.036521939
## [156,]	0.712895927	0.182514236	0.312605945
## [157,]	1.165248747	1.239591534	1.364332955
## [158,]	0.116449135	0.483568647	0.452286425
## [159,]	1.818689343	1.172230610	0.977247935
## [160,]	1.017367812	1.235577476	1.428503508
## [161,]	0.142957882	0.069618832	0.212097851
## [162,]	0.012307632	0.028223851	0.143030750
## [163,]	1.391898528	0.892500887	0.717730880

## [164,]	0.434554091	0.233944365	0.048192343
## [165,]	0.048283788	0.121048961	0.047161491
## [166,]	0.404258381	0.635350245	0.566195599
## [167,]	0.055857715	0.537507562	1.047861314
## [168,]	0.010414150	0.429629731	0.407702066
## [169,]	0.341773479	0.183768630	0.004638835
## [170,]	1.258218707	2.661195548	2.129225326
## [171,]	0.124023063	0.100978667	0.029894715
## [172,]	1.803541487	0.897518461	1.387011705
## [173,]	0.173253592	0.531235595	0.611810811
## [174,]	0.366388743	0.462243959	0.513106708
## [175,]	0.391004008	0.481059860	0.174729457
## [176,]	0.281182059	0.073382013	0.753037570
## [177,]	0.676919771	0.196312563	0.481665715
## [178,]	0.345560442	0.720899873	0.718761733
## [179,]	1.066977037	1.010413865	0.982402196
## [180,]	1.970167893	1.756777923	0.977247935
## [181,]	2.735134571	3.450208981	2.474560830
## [182,]	1.572536699	0.220146038	0.582689235
## [183,]	0.065325125	0.430884125	0.223179513
## [184,]	2.738921535	2.509413949	1.693690250
## [185,]	0.438341054	0.650402966	0.603563993
## [186,]	0.523547739	0.862520886	0.870039301
## [187,]	1.400229848	0.339313408	0.724689133
## [188,]	0.597393532	0.297918427	0.059016291
## [189,]	1.159378953	1.440796232	1.629004271
## [190,]	1.243260200	1.484700000	1.367167799
## [191,]	1.322597091	0.261541019	0.425741980
## [192,]	1.727802212	2.082920201	1.575142241
## [193,]	0.468636764	0.010662344	0.037883820
## [194,]	1.175473549	1.183645590	1.000957537
## [195,]	0.364495261	0.370673243	0.888079215
## [196,]	0.328519106	0.373182029	0.037368394
## [197,]	0.900350632	0.227672398	0.455378982
## [198,]	1.016989116	0.808456531	0.415175744
## [199,]	0.521654257	0.577648150	1.072601768
## [200,]	0.305797323	0.324260688	0.508210160
## [201,]	1.634074860	1.310715639	1.517672228
## [202,]	1.233224746	0.983695286	0.781386007
## [203,]	0.440234536	0.350602949	0.061335709
## [204,]	0.502719438	1.293906768	0.737574786
## [205,]	1.123024101	1.026720978	0.834474898
## [206,]	1.044255255	1.318994635	1.652456160
## [207,]	4.034063138	2.810468360	1.910169223
## [208,]	2.030759313	0.952711769	0.021905610
## [209,]	1.445673413	1.626321012	1.801929736
## [210,]	0.426980163	0.243979512	0.780870581
## [211,]	0.514080330	1.224287935	1.382630583
## [212,]	0.362601779	0.524963628	1.010750633

```
matabsdev.all <- rbind(matabsdevsurv,matabsdevnosurv)
matabsdev.all <- data.frame(cancer$diagnosis, matabsdev.all)

t.test(matabsdev.all$radius_mean[cancer$diagnosis == "B"],matabsdev.all$radius_mean[cancer$diagnosis == "M"], alternative="less",var.equal = TRUE)
```

```
##
## Two Sample t-test
##
## data: matabsdev.all$radius_mean[cancer$diagnosis == "B"] and matabsdev.all$radius_mean[cancer$diagnosis == "M"]
## t = 0.32562, df = 567, p-value = 0.6276
## alternative hypothesis: true difference in means is less than 0
## 95 percent confidence interval:
##      -Inf 0.07485419
## sample estimates:
## mean of x mean of y
## 0.5301158 0.5177632
```

```
t.test(matabsdev.all$texture_mean[cancer$diagnosis == "B"],matabsdev.all$texture_mean[cancer$diagnosis == "M"], alternative="less",var.equal = TRUE)
```

```
##
## Two Sample t-test
##
## data: matabsdev.all$texture_mean[cancer$diagnosis == "B"] and matabsdev.all$texture_mean[cancer$diagnosis == "M"]
## t = -2.1618, df = 567, p-value = 0.01553
## alternative hypothesis: true difference in means is less than 0
## 95 percent confidence interval:
##      -Inf -0.02723094
## sample estimates:
## mean of x mean of y
## 0.6364762 0.7509490
```

```
t.test(matabsdev.all$perimeter_mean[cancer$diagnosis == "B"],matabsdev.all$perimeter_mean[cancer$diagnosis == "M"], alternative="less",var.equal = TRUE)
```

```
##
## Two Sample t-test
##
## data: matabsdev.all$perimeter_mean[cancer$diagnosis == "B"] and matabsdev.all$perimeter_mean
[cancer$diagnosis == "M"]
## t = 0.2439, df = 567, p-value = 0.5963
## alternative hypothesis: true difference in means is less than 0
## 95 percent confidence interval:
##      -Inf 0.07148672
## sample estimates:
## mean of x mean of y
## 0.5125724 0.5033541
```

```
t.test(matabsdev.all$area_mean[cancer$diagnosis == "B"],matabsdev.all$area_mean[cancer$diagnosis
== "M"], alternative="less",var.equal = TRUE)
```

```
##
## Two Sample t-test
##
## data: matabsdev.all$area_mean[cancer$diagnosis == "B"] and matabsdev.all$area_mean[cancer$di
agnosis == "M"]
## t = 0.40112, df = 567, p-value = 0.6558
## alternative hypothesis: true difference in means is less than 0
## 95 percent confidence interval:
##      -Inf 0.0909786
## sample estimates:
## mean of x mean of y
## 0.4981297 0.4803166
```

```
t.test(matabsdev.all$smoothness_mean[cancer$diagnosis == "B"],matabsdev.all$smoothness_mean[canc
er$diagnosis == "M"], alternative="less",var.equal = TRUE)
```

```
##
## Two Sample t-test
##
## data: matabsdev.all$smoothness_mean[cancer$diagnosis == "B"] and matabsdev.all$smoothness_me
an[cancer$diagnosis == "M"]
## t = 1.6742, df = 567, p-value = 0.9527
## alternative hypothesis: true difference in means is less than 0
## 95 percent confidence interval:
##      -Inf 0.167207
## sample estimates:
## mean of x mean of y
## 0.7680704 0.6837950
```

```
t.test(matabsdev.all$compactness_mean[cancer$diagnosis == "B"],matabsdev.all$compactness_mean[ca
ncer$diagnosis == "M"], alternative="less",var.equal = TRUE)
```

```
##
## Two Sample t-test
##
## data: matabsdev.all$compactness_mean[cancer$diagnosis == "B"] and matabsdev.all$compactness_
mean[cancer$diagnosis == "M"]
## t = 1.8406, df = 567, p-value = 0.9669
## alternative hypothesis: true difference in means is less than 0
## 95 percent confidence interval:
##      -Inf 0.1710355
## sample estimates:
## mean of x mean of y
## 0.6249227 0.5346711
```

```
t.test(matabsdev.all$concavity_mean[cancer$diagnosis == "B"],matabsdev.all$concavity_mean[cancer
$diagnosis == "M"], alternative="less",var.equal = TRUE)
```

```
##
## Two Sample t-test
##
## data: matabsdev.all$concavity_mean[cancer$diagnosis == "B"] and matabsdev.all$concavity_mean
[cancer$diagnosis == "M"]
## t = 1.0995, df = 567, p-value = 0.864
## alternative hypothesis: true difference in means is less than 0
## 95 percent confidence interval:
##      -Inf 0.1302286
## sample estimates:
## mean of x mean of y
## 0.4977532 0.4456302
```

```
t.test(matabsdev.all$points_mean[cancer$diagnosis == "B"],matabsdev.all$points_mean[cancer$diagn
osis == "M"], alternative="less",var.equal = TRUE)
```

```
##
## Two Sample t-test
##
## data: matabsdev.all$points_mean[cancer$diagnosis == "B"] and matabsdev.all$points_mean[cance
r$diagnosis == "M"]
## t = 0.31387, df = 567, p-value = 0.6231
## alternative hypothesis: true difference in means is less than 0
## 95 percent confidence interval:
##      -Inf 0.07740908
## sample estimates:
## mean of x mean of y
## 0.4434506 0.4310634
```

```
matstand
```

##		radius_mean	texture_mean	perimeter_mean	area_mean
##	[1,]	-0.512845261	-1.604183e+00	-0.53990056	-0.542146756
##	[2,]	-1.000920224	-7.896900e-02	-0.93374423	-0.876603348
##	[3,]	-0.876063838	-5.718735e-01	-0.86625169	-0.800448406
##	[4,]	-0.807960355	-1.371681e+00	-0.78065139	-0.767485819
##	[5,]	0.301558892	-1.413531e+00	0.23379444	0.161718134
##	[6,]	-0.725668646	-5.804381e-02	-0.73126661	-0.696729922
##	[7,]	-0.742694517	1.078892e+00	-0.71809733	-0.714347856
##	[8,]	-0.090036136	1.037041e+00	-0.01683336	-0.162224529
##	[9,]	-1.032134320	8.172307e-05	-1.01070219	-0.905871851
##	[10,]	-0.870388548	-1.006653e+00	-0.84279392	-0.798459284
##	[11,]	1.833887264	4.534609e-01	1.88612710	1.889980655
##	[12,]	-0.532708777	-3.137962e-01	-0.56376987	-0.552944845
##	[13,]	-0.280158360	3.372098e-01	-0.24647261	-0.335278109
##	[14,]	-0.305697166	4.731766e-03	-0.38516156	-0.362841651
##	[15,]	1.550122751	1.327669e+00	1.47047181	1.523413958
##	[16,]	0.131300184	7.882640e-01	0.18194041	0.006282488
##	[17,]	0.449116439	-1.246130e+00	0.41281429	0.303514089
##	[18,]	-0.413527681	-4.625975e-01	-0.44113098	-0.468833417
##	[19,]	1.692005007	1.062616e+00	1.75854973	1.682543687
##	[20,]	-0.549734648	-1.394931e+00	-0.53043514	-0.565732056
##	[21,]	-0.685941614	-4.881728e-01	-0.71151269	-0.666608937
##	[22,]	-0.691616904	1.197468e+00	-0.64196245	-0.706107209
##	[23,]	-0.904440289	-1.626698e-01	-0.88806330	-0.809541533
##	[24,]	0.276020086	-6.741745e-01	0.31322164	0.055726368
##	[25,]	-1.026459030	2.093336e-01	-0.96008279	-0.911270896
##	[26,]	-0.092873781	-8.136758e-01	-0.06333736	-0.201154480
##	[27,]	-0.192191361	-2.300954e-01	-0.22095714	-0.283560947
##	[28,]	0.332772989	1.390444e+00	0.42927589	0.220255141
##	[29,]	-1.282982150	-5.695485e-01	-1.24816071	-1.063864939
##	[30,]	-0.206379587	-5.439733e-01	-0.26704961	-0.291233273
##	[31,]	-0.305697166	-1.267055e+00	-0.38104616	-0.353180203
##	[32,]	-0.385151230	7.394385e-01	-0.42178861	-0.422231139
##	[33,]	0.985431369	9.393903e-01	1.11243210	0.925256673
##	[34,]	-0.527033487	-3.184462e-01	-0.55800831	-0.536463552
##	[35,]	0.128462539	-1.308905e+00	0.09551703	0.011113212
##	[36,]	-0.132600813	-9.624771e-01	-0.15222998	-0.211100088
##	[37,]	1.365675817	4.697360e-01	1.30174045	1.350076217
##	[38,]	-0.632026357	-1.078728e+00	-0.57035451	-0.631088909
##	[39,]	0.752744468	-1.138443e-01	0.71323841	0.657577736
##	[40,]	0.599511631	-1.208194e-01	0.69266142	0.426839629
##	[41,]	1.754433200	1.806623e+00	1.68447255	1.799049381
##	[42,]	1.550122751	-2.649707e-01	1.59393378	1.588770811
##	[43,]	-0.768233323	2.535091e-01	-0.59216612	-0.763791736
##	[44,]	-0.322723037	-1.176379e+00	-0.32466519	-0.399498321
##	[45,]	-0.064497330	-6.206990e-01	-0.12342219	-0.157677965
##	[46,]	1.121638336	5.929622e-01	1.04658572	1.048866373
##	[47,]	-0.850525032	-6.206990e-01	-0.88477099	-0.777999748
##	[48,]	3.292436862	-4.253972e-01	3.38413230	3.850686244
##	[49,]	-0.175165490	-9.291913e-02	-0.15922616	-0.275036140
##	[50,]	-0.473118229	1.395830e-01	-0.47487725	-0.521687220
##	[51,]	-0.075847910	-5.486233e-01	-0.04152575	-0.215930812
##	[52,]	0.247643635	-8.787763e-01	0.22556364	0.084142391

##	[53,]	-0.660402808	-4.718976e-01	-0.68764338	-0.633646351
##	[54,]	0.026307314	1.990300e+00	0.02390909	-0.088058708
##	[55,]	2.600051450	1.715947e+00	2.75447627	2.927165495
##	[56,]	-0.223405457	-7.974006e-01	-0.22548408	-0.383301188
##	[57,]	-0.677428679	-1.069428e+00	-0.64443169	-0.650411804
##	[58,]	-1.148477771	-9.717772e-01	-1.16091425	-0.958725654
##	[59,]	2.872465383	2.116587e-01	3.05490039	3.143127271
##	[60,]	1.496207493	-2.579956e-01	1.44989481	1.392700252
##	[61,]	1.402565204	1.283494e+00	1.49516420	1.276194557
##	[62,]	0.948541983	1.253268e+00	0.99308554	0.936907242
##	[63,]	0.934353757	1.457870e+00	0.92723915	0.832904598
##	[64,]	-0.195029006	5.325116e-01	-0.23824182	-0.261112289
##	[65,]	0.344123569	-1.169404e+00	0.43339128	0.140690277
##	[66,]	-0.507169971	6.813130e-01	-0.49874657	-0.541010116
##	[67,]	-0.243268973	-5.276981e-01	-0.30532282	-0.308282887
##	[68,]	0.136975474	-8.369260e-01	0.02925911	0.028446986
##	[69,]	-0.078685556	-9.555021e-01	-0.12259911	-0.191777192
##	[70,]	-0.697292195	1.698083e-01	-0.68970108	-0.678259507
##	[71,]	-0.183678426	3.558100e-01	-0.14687996	-0.271910377
##	[72,]	-1.156990706	-4.091220e-01	-1.13416416	-0.977764390
##	[73,]	-1.443025336	-9.059411e-02	-1.31277247	-1.166162622
##	[74,]	1.056372498	-1.408881e+00	0.93135455	0.958219260
##	[75,]	0.769770339	3.960709e-02	0.67619982	0.640243962
##	[76,]	-0.501494680	5.836621e-01	-0.50162735	-0.536463552
##	[77,]	1.186904174	-1.649948e-01	1.09597051	1.097173612
##	[78,]	-0.799447419	-5.804381e-02	-0.83003618	-0.741058918
##	[79,]	-0.387988875	-1.376331e+00	-0.39833083	-0.428482664
##	[80,]	1.096099529	3.186096e-01	1.06304732	0.957082619
##	[81,]	0.239130699	-5.439733e-01	0.17494423	0.088120634
##	[82,]	-0.518520551	-7.881005e-01	-0.54072364	-0.543283397
##	[83,]	-0.234756038	5.301866e-01	-0.27692657	-0.309135368
##	[84,]	0.145488410	-9.415519e-01	0.15642494	-0.008493844
##	[85,]	-0.810798000	-1.471657e+00	-0.77406675	-0.763223416
##	[86,]	-0.351099488	-1.434456e+00	-0.41479243	-0.394951757
##	[87,]	-0.507169971	-1.632083e+00	-0.53619670	-0.529643706
##	[88,]	-0.212054877	2.657581e+00	-0.23165718	-0.277593582
##	[89,]	1.995633037	8.719647e-01	1.86143471	2.128675248
##	[90,]	-0.118412587	-1.417446e-01	-0.13329914	-0.238379470
##	[91,]	-0.373800649	-1.448407e+00	-0.43948482	-0.415127134
##	[92,]	-0.470280584	-4.602725e-01	-0.47405417	-0.496681120
##	[93,]	0.420739988	2.100692e-02	0.33050631	0.294705122
##	[94,]	-0.319885392	1.357894e+00	-0.38516156	-0.382732867
##	[95,]	0.026307314	8.905649e-01	0.09880935	-0.127841141
##	[96,]	0.539921083	-8.787763e-01	0.56919945	0.393024562
##	[97,]	-0.331235972	-2.324204e-01	-0.32054980	-0.368524856
##	[98,]	-0.646214582	-4.253972e-01	-0.67612026	-0.631373069
##	[99,]	-1.120101319	-4.091220e-01	-1.10494483	-0.971228704
##	[100,]	3.147716961	1.306744e+00	3.27301653	3.475594740
##	[101,]	-0.969706127	2.558341e-01	-0.92469035	-0.880865751
##	[102,]	-1.250632996	-2.486956e-01	-1.28561084	-1.042268762
##	[103,]	-0.805122710	-1.453057e+00	-0.81233996	-0.758392692
##	[104,]	0.156838990	1.953835e-01	0.11403633	0.084142391
##	[105,]	-0.263132489	-4.323722e-01	-0.32260749	-0.321922578
##	[106,]	-0.748369807	-1.092678e+00	-0.73990894	-0.710369613



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## [107,] -0.444741778 -5.106875e-02 -0.41355781 -0.480483986
## [108,] -0.541221712 1.744583e-01 -0.51438508 -0.573404382
## [109,] -0.938492031 1.143992e+00 -0.94979429 -0.833410993
## [110,] -0.842012096 4.929862e-01 -0.86501707 -0.780273029
## [111,] -0.705805130 -2.231203e-01 -0.69134724 -0.688773435
## [112,] -1.676563530 3.279097e-01 -1.59261960 -1.281531676
## [113,] 1.286221753 -5.044479e-01 1.21120168 1.199471295
## [114,] -0.112737297 7.719888e-01 0.06712078 -0.217635773
## [115,] -0.671753388 5.371617e-01 -0.70986653 -0.645012760
## [116,] 0.891789080 1.425320e+00 0.84081578 0.778345834
## [117,] 0.091573152 2.163087e-01 0.10374783 -0.034636585
## [118,] 0.386688246 1.581832e-01 0.42927589 0.255206850
## [119,] 1.609713298 5.278616e-01 1.55277979 1.634236448
## [120,] -0.305697166 -1.626698e-01 -0.28309967 -0.406034006
## [121,] -0.078685556 -4.835227e-01 -0.14523380 -0.188083109
## [122,] 1.831049619 6.627128e-01 1.75854973 1.804732586
## [123,] -0.717155711 1.209093e+00 -0.73003199 -0.675417904
## [124,] 2.151703519 -4.742226e-01 2.01370446 2.532182775
## [125,] -0.754045097 -7.578752e-01 -0.77982831 -0.716621138
## [126,] -0.756882742 -2.626457e-01 -0.75637054 -0.715484497
## [127,] -0.288671295 -8.671512e-01 -0.19585321 -0.354316844
## [128,] 0.134137829 9.300903e-01 0.08234776 0.027878666
## [129,] 1.382701688 -8.826909e-02 1.29350966 1.372809036
## [130,] 0.040495540 7.580387e-01 0.07411696 -0.071293255
## [131,] 0.219267183 7.533886e-01 0.41692969 0.085563192
## [132,] -0.132600813 -3.711862e-02 -0.10325673 -0.226160580
## [133,] -0.260294844 2.039125e+00 -0.29174200 -0.331015705
## [134,] 2.109138842 7.208383e-01 2.05897385 2.341795421
## [135,] -0.870388548 -5.044479e-01 -0.85267087 -0.819487141
## [136,] 0.715855082 4.860112e-01 0.74204620 0.709579058
## [137,] -1.530424806 -5.695485e-01 -1.51031162 -1.195146966
## [138,] -0.586624034 -1.522807e+00 -0.62262007 -0.586191592
## [139,] 0.832198532 3.976604e-01 0.81612338 0.749361490
## [140,] -0.620675776 -2.440455e-01 -0.66912408 -0.617449218
## [141,] 1.272033528 2.232838e-01 1.24000947 1.247778534
## [142,] 1.096099529 -2.071512e+00 1.26881726 0.983509520
## [143,] 1.703355588 2.083301e+00 1.61451077 1.722326119
## [144,] 0.034820250 6.650378e-01 0.18317503 -0.026111778
## [145,] 0.128462539 5.208865e-01 0.22391748 -0.028669220
## [146,] -0.657565163 -4.416723e-01 -0.68723184 -0.642171158
## [147,] 0.468979955 -3.254213e-01 0.47866067 0.358357013
## [148,] 0.673290405 -2.324204e-01 0.60212264 0.520612505
## [149,] -0.481631164 -5.323482e-01 -0.55018905 -0.504637606
## [150,] -0.501494680 -1.742949e-01 -0.53331592 -0.534758590
## [151,] -0.464605294 -5.672235e-01 -0.52590820 -0.492418716
## [152,] -1.244390176 -3.944364e-02 -1.23622605 -1.037722198
## [153,] -0.348261843 -7.834505e-01 -0.33865755 -0.405465686
## [154,] -1.080374288 -6.834746e-01 -1.09712557 -0.937697797
## [155,] 0.080222572 1.023827e-01 0.16712498 -0.011051286
## [156,] -1.331222117 -2.254453e-01 -1.32306097 -1.069263984
## [157,] -0.152464329 -3.370464e-01 -0.23577258 -0.234685387
## [158,] -0.901602644 4.790361e-01 -0.82592078 -0.806415771
## [159,] -1.009433159 -2.254453e-01 -1.03498305 -0.892232160
## [160,] -0.180840780 6.999132e-01 -0.20819940 -0.266795493

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## [161,] -0.243268973 -1.053153e+00 -0.29750356 -0.293222395
## [162,] -0.813635645 1.558582e-01 -0.75102052 -0.741058918
## [163,] -0.073010265 -7.160249e-01 -0.14194148 -0.173875098
## [164,] -1.454943445 -1.136854e+00 -1.46545377 -1.161047738
## [165,] 2.543298547 1.256329e-01 2.47462914 2.918640689
## [166,] 3.715245987 5.999372e-01 3.70924881 4.532670797
## [167,] 0.060359056 -1.353081e+00 0.02226293 -0.038898989
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## [170,] -0.109899652 -3.207712e-01 -0.15840308 -0.198597038
## [171,] -0.271645425 -1.463946e-01 -0.24647261 -0.341813794
## [172,] -0.041796169 7.680743e-02 -0.03494111 -0.157393805
## [173,] -0.118412587 3.581350e-01 -0.07280278 -0.218772414
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## [175,] -0.197866651 7.913245e-02 -0.25223417 -0.254292443
## [176,] -0.359612424 -2.998460e-01 -0.36129224 -0.422231139
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## [179,] 1.283384108 -3.928469e-01 1.30585585 1.196629693
## [180,] -0.552572293 2.860593e-01 -0.60698156 -0.557491409
## [181,] -0.538384067 6.285730e-02 -0.55265829 -0.550955724
## [182,] 0.551271664 8.378249e-02 0.49923767 0.462643818
## [183,] -0.101386717 -1.399581e+00 -0.16087232 -0.205132723
## [184,] 0.281695376 -6.067489e-01 0.28029845 0.175357825
## [185,] -0.824986226 1.326079e-01 -0.82427462 -0.760381813
## [186,] -0.912953225 -1.613483e+00 -0.93950579 -0.827443628
## [187,] 0.829360887 -4.874373e-02 0.88196977 0.682299676
## [188,] 1.226631206 6.092373e-01 1.16181689 1.193788091
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## [191,] 0.562622244 -2.882209e-01 0.54039166 0.449288287
## [192,] -0.623513421 -1.948286e+00 -0.65142787 -0.602957046
## [193,] 0.224942474 -1.013628e+00 0.18440965 0.090962237
## [194,] 0.117111959 1.918224e+00 0.19593277 0.011113212
## [195,] 0.446278794 2.372339e-01 0.37989110 0.317437940
## [196,] 1.411078139 1.627597e+00 1.52808739 1.355759422
## [197,] 0.270344796 1.499720e+00 0.24819833 0.175357825
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## [204,] -0.424878262 3.418599e-01 -0.40409239 -0.495828639
## [205,] -0.685941614 -8.927265e-01 -0.69710880 -0.666608937
## [206,] 0.378175311 1.083542e+00 0.48689147 0.217129379
## [207,] -0.717155711 -2.161453e-01 -0.74443588 -0.688205115
## [208,] -0.671753388 -2.672957e-01 -0.69834341 -0.635919632
## [209,] -0.178003135 -1.529782e+00 -0.25840727 -0.252019161
## [210,] 1.975769521 1.692697e+00 2.08778165 1.864406234
## [211,] -0.351099488 -8.346009e-01 -0.32466519 -0.392962636
## [212,] 0.165351926 5.348366e-01 0.14737106 0.005714168
## [213,] 0.871925564 1.216068e+00 0.91489296 0.780050795
## [214,] -0.240431328 -1.294955e+00 -0.25429187 -0.321354258

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## [215,] -0.921466160 -8.532011e-01 -0.88724022 -0.841083319
## [216,] -1.122938965 -1.025253e+00 -1.12840260 -0.974638627
## [217,] -0.390826520 -6.020988e-01 -0.38927696 -0.457751168
## [218,] 0.020632024 2.883844e-01 0.01814753 -0.103687521
## [219,] -0.475955874 -8.346009e-01 -0.38680772 -0.505205927
## [220,] 2.594376160 6.394626e-01 2.47462914 2.930007098
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## [223,] 1.533096880 -9.059411e-02 1.54454899 1.597295618
## [224,] -0.759720388 3.906853e-01 -0.74731666 -0.720031061
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## [226,] -1.569300544 -1.603448e-01 -1.55887333 -1.232371956
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## [228,] 1.717543814 5.820726e-02 1.72151114 1.691068494
## [229,] 0.968405498 7.056787e-03 0.95193155 0.843134366
## [230,] -0.816473290 -1.048503e+00 -0.84732086 -0.752709487
## [231,] -0.708642775 2.325103e+00 -0.70369343 -0.681385269
## [232,] -0.507169971 -1.008978e+00 -0.56294679 -0.527938745
## [233,] 0.037657895 8.378249e-02 0.24120216 -0.071009095
## [234,] 0.608024567 3.302348e-01 0.61446884 0.451277409
## [235,] -0.385151230 2.357653e+00 -0.43701558 -0.417684576
## [236,] -0.694454549 -7.253249e-01 -0.67817796 -0.666040617
## [237,] 0.207916603 9.114901e-01 0.34696791 0.046917401
## [238,] -1.576678421 -1.439106e+00 -1.54076557 -1.232087796
## [239,] -0.986731998 1.378819e+00 -0.98600980 -0.874898386
## [240,] -1.034971965 1.326079e-01 -1.03909844 -0.901325288
## [241,] -0.047471459 -5.207231e-01 -0.02218337 -0.149153158
## [242,] -1.532694922 -8.043757e-01 -1.48685385 -1.204808414
## [243,] -1.342288933 5.557618e-01 -1.32594175 -1.097111686
## [244,] 0.914490241 8.766148e-01 0.78320019 0.790564724
## [245,] 1.589849783 1.233079e-01 1.59393378 1.566037992
## [246,] -1.261132283 1.170683e-02 -1.27244156 -1.049088607
## [247,] -1.162665996 4.627610e-01 -1.18437203 -0.987709998
## [248,] 0.097248443 1.325344e+00 0.15807110 0.004293366
## [249,] -1.683090114 -5.695485e-01 -1.65681982 -1.287214880
## [250,] -0.603649905 2.078651e+00 -0.62550085 -0.603525366
## [251,] 0.258994215 -5.927987e-01 0.27824075 0.098066242
## [252,] 0.434928213 9.091651e-01 0.75027700 0.337044996
## [253,] -0.810798000 -8.811014e-01 -0.76501288 -0.747026283
## [254,] 1.073398368 4.023104e-01 1.33466365 0.963618304
## [255,] -0.053146749 -1.422831e+00 -0.06827584 -0.172454297
## [256,] -1.340018817 5.604119e-01 -1.33211485 -1.090291841
## [257,] 0.114274313 1.170683e-02 0.09387087 0.013670654
## [258,] -0.785259194 -3.998219e-01 -0.80163993 -0.724861785
## [259,] -0.382313585 -6.509243e-01 -0.43619250 -0.433029228
## [260,] -0.166652555 -1.146154e+00 -0.18556471 -0.251735001
## [261,] -0.575273454 -3.649466e-01 -0.57200067 -0.593011438
## [262,] -1.088887223 1.934499e+00 -1.08231013 -0.947643405
## [263,] 0.378175311 4.425713e-02 0.40046809 0.267141579
## [264,] -0.064497330 -1.154338e-02 -0.13329914 -0.147732357
## [265,] 0.820847952 1.090517e+00 0.85727737 0.694518566
## [266,] -0.319885392 5.883121e-01 -0.18391855 -0.383869508
## [267,] -1.114426029 -4.207471e-01 -1.10782561 -0.948211726
## [268,] -1.486725071 -1.081053e+00 -1.36544958 -1.167583423

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## [269,]	-0.532708777	7.324634e-01	-0.56747373	-0.535326911
## [270,]	1.496207493	9.789157e-01	1.52808739	1.421116275
## [271,]	-0.376638295	-4.253972e-01	-0.36705380	-0.416547935
## [272,]	1.430941655	1.281168e+00	1.66389556	1.330185001
## [273,]	-0.019095008	-4.904978e-01	-0.09132208	-0.130114423
## [274,]	-0.515682906	-6.439492e-01	-0.52590820	-0.522823861
## [275,]	1.433779300	7.440886e-01	1.46224101	1.401225059
## [276,]	3.967796404	-1.905700e-01	3.97263434	5.240229770
## [277,]	0.210754248	2.139837e-01	0.17082883	0.073912623
## [278,]	0.701666856	2.043775e+00	0.67208442	0.577444551
## [279,]	-0.927141450	5.092614e-01	-0.96543280	-0.836536755
## [280,]	-1.815608141	1.441595e+00	-1.81032420	-1.352855894
## [281,]	1.113125400	-7.299750e-01	1.16181689	0.997717532
## [282,]	-0.813635645	1.256329e-01	-0.85061317	-0.758108532
## [283,]	-0.586624034	-9.059411e-02	-0.63002779	-0.595568880
## [284,]	-0.138276103	-8.578512e-01	-0.18885703	-0.226160580
## [285,]	0.869087919	6.464377e-01	0.80789259	0.776925033
## [286,]	0.145488410	-5.672235e-01	0.09222472	0.031572749
## [287,]	0.017794379	1.050991e+00	0.03707837	-0.125567859
## [288,]	1.635252105	2.256088e-01	1.58570298	1.588770811
## [289,]	1.933204844	9.928658e-01	1.93139649	2.015011156
## [290,]	-0.419202972	-2.603207e-01	-0.38186924	-0.481052307
## [291,]	-1.334911056	1.997275e+00	-1.34610720	-1.090007681
## [292,]	-0.124087878	-7.485752e-01	-0.16992620	-0.215362492
## [293,]	-0.101386717	6.975881e-01	-0.05510657	-0.187514789
## [294,]	-0.544059357	-2.951960e-01	-0.56212371	-0.558343890
## [295,]	2.236832873	6.069123e-01	2.27297460	2.350320228
## [296,]	2.980295898	5.371617e-01	3.02609260	3.370455455
## [297,]	1.822536683	3.651101e-01	1.88612710	1.855881427
## [298,]	1.612550944	6.650378e-01	1.56512598	1.719484517
## [299,]	-0.583786389	-1.360056e+00	-0.58187763	-0.595853040
## [300,]	0.602349276	5.123219e-02	0.73381540	0.457244774
## [301,]	1.436616945	-7.788004e-01	1.41285622	1.426799479
## [302,]	0.037657895	-2.603207e-01	-0.03082571	-0.061915967
## [303,]	-0.915790870	-1.471657e+00	-0.95802509	-0.818634661
## [304,]	-0.206379587	2.860593e-01	-0.13700300	-0.279014383
## [305,]	0.460467020	2.232838e-01	0.43750668	0.302377448
## [306,]	1.811186103	1.981000e+00	1.74620354	1.887139053
## [307,]	0.310071828	2.634331e+00	0.47042987	0.176210306
## [308,]	-0.336911263	-7.253249e-01	-0.36170378	-0.418537056
## [309,]	0.233455409	-1.208194e-01	0.24161370	0.098350403
## [310,]	-0.160977264	-1.253105e+00	-0.13906070	-0.265943013
## [311,]	1.799835522	3.209347e-01	1.75854973	1.830307006
## [312,]	0.900302015	-5.137480e-01	0.86550817	0.776640872
## [313,]	-0.121250233	-3.835468e-01	-0.17321851	-0.238095310
## [314,]	-0.634864002	-4.486474e-01	-0.64895863	-0.623132422
## [315,]	-0.240431328	2.302588e-01	-0.19132627	-0.311692810
## [316,]	-0.189353716	2.074001e+00	-0.25017647	-0.263669731
## [317,]	1.748757910	-1.150804e+00	1.77501133	1.824623802
## [318,]	2.577350289	1.785698e+00	2.53224473	2.884541461
## [319,]	-0.850525032	7.324634e-01	-0.84279392	-0.785672074
## [320,]	0.179540151	-1.057803e+00	0.11938635	0.039245075
## [321,]	-0.475955874	-6.695244e-01	-0.37528460	-0.506342567
## [322,]	0.741393888	5.348366e-01	0.74616160	0.609838817

```

## [323,] 1.740244975 8.696397e-01 1.66389556 1.730850926
## [324,] -0.623513421 5.208865e-01 -0.63537781 -0.614607615
## [325,] -0.484468810 -9.880524e-01 -0.54977751 -0.506910888
## [326,] 1.229468851 -1.789449e-01 1.19885548 1.193788091
## [327,] -0.027607943 4.557859e-01 -0.08967592 -0.146311556
## [328,] 0.468979955 8.417395e-01 0.56508405 0.362903577
## [329,] -0.319885392 3.465099e-01 -0.34812297 -0.385006149
## [330,] 2.662479643 1.157942e+00 2.59809111 3.103344838
## [331,] -1.245525234 -1.701834e+00 -1.26462230 -1.041132121
## [332,] -0.356774779 5.820726e-02 -0.38269232 -0.413990493
## [333,] -0.944167321 -2.227289e+00 -0.95473277 -0.844777402
## [334,] -0.552572293 -1.211254e+00 -0.60574694 -0.549819083
## [335,] 0.233455409 -3.998219e-01 0.20087125 0.065956136
## [336,] 0.324260053 -1.483282e+00 0.25519451 0.200648086
## [337,] -0.450417068 -2.835709e-01 -0.51644278 -0.463150212
## [338,] -1.446714274 -4.556225e-01 -1.36544958 -1.149113008
## [339,] 1.317435850 4.976363e-01 1.27293266 1.242095330
## [340,] 0.454791729 -1.862260e+00 0.44573748 0.262310856
## [341,] 0.571135180 -1.029903e+00 0.50746846 0.412347457
## [342,] 1.388376978 1.232343e+00 1.23589407 1.196629693
## [343,] 0.605186921 6.022623e-01 0.63916123 0.488502399
## [344,] -0.802285065 -2.556706e-01 -0.74237818 -0.754414449
## [345,] 0.576810470 5.232115e-01 0.58566104 0.440195160
## [346,] -1.234458418 -5.346732e-01 -1.21276828 -1.036301397
## [347,] -1.489562716 -8.834264e-01 -1.44981526 -1.176108230
## [348,] -0.765395678 -4.602725e-01 -0.75348976 -0.729976669
## [349,] 0.261831860 -5.106875e-02 0.21774438 0.133586271
## [350,] -0.606487550 1.302094e+00 -0.59093150 -0.606935289
## [351,] -0.030445588 -8.439010e-01 -0.09790671 -0.137502588
## [352,] 0.976918434 -9.857273e-01 0.94781615 0.853079974
## [353,] -0.353937134 2.239077e+00 -0.38968850 -0.399498321
## [354,] -0.790934484 4.581109e-01 -0.80205147 -0.734239072
## [355,] 0.185215442 1.081217e+00 0.22350594 0.038108434
## [356,] -1.322992946 3.999854e-01 -1.31112631 -1.095406725
## [357,] -1.206365731 -4.695726e-01 -1.19548360 -1.021525065
## [358,] -0.649052227 -8.129402e-02 -0.67735488 -0.644728600
## [359,] 1.169878303 1.605082e-01 1.13712450 1.094332010
## [360,] -1.360449862 6.162124e-01 -1.35639570 -1.110751377
## [361,] 1.802673168 5.046114e-01 1.66801096 1.850198223
## [362,] 0.488843471 1.083542e+00 0.48277607 0.363187737
## [363,] -0.527033487 2.483205e+00 -0.59875076 -0.538452673
## [364,] -1.097400158 -1.643708e+00 -1.07901781 -0.947075085
## [365,] -0.552572293 -3.370464e-01 -0.58352379 -0.579087586
## [366,] -0.734181581 -1.127554e+00 -0.71274731 -0.716052817
## [367,] 1.008132530 3.372098e-01 1.04658572 0.877517754
## [368,] -1.240701238 2.071676e+00 -1.24651455 -1.034312275
## [369,] -0.734181581 -1.992462e+00 -0.75060898 -0.698434883
## [370,] 1.510395719 9.381808e-03 1.42108702 1.460898707
## [371,] -0.450417068 -6.904496e-01 -0.44113098 -0.507479208
## [372,] -1.405852184 -1.262405e+00 -1.34857644 -1.119560344
## [373,] -0.518520551 -6.269385e-02 -0.57981993 -0.541294276
## [374,] -0.558247583 -2.928710e-01 -0.56294679 -0.567152857
## [375,] -0.427715907 -4.974728e-01 -0.46705800 -0.460308610
## [376,] -0.473118229 -1.501882e+00 -0.54072364 -0.504637606

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## [377,] 0.173864861 1.425320e+00 0.11239017 0.038960915
## [378,] -0.492981745 -4.207471e-01 -0.46623492 -0.545556679
## [379,] -0.793772129 -1.192654e+00 -0.83044772 -0.733954912
## [380,] -0.739856872 -1.013628e+00 -0.74484742 -0.706391370
## [381,] -0.078685556 7.215739e-02 -0.13535684 -0.177000861
## [382,] -1.026459030 8.835898e-01 -1.03374843 -0.911270896
## [383,] 0.100086088 5.046114e-01 0.09387087 -0.019007772
## [384,] 0.568297535 -3.277463e-01 0.61858424 0.432806994
## [385,] -0.790934484 -1.580197e-01 -0.79052835 -0.749299564
## [386,] -1.097400158 -6.299991e-01 -1.07490241 -0.949348367
## [387,] 2.163054099 3.953354e-01 2.27708999 2.375894649
## [388,] -1.032134320 -1.580197e-01 -1.03333689 -0.910986735
## [389,] -0.146789039 1.323019e+00 -0.16128386 -0.205132723
## [390,] 0.616537502 -8.346009e-01 0.52393006 0.468611183
## [391,] 1.027996046 2.032150e+00 1.04247032 0.928382435
## [392,] -0.830661516 2.343703e+00 -0.87654019 -0.764075896
## [393,] -0.138276103 -6.857996e-01 -0.19585321 -0.236106188
## [394,] 1.428104010 1.699672e+00 1.40874083 1.372809036
## [395,] -0.126925523 -6.881246e-01 -0.17321851 -0.225592260
## [396,] -0.070172620 -7.276500e-01 -0.14811458 -0.165634451
## [397,] -0.714318065 -7.602003e-01 -0.67941258 -0.700992325
## [398,] 0.352636505 8.068641e-01 0.33873711 0.208320412
## [399,] 1.575661557 5.557618e-01 1.56101059 1.531938765
## [400,] -1.231620773 1.512081e-01 -1.22881833 -1.024082507
## [401,] -1.214594902 -8.392510e-01 -1.19219128 -1.027776590
## [402,] -0.214892522 -6.741745e-01 -0.24153414 -0.288107511
## [403,] 1.459318106 1.669447e+00 1.47870261 1.441007491
## [404,] 1.848075490 -4.509724e-01 1.76266513 1.932604689
## [405,] -0.251781909 1.953835e-01 -0.20984556 -0.318228495
## [406,] 1.791322587 5.790120e-01 1.72151114 1.813257393
## [407,] 0.579648115 -7.485752e-01 0.58977644 0.379669031
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## [412,] -0.796609774 1.811273e+00 -0.83168234 -0.736512354
## [413,] -0.958355547 -1.004328e+00 -0.97572130 -0.851313087
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## [418,] 0.083060217 -6.392991e-01 0.08975548 -0.038898989
## [419,] 1.723219104 1.753148e+00 1.71739574 1.645602857
## [420,] -0.660402808 -6.299991e-01 -0.53413900 -0.633362190
## [421,] -1.247511586 -9.183017e-01 -1.16009117 -1.007885374
## [422,] 0.276020086 6.348126e-01 0.21774438 0.164559736
## [423,] -0.844849742 -1.443757e+00 -0.86830939 -0.775726466
## [424,] -1.378894556 -1.492582e+00 -1.25433381 -1.154227893
## [425,] -0.771070968 -1.015953e+00 -0.75883978 -0.718610259
## [426,] -0.410690036 1.057966e+00 -0.38186924 -0.442974836
## [427,] -0.617838131 -1.006653e+00 -0.60657002 -0.648422683
## [428,] 0.207916603 -5.462983e-01 0.12020943 0.053453086
## [429,] -1.125776610 6.983236e-02 -1.12099488 -0.975206947
## [430,] 0.338448279 -4.695726e-01 0.46219908 0.165980537

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## [431,] -0.146789039 1.255593e+00 -0.17321851 -0.233832907
## [432,] 1.186904174 3.000095e-01 1.18650928 1.128431238
## [433,] -0.603649905 -8.462260e-01 -0.61809314 -0.601252084
## [434,] 1.237981786 -4.114471e-01 1.20708628 1.173896874
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## [437,] 1.328786430 1.605082e-01 1.19062468 1.270511353
## [438,] -0.345424198 -6.881246e-01 -0.38845388 -0.393530956
## [439,] -1.563341489 -1.743684e+00 -1.54858483 -1.222994668
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## [441,] -0.325560682 1.403185e-02 -0.30655744 -0.400350802
## [442,] -0.143951394 9.161401e-01 -0.19667629 -0.232127945
## [443,] 0.264669505 1.256329e-01 0.34285251 0.144100200
## [444,] -0.186516071 -1.215904e+00 -0.19132627 -0.308567047
## [445,] 0.945704337 4.647799e+00 0.88196977 0.755044695
## [446,] -1.311926130 -1.592558e+00 -1.30166089 -1.082619515
## [447,] -0.107062007 1.041691e+00 -0.14111840 -0.184389026
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## [452,] -0.507169971 1.760123e+00 -0.44524638 -0.504353446
## [453,] 1.538772170 9.114901e-01 1.51985660 1.475106719
## [454,] -0.640539292 5.232115e-01 -0.62303161 -0.633362190
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## [456,] 0.088735507 -9.555021e-01 0.08234776 -0.042024751
## [457,] -0.169490200 -1.941311e+00 -0.16704542 -0.271910377
## [458,] 1.873614296 2.750582e+00 1.79970372 2.171299283
## [459,] -1.548301970 -1.125229e+00 -1.54529251 -1.215322342
## [460,] -0.317047747 6.813130e-01 -0.40985395 -0.365114933
## [461,] 3.771998890 1.622947e+00 3.90678796 5.245912975
## [462,] 1.331624075 6.231874e-01 1.30585585 1.293244171
## [463,] -0.876063838 -1.013628e+00 -0.87654019 -0.801869207
## [464,] -0.098549072 -8.136758e-01 -0.14811458 -0.196039596
## [465,] 0.854899693 -6.718494e-01 0.98897014 0.732596037
## [466,] -0.490144100 -3.742467e-01 -0.43207711 -0.531632828
## [467,] -0.263132489 -8.067007e-01 -0.32507673 -0.334141468
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## [472,] 0.239130699 1.093577e-01 0.14531336 0.100339524
## [473,] -0.311372457 -2.021951e-01 -0.38516156 -0.372503099
## [474,] 1.533096880 3.064460e+00 1.48281801 1.614345231
## [475,] -0.592299325 2.057726e+00 -0.62220853 -0.582497509
## [476,] 1.161365367 -9.756917e-02 1.10008591 1.057391180
## [477,] -0.589461680 7.975640e-01 -0.54401596 -0.588464874
## [478,] 1.978607166 2.860593e-01 1.89847330 2.071843202
## [479,] 0.236293054 -4.409368e-02 0.20827896 0.092098878
## [480,] -0.087198491 1.209093e+00 0.01485522 -0.167623573
## [481,] 0.105761378 -1.952936e+00 0.09510549 -0.040319790
## [482,] 0.083060217 1.116827e-01 0.10333629 -0.035204906
## [483,] 1.277708818 1.353244e+00 1.35112524 1.230728920
## [484,] -1.198420325 -2.858959e-01 -1.12634490 -1.001633849

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## [485,] -0.700129840 -5.160730e-01 -0.75184360 -0.664619816
## [486,] 0.460467020 -1.619343e-02 0.62269963 0.294705122
## [487,] -1.265672515 -1.859200e-01 -1.25433381 -1.039427160
## [488,] 2.310611646 8.843253e-02 2.50343693 2.427043490
## [489,] -0.274483070 2.907094e-01 -0.32548827 -0.330163225
## [490,] -0.864713257 -1.068693e-01 -0.76830520 -0.833410993
## [491,] 1.101774820 2.953594e-01 1.08773971 1.000559134
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## [493,] 0.378175311 -1.720434e+00 0.43339128 0.233042352
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## [495,] -1.569016779 3.930103e-01 -1.53541555 -1.230666995
## [496,] -0.353937134 -2.486956e-01 -0.30943822 -0.459740290
## [497,] -1.206365731 2.565696e-02 -1.15309499 -1.013284418
## [498,] -0.271645425 5.859871e-01 -0.26951885 -0.350622761
## [499,] 1.538772170 2.204202e+00 1.71328034 1.568879595
## [500,] 0.398038827 3.317887e+00 0.48277607 0.255775170
## [501,] 0.727205662 2.116587e-01 0.62269963 0.576023750
## [502,] 0.537083438 9.184652e-01 0.44162208 0.406095932
## [503,] 0.568297535 3.232597e-01 0.66385362 0.408937534
## [504,] -1.009433159 2.163087e-01 -0.89794026 -0.899620326
## [505,] -0.711480420 -2.579956e-01 -0.64155091 -0.699287364
## [506,] -0.824986226 3.376013e+00 -0.87160171 -0.761802615
## [507,] 0.046170830 -5.741986e-01 -0.06868738 -0.063336768
## [508,] 0.193728377 -1.067103e+00 0.11074401 0.073344302
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## [511,] -0.297184231 -8.322759e-01 -0.26087651 -0.383301188
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## [513,] -0.649052227 -1.370945e-01 -0.57776223 -0.608924411
## [514,] -0.135438458 -1.425156e+00 -0.16828004 -0.244346835
## [515,] 0.630725728 9.300903e-01 0.70089221 0.527148190
## [516,] -0.368125359 7.068882e-01 -0.27610349 -0.431040106
## [517,] 1.828211974 -3.533215e-01 1.68447255 1.907030269
## [518,] 1.578499202 4.557859e-01 1.56512598 1.557513185
## [519,] 1.161365367 -1.370945e-01 1.16593229 1.074440794
## [520,] -0.288671295 7.557137e-01 -0.20367247 -0.356590126
## [521,] -1.034971965 -1.002002e+00 -1.00740987 -0.912975857
## [522,] -0.470280584 -1.603448e-01 -0.44771562 -0.491566235
## [523,] 0.284533021 2.446004e+00 0.19510969 0.183598472
## [524,] -1.806811442 1.220718e+00 -1.81279344 -1.346604368
## [525,] -2.027863997 -1.362381e+00 -1.98275941 -1.453164455
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## [527,] -0.427715907 1.088192e+00 -0.43701558 -0.450363002
## [528,] 1.084748949 1.674833e-01 0.91489296 0.929519076
## [529,] -0.782421549 -9.291913e-02 -0.81480920 -0.735659873
## [530,] -1.265388750 -2.765958e-01 -1.27203002 -1.047383646
## [531,] -0.620675776 3.418599e-01 -0.58023147 -0.607787770
## [532,] -1.826391193 1.429970e+00 -1.79550876 -1.376725353
## [533,] -0.399339456 -3.765717e-01 -0.45224256 -0.436439151
## [534,] 0.661939824 1.907335e-01 0.71323841 0.505836173
## [535,] 1.606875653 1.355569e+00 1.58158758 1.526255560
## [536,] -0.368125359 -8.276259e-01 -0.37363844 -0.420526178
## [537,] -0.739856872 -1.254694e-01 -0.76665904 -0.698719043
## [538,] -0.688779259 -4.176866e-02 -0.72591659 -0.671155501

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## [539,] -0.073010265 3.279097e-01 -0.09049900 -0.199165358
## [540,] -0.717155711 -1.499557e+00 -0.72550505 -0.688489275
## [541,] 0.818010306 2.256088e-01 0.72970001 0.708726577
## [542,] -1.371232914 -1.253105e+00 -1.31729941 -1.128369312
## [543,] -0.439066487 -2.068452e-01 -0.49956965 -0.471390859
## [544,] 1.762946136 5.162365e-01 1.80793452 1.730850926
## [545,] 1.717543814 1.088192e+00 2.12893563 1.676860482
## [546,] -0.334073618 -7.602003e-01 -0.36334994 -0.401203282
## [547,] -1.469131671 -8.206508e-01 -1.36750728 -1.164173501
## [548,] -0.387988875 -1.045442e-01 -0.41561551 -0.449794682
## [549,] -0.021932653 1.827549e+00 -0.02424107 -0.154836363
## [550,] -0.589461680 -1.083378e+00 -0.57323529 -0.584202471
## [551,] -0.362450069 4.836862e-01 -0.38433848 -0.398930000
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## [553,] -0.473118229 1.104467e+00 -0.32919213 -0.508615849
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## [555,] -0.260294844 1.385794e+00 -0.32384211 -0.332436506
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## [557,] -0.745532162 -1.952201e-01 -0.76912828 -0.703265607
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## [562,] -0.546897003 -9.485270e-01 -0.57446991 -0.559764691
## [563,] 0.077384927 1.790348e+00 0.01156290 -0.024975137
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## [565,] -0.271645425 -2.486956e-01 -0.31643440 -0.334141468
## [566,] -1.097400158 -1.064778e+00 -1.06049852 -0.947075085
## [567,] 0.327097698 7.254884e-01 0.28606000 0.158308211
## [568,] 0.114274313 -1.234505e+00 0.07782082 -0.030374182
## [569,] 2.055223584 -9.741022e-01 2.03016606 2.077526407
##      smoothness_mean compactness_mean concavity_mean points_mean
## [1,] 0.457882546 -0.653837927 -0.613766097 -0.307171959
## [2,] 0.036953503 0.196146087 -0.312711686 -0.579832380
## [3,] 0.806286653 -0.498004369 -0.731804513 -0.621581896
## [4,] 1.424881700 0.175317786 -0.532481406 -0.024718442
## [5,] -1.189571158 -0.662737292 -0.688277063 -0.575966684
## [6,] -0.775041374 -0.513530920 -0.425857969 -0.892696038
## [7,] -0.266655790 -0.042432629 0.280992699 -0.202798168
## [8,] 2.555417474 1.371998332 0.840452144 1.104064774
## [9,] 0.250973169 -0.351448872 -0.738201920 -0.951196903
## [10,] 0.493433986 -0.253177162 -0.436896631 -0.399690949
## [11,] 0.863168956 1.137206580 1.630719971 1.628253144
## [12,] -0.698250265 -0.711021080 -0.626560909 -0.659981142
## [13,] -0.683318660 0.086324138 0.247124077 -0.356137441
## [14,] -1.120601365 -1.258237342 -1.105212334 -1.153321259
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## [16,] -0.826946476 0.542653271 0.176878048 -0.297894289
## [17,] -0.123739003 -0.184065074 -0.218883062 0.268301311
## [18,] 0.457882546 -0.524513115 -0.713364931 -0.717708868
## [19,] 0.827617517 1.504542064 1.749887342 2.038016914
## [20,] 0.728073486 -0.175165709 -0.755763427 -0.517981244
## [21,] 0.098101979 -0.812890405 -0.636094299 -0.425977681
## [22,] 1.936822428 0.963006247 -0.547534126 -0.093012404

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##	[23,]	0.287235637	-0.563140145	-0.493720651	-0.505095591
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##	[25,]	1.126249608	0.491529260	-0.301547585	-0.470046615
##	[26,]	0.308566501	0.447979177	-0.136845735	0.045637224
##	[27,]	0.415220819	-0.429649673	-0.615396808	-0.544267977
##	[28,]	0.841838093	1.237561119	0.997251316	0.994536722
##	[29,]	-0.821258245	-0.228372550	-0.057442634	-0.670031952
##	[30,]	-1.208057907	-0.897150348	-0.840309540	-0.881098950
##	[31,]	-0.912980959	-1.268462144	-1.056704942	-1.033175429
##	[32,]	-0.413127720	-0.884842716	-0.522948016	-0.563854170
##	[33,]	-0.246746984	1.818860055	1.565491516	1.321574599
##	[34,]	-0.676208372	-0.739991353	-0.711107023	-0.576997536
##	[35,]	0.139341649	-0.287070488	-0.082530502	-0.139916181
##	[36,]	-0.972707377	-0.546477505	-0.580900990	-0.623901313
##	[37,]	-0.445835045	-0.027284774	0.240852111	0.788366272
##	[38,]	1.339558245	0.478274887	-0.648512793	-0.486797964
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##	[40,]	0.728073486	1.436376716	1.329665561	1.072108354
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##	[42,]	1.112029032	1.178863181	2.032125852	2.053479698
##	[43,]	3.280666839	3.399917422	1.914212875	1.450431130
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##	[46,]	-1.610500201	-0.339330588	0.269703158	0.228355786
##	[47,]	-1.055897746	-1.249716674	-0.942166283	-0.907643396
##	[48,]	1.318227381	2.498620049	3.110904155	3.669340602
##	[49,]	0.678301471	0.196146087	-0.037623219	0.126043700
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##	[52,]	-0.899471412	0.099578511	-0.297909845	-0.286554914
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##	[55,]	1.261345078	1.970338605	3.305335129	2.914241328
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##	[59,]	3.437093173	3.452934915	4.239858194	3.924476535
##	[60,]	0.521875137	0.754723241	0.925750894	1.178286136
##	[61,]	-0.394640972	2.171047684	1.529114108	1.306369528
##	[62,]	0.607198592	1.059573823	1.594342564	1.427236955
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##	[65,]	0.777845502	2.066906181	1.491482307	1.253538350
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##	[69,]	-0.085343448	-0.519968759	-0.552049943	-0.304337115
##	[70,]	0.372559092	-0.185769207	-0.587047518	-0.704823215
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##	[73,]	0.236041564	1.758268635	1.363534182	0.004145421
##	[74,]	-1.278449757	-0.798499943	-0.556314880	-0.183985115
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## [80,]	0.514764850	0.493422742	0.392633709	1.013349776
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## [84,]	1.197352487	0.559694607	0.136235703	0.559774785
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## [96,]	-0.103119168	0.620286027	0.396396889	0.553847384
## [97,]	-1.624720777	-0.480016291	-0.604985343	-0.775436594
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## [103,]	0.140763706	-0.535116614	-0.704333298	-0.550710803
## [104,]	0.164227657	-0.612370674	-0.186268834	0.094602706
## [105,]	-1.721420692	-1.119066424	-0.569987768	-0.975937357
## [106,]	0.585867728	-0.417720737	-0.448060732	-0.753273271
## [107,]	-0.622881213	-0.010243437	0.178132442	-0.129092232
## [108,]	0.941382123	0.205613496	-0.088426151	-0.702503798
## [109,]	-1.026745565	-0.725600890	-0.919712641	-1.050416433
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## [112,]	-0.164267644	0.495316224	0.543160914	-0.701988371
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## [114,]	1.190242199	2.366076318	1.555456369	0.807437038
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## [119,]	-0.179910277	0.497209705	0.481695639	0.979073938
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## [121,]	-0.605105493	-0.813837146	-0.935768876	-0.966659687
## [122,]	-0.388241713	0.576735944	0.943312401	1.203284303
## [123,]	-1.537264236	-0.898665134	-0.866275483	-0.922333040
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## [127,]	3.088689066	1.366317887	1.483955946	1.213592825
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## [130,]	0.528985425	0.209400460	0.721284774	0.321390202

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## [134,]	1.040926154	0.218867870	1.945572709	2.318924153
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## [142,]	1.567087457	3.280628064	2.650541786	2.530248864
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## [210,]	1.261345078	3.386663049	2.005783591	2.594677130
## [211,]	-1.292670332	-0.161721988	0.284755879	-0.387063009
## [212,]	1.232903927	0.608925136	0.508037900	0.832692918
## [213,]	0.763624926	1.489394209	1.008540857	0.786562280
## [214,]	-0.905159642	-0.352016916	-0.477037219	-0.522620080
## [215,]	0.308566501	0.048454501	-0.472270524	-0.855843070
## [216,]	1.211573063	-0.449341885	-0.977916494	-0.928260441
## [217,]	1.147580472	0.139341631	-0.627188106	-0.488859668
## [218,]	-0.501295290	0.122300294	-0.478793369	-0.472623745
## [219,]	2.235454519	1.243241565	0.865540012	0.823930674
## [220,]	-0.851121454	0.192359123	0.546924094	1.239621845
## [221,]	0.022021899	-0.386478286	-0.952326869	-0.764870359
## [222,]	-0.605105493	-0.878594226	-0.817855899	-0.641683515
## [223,]	1.325337669	1.133419616	1.642009512	1.476202437
## [224,]	0.984043850	-0.202999892	-0.538000737	-0.685237022
## [225,]	-0.600128292	-1.161101722	-1.113892736	-1.260710292
## [226,]	0.784955789	-0.868558772	-1.113892736	-1.260710292
## [227,]	2.071917898	2.197556431	0.376326595	0.553074245
## [228,]	1.204462775	0.843716889	1.561728336	1.983897171
## [229,]	-0.474987225	0.292713663	0.185658802	0.669045123
## [230,]	-0.945688283	-1.131563405	-1.101678707	-1.184916880
## [231,]	-0.198397026	-0.352206264	-0.215747078	-0.740903044
## [232,]	-0.678341459	-1.110167060	-0.849341173	-0.731367661
## [233,]	-1.279160785	2.252467405	2.653050573	0.748936173
## [234,]	1.460433139	0.521824970	0.740100674	0.926758186
## [235,]	-0.967019147	-1.173977399	-0.863390379	-0.874398411
## [236,]	1.168911336	-0.221745363	-0.577137810	-0.453552979
## [237,]	0.571647153	1.773416490	1.014812824	1.027266281
## [238,]	0.514764850	-0.530572257	-0.792140835	-0.871563567

## [239,]	0.014911611	-0.605932836	-0.815472552	-0.844503695
## [240,]	0.756514638	-0.845079597	-0.507895296	-0.469531189
## [241,]	0.941382123	0.446085695	0.114032940	0.091252436
## [242,]	1.325337669	-0.422833138	-0.595577393	-0.764870359
## [243,]	-1.185304985	-0.829553045	-0.645376810	-1.128555033
## [244,]	-0.692562034	-0.784677525	-0.751247611	-0.529578332
## [245,]	0.699632335	1.525370364	1.917976055	1.249414941
## [246,]	-0.814147957	-1.023256241	-0.820741004	-1.012919182
## [247,]	-1.080072724	-1.234947515	-1.082909219	-1.127756123
## [248,]	-0.568131996	0.353305083	0.151790181	-0.258206477
## [249,]	-0.736645819	-0.850381346	-0.914695068	-1.108221473
## [250,]	-0.852543512	-0.754381815	-0.605236222	-0.759458384
## [251,]	0.175604117	0.607031654	-0.145375610	0.322163341
## [252,]	1.033815866	3.920624938	2.870060627	2.287998585
## [253,]	-0.903737585	0.133661185	0.149281394	-0.550195377
## [254,]	1.894160700	2.901931689	2.886367741	1.826692202
## [255,]	2.022145883	-0.128586055	0.153044574	0.444061620
## [256,]	0.571647153	-0.809482138	-0.857118412	-0.936764972
## [257,]	-0.887383923	-0.498761762	-0.007894096	-0.506899583
## [258,]	-0.553200392	-0.969670704	-0.764795059	-0.719512860
## [259,]	0.138630620	-0.984629211	-0.655662835	-0.522620080
## [260,]	0.101657123	-0.436466208	-0.277964990	-0.028584138
## [261,]	0.464992834	-0.128018010	-0.513916384	-0.403556645
## [262,]	-0.430903440	-0.525649204	-0.361382149	-0.555091926
## [263,]	0.912940971	0.340050710	0.725047954	0.823415248
## [264,]	-1.169662352	-0.967209178	-0.738201920	-0.727244252
## [265,]	1.659521200	0.856971262	1.917976055	1.839577855
## [266,]	2.199903080	1.682529360	1.218024551	1.149679986
## [267,]	-1.124867538	-0.857197881	-0.389606000	-0.984699602
## [268,]	0.104501238	0.923243128	-0.034361796	-0.520558375
## [269,]	-1.026745565	-0.991067050	-0.898889711	-0.935734120
## [270,]	0.450772259	0.974367138	1.456359292	1.029327985
## [271,]	-1.131977826	-0.291425496	-0.186896031	-0.208467856
## [272,]	0.073927000	2.678500827	1.476429586	1.620521752
## [273,]	-1.131266797	-0.960581991	-0.777589872	-0.422885124
## [274,]	-0.329937352	-0.682618852	-0.690911289	-0.675186213
## [275,]	-0.791395036	0.728214494	0.283501485	0.484522570
## [276,]	1.268455366	0.894840900	2.901420462	2.849813062
## [277,]	-0.034860404	-0.395566999	-0.257894696	0.015227083
## [278,]	-0.839744994	-0.038645666	0.046546577	0.105684368
## [279,]	-1.567838474	-1.175302836	-1.113892736	-1.260710292
## [280,]	-1.093582271	-1.052037166	-1.113892736	-1.260710292
## [281,]	0.720963198	2.087734482	0.998505710	1.522590788
## [282,]	-0.799927382	-1.140084073	-1.050332623	-1.114741613
## [283,]	-0.888805980	-0.878594226	-1.019687793	-1.041963444
## [284,]	-0.151469126	-0.720299141	-0.523700652	-0.299182854
## [285,]	0.063972597	-0.272490677	0.022713102	0.421382870
## [286,]	-0.707493639	-0.707423464	-0.462611695	-0.541433133
## [287,]	-0.123027974	0.497209705	0.284755879	0.404631521
## [288,]	0.521875137	0.504783633	0.656056318	1.169781605
## [289,]	0.308566501	1.065254268	2.288022101	2.115330833
## [290,]	0.799176365	0.550227198	-0.108245566	0.046925790
## [291,]	-1.075806552	-1.034427785	-1.113892736	-1.260710292
## [292,]	-0.948532398	-0.768772277	-0.793269789	-0.737295061

## [293,]	1.680852064	0.423363912	0.623442090	0.421125157
## [294,]	-0.287986653	-0.617104379	-0.562963165	-0.738325913
## [295,]	0.706742623	1.724185962	1.956862249	2.607562783
## [296,]	0.472103122	2.011995207	1.783755963	2.530248864
## [297,]	0.585867728	1.317087358	1.501517454	2.146256400
## [298,]	0.138630620	-0.031071738	0.741355068	1.187048380
## [299,]	0.969823275	-0.269839803	-0.639606600	-0.539629142
## [300,]	0.443661971	1.608683567	1.690930854	1.108703609
## [301,]	-0.669809113	0.268098398	0.382598562	1.230601888
## [302,]	-2.175768089	-0.987280086	-0.803430375	-0.906612543
## [303,]	-1.508112056	-1.271681064	-1.075131980	-1.090928926
## [304,]	1.012485002	0.805847251	0.698705693	0.845320859
## [305,]	0.436551683	0.304074554	0.324896467	0.404631521
## [306,]	-0.339180726	0.057921910	0.835434571	0.888616653
## [307,]	0.600088304	1.976019051	2.084810374	1.169266179
## [308,]	0.172760002	-0.302597039	-0.700444679	-0.644776071
## [309,]	-1.065141120	0.234015725	0.021333270	-0.342736362
## [310,]	0.621419168	0.281352772	-0.127939542	-0.113629449
## [311,]	-0.341313813	0.510464079	0.796548376	1.355077297
## [312,]	0.315676789	-0.004562992	0.474169279	0.891966923
## [313,]	0.223243046	-0.469034096	-0.543394628	-0.446337013
## [314,]	1.858609261	-0.610477192	-0.370162903	0.647397226
## [315,]	0.550316289	0.743362349	0.121308422	0.326286750
## [316,]	-1.506689998	-1.080818091	-0.954459338	-0.972844801
## [317,]	0.280125349	0.538866307	1.369806149	1.427236955
## [318,]	-0.090320650	1.209158891	1.332174348	1.927200297
## [319,]	-0.049792009	-0.424158576	-0.508773371	-0.679051909
## [320,]	-0.541112902	-0.502548725	-0.535868268	-0.351498606
## [321,]	-0.086765506	0.885373490	0.822890637	-0.011832789
## [322,]	-0.018506742	0.554014162	0.577029535	0.290206921
## [323,]	-0.396774058	0.510464079	0.723793560	0.977012234
## [324,]	0.093835806	-0.489483700	-0.696430620	-0.743222462
## [325,]	-1.215879223	-1.333219225	-0.981805113	-0.975164218
## [326,]	0.169204858	0.018158791	0.560722422	1.005876097
## [327,]	-0.402462288	-0.660654462	-0.930500424	-0.772086325
## [328,]	1.360889109	1.341702622	1.561728336	1.182151832
## [329,]	1.218683351	-0.538714229	-0.720514973	-0.579059240
## [330,]	0.749404350	0.453659622	1.781247177	2.373043896
## [331,]	-0.274477106	-1.198971360	-1.113892736	-1.260710292
## [332,]	-0.355534388	-0.483045862	-0.888478246	-0.722089990
## [333,]	-0.029883203	-0.889576421	-0.796405772	-0.823113511
## [334,]	-1.352396751	-1.367491247	-0.973024360	-1.130539424
## [335,]	1.446212563	0.495316224	0.816618670	0.961807163
## [336,]	-1.033855853	-0.796038416	-0.374804158	-0.447110152
## [337,]	-1.564283330	-1.473904928	-1.098915279	-1.120282444
## [338,]	0.728073486	0.699812266	2.812358532	-0.133215642
## [339,]	-0.369754964	0.678983966	0.215764243	0.308762261
## [340,]	0.564536865	0.483955332	0.380089775	0.339945542
## [341,]	-0.100275053	-0.366028682	-0.423976379	-0.093785543
## [342,]	-0.431614469	0.307861518	0.727556741	0.870834452
## [343,]	1.431991988	0.453659622	1.142760948	0.796097664
## [344,]	-0.031305261	0.533185861	0.827908211	-0.525197210
## [345,]	0.315676789	0.455553104	0.194439556	0.185833130
## [346,]	0.521875137	-0.384395456	-0.570238647	-0.802496466

## [347,]	-0.954931658	-0.518075277	-0.521693623	-0.647095489
## [348,]	0.912940971	-0.179520717	-0.859125441	-0.781106282
## [349,]	-0.299363114	-0.347851256	-0.174853854	-0.143524164
## [350,]	0.472103122	-0.230266032	-0.431377300	-0.159244661
## [351,]	-1.187438072	-0.918925390	-0.852100838	-0.577255249
## [352,]	0.150007081	0.215080906	0.124820723	0.788881698
## [353,]	-1.075806552	-0.872913780	-0.336796039	-0.656888585
## [354,]	-0.623592242	-0.730713292	-0.470012616	-0.771313185
## [355,]	1.481764003	0.824782070	0.475423672	1.066180953
## [356,]	0.571647153	-0.503874163	-0.841438494	-0.873109845
## [357,]	0.891610108	-0.606311532	-0.893621259	-0.757654393
## [358,]	-0.543957017	-0.669175131	-0.779095144	-0.901715995
## [359,]	-0.123027974	0.088217620	0.299808599	0.646366374
## [360,]	-0.281587394	-0.914381034	-0.612637143	-0.930322145
## [361,]	-0.910847873	-0.394998955	0.020329755	0.291237773
## [362,]	-0.878140548	-0.078408785	0.132723402	0.121662578
## [363,]	-1.377282758	-1.332272484	-1.113892736	-1.260710292
## [364,]	0.255950370	-0.547613594	-0.872672890	-0.753530984
## [365,]	0.578757441	-0.639447465	-0.801548785	-0.502776174
## [366,]	0.247418025	0.145022076	-0.268807918	-0.592202607
## [367,]	1.076477593	1.176969699	1.213006977	1.455585392
## [368,]	-1.174639553	-1.099752909	-0.920590716	-0.991915567
## [369,]	-0.738778906	-0.845458293	-0.942417161	-1.031165267
## [370,]	0.507654562	0.273778844	0.615915730	0.953302632
## [371,]	1.382219972	0.078750211	-0.370288342	-0.415669158
## [372,]	-1.361640125	-0.318691635	-0.362761982	-0.698895815
## [373,]	-0.940711082	-1.180036541	-1.016601986	-1.040752193
## [374,]	-0.390374799	-0.491566530	-0.748111627	-0.867182445
## [375,]	-0.748733309	-0.947516966	-0.741839660	-0.675186213
## [376,]	-1.609789172	-1.210142903	-1.023915099	-0.964597983
## [377,]	-0.967730176	-0.609719800	-0.598964255	-0.480612850
## [378,]	0.557426577	0.480168369	-0.374804158	-0.518496671
## [379,]	-0.182754393	-1.242521443	-1.095239906	-1.174814528
## [380,]	0.351228228	-0.497246976	-0.570991283	-0.505868731
## [381,]	-0.676919401	-0.777103597	-0.945553145	-0.669774239
## [382,]	0.365448804	-0.688677994	-0.800921588	-0.777498299
## [383,]	-0.136537521	-0.092231203	0.396396889	0.011876813
## [384,]	0.543206001	0.976260620	0.584555896	0.737081372
## [385,]	0.607198592	-0.366407378	-0.574252705	-0.592202607
## [386,]	-0.539690845	-0.448395144	-0.567228102	-0.632405844
## [387,]	-0.167111759	1.737440335	1.639500725	1.543207833
## [388,]	0.742294062	-0.711210428	-0.825758577	-0.801981040
## [389,]	-0.105252255	-0.364135200	-0.031978449	-0.103836352
## [390,]	-0.148625011	-0.704772590	-0.420714956	-0.084765586
## [391,]	0.256661399	0.512357560	1.016067217	0.876504139
## [392,]	-1.555039956	-1.301976774	-1.113892736	-1.260710292
## [393,]	-1.387237161	-0.828416956	-0.880951886	-0.816670684
## [394,]	0.401000243	0.775551541	1.295796940	1.229828748
## [395,]	-0.255279329	-0.601956524	-0.894123016	-0.776209734
## [396,]	-1.855805133	-1.060936531	-0.857369290	-1.041473789
## [397,]	0.884499820	0.235909207	-0.223649757	-0.101774648
## [398,]	-0.310028546	-0.014030401	0.293536632	0.667756558
## [399,]	0.114455641	0.559694607	1.223042124	1.581864792
## [400,]	0.429441395	-0.971942883	-1.028230212	-1.056163434



## [401,]	-0.102408139	-0.381555233	-0.821619079	-0.638075532
## [402,]	-1.792523571	-0.588702151	-0.098837616	-0.539113716
## [403,]	-0.167111759	1.279217721	0.964637089	0.696104995
## [404,]	-0.135115464	0.061708874	0.801565950	1.043502204
## [405,]	-0.961330917	0.340050710	0.153044574	-0.530609185
## [406,]	-0.345579985	0.165850377	0.115287334	0.745585903
## [407,]	0.173471031	0.747149313	-0.279595701	0.130167109
## [408,]	-0.187020565	-0.709884991	-0.673349782	-0.584728928
## [409,]	1.410661124	1.146673989	1.006032070	1.038863369
## [410,]	-0.833345735	-1.201811582	-0.906666950	-0.831102616
## [411,]	-0.622881213	0.572948981	0.609643763	-0.235012301
## [412,]	-1.957482250	-1.253692986	-0.909050297	-1.180174960
## [413,]	-1.310446052	-1.002617289	-0.831528787	-1.057761255
## [414,]	0.621419168	-0.821600422	-0.663314635	-0.590656328
## [415,]	-1.296225476	-1.153906491	-0.832281423	-0.548649099
## [416,]	0.891610108	0.766084132	1.716018721	1.816383680
## [417,]	0.002113093	-0.671257961	-0.674478736	-0.519785236
## [418,]	0.081748317	0.180998232	-0.109499959	-0.172388027
## [419,]	0.191246750	1.184543627	0.944566795	1.999359954
## [420,]	0.905830684	1.243241565	0.967145875	0.650232070
## [421,]	0.770735214	1.051999895	4.039155254	0.764141244
## [422,]	-0.412416691	-0.634903109	-0.454959895	-0.401494940
## [423,]	0.083881403	-1.007540342	-0.865271969	-0.800434761
## [424,]	4.766717009	2.263828296	0.106632019	0.092798715
## [425,]	-0.410283605	-0.431543155	-0.338552190	-0.652249750
## [426,]	1.126249608	0.413896503	0.301062993	0.510551590
## [427,]	1.382219972	0.307861518	-0.967003271	-0.800177048
## [428,]	-0.506272492	-0.636228546	-0.694172712	-0.519269810
## [429,]	0.280125349	-0.554808825	-1.050859469	-0.973102514
## [430,]	2.640740929	2.349034981	1.956862249	1.940085950
## [431,]	-0.268788876	-0.487022174	-0.450945836	-0.465665493
## [432,]	0.742294062	0.387387757	0.854250472	1.174935866
## [433,]	0.061839511	-0.618997861	-0.593194045	-0.780590856
## [434,]	0.344117940	0.518038006	0.756407788	1.105868765
## [435,]	-0.512671751	0.131767703	0.072387080	-0.329592995
## [436,]	-0.232526408	-0.970996142	-0.892492305	-0.556380491
## [437,]	-0.506983520	-0.861552889	-0.107869248	0.245107135
## [438,]	-1.205213791	-0.959635250	-0.628066181	-0.648126341
## [439,]	0.082459346	-0.977433980	-0.855362261	-1.059719874
## [440,]	0.891610108	0.184785196	-0.255511348	-0.297378863
## [441,]	-0.040548635	0.154489486	-0.222395363	-0.500456756
## [442,]	-0.277321222	-0.698145403	-0.740836146	-0.631117279
## [443,]	0.536095713	0.964899729	1.018576004	1.011030358
## [444,]	0.763624926	0.211293942	-0.388100728	0.096406698
## [445,]	0.125121073	0.482061850	0.663582678	1.009999506
## [446,]	0.429441395	-0.746429191	-0.743094054	-0.725697973
## [447,]	-1.132688855	-0.686784512	-0.524704167	-0.656630872
## [448,]	-1.388659219	-1.238734479	-1.094499814	-1.116597147
## [449,]	-0.194130853	0.209400460	-0.281477291	-0.450975848
## [450,]	0.186269549	0.126087258	0.149281394	0.396642416
## [451,]	0.635639744	-0.513530920	-1.030563384	-0.947331207
## [452,]	0.500544274	0.586203354	0.247124077	-0.085023299
## [453,]	0.329897364	0.519931488	1.214261371	1.370540081
## [454,]	-2.149460023	0.038987091	-0.012911669	-0.645806924

## [455,]	0.097390950	-0.438170342	-0.793395228	-0.699153528
## [456,]	0.237463622	-0.042432629	-0.049289077	0.164958372
## [457,]	2.327888262	0.006797899	-0.251246411	0.428856549
## [458,]	-0.118761802	0.188572160	0.600863010	0.967476850
## [459,]	-0.354112331	-1.166024775	-1.113892736	-1.260710292
## [460,]	-2.406852445	-1.608720838	-1.093885161	-1.212981833
## [461,]	0.856058668	1.788564345	3.445827187	3.092063341
## [462,]	0.386779668	0.654368701	0.885610306	0.992732731
## [463,]	-1.172506467	-0.635281805	-0.669084845	-0.726213399
## [464,]	-0.582352572	-0.703636501	-0.981554235	-1.004620821
## [465,]	1.581308033	2.333887126	1.682150100	2.349849720
## [466,]	0.642750032	0.516144524	-0.142866823	-0.539371429
## [467,]	-0.799927382	-0.981410292	-1.095566049	-1.176670062
## [468,]	-0.489918829	0.357092047	0.253396044	0.351027204
## [469,]	0.692522047	0.127980740	-0.270187751	-0.238877997
## [470,]	-0.837611907	-0.859470059	-0.670590117	-0.502003035
## [471,]	-0.630702530	-0.725790239	-0.723525517	-0.522620080
## [472,]	-0.863919973	-0.962286125	-0.869662345	-0.761004663
## [473,]	-0.464321793	-1.262592351	-0.792517153	-0.507415009
## [474,]	-0.864631001	0.163956895	0.322387680	0.449731307
## [475,]	-0.628569443	-0.839588499	-0.816977824	-0.648126341
## [476,]	0.078193173	0.139341631	0.303571779	0.788108559
## [477,]	-1.920508753	0.056028428	-0.117528077	-0.493240790
## [478,]	0.034109388	0.249163580	0.858013652	1.715875585
## [479,]	-0.457922534	-0.115710378	-0.368783070	-0.018791042
## [480,]	1.410661124	1.207265409	0.588319076	0.481172301
## [481,]	0.976933562	0.105258957	-0.004758112	0.228355786
## [482,]	0.082459346	0.184785196	0.063731766	0.244076283
## [483,]	0.713852911	1.597322676	1.795045504	1.945240211
## [484,]	0.044774820	0.474487923	0.525599407	-0.303048550
## [485,]	-1.475404731	-1.288343704	-1.009702822	-0.961247713
## [486,]	1.986594443	2.500513531	2.541409563	1.940085950
## [487,]	-0.490629858	-0.790736667	-0.744097568	-0.870532715
## [488,]	2.576748338	3.265480209	4.234840621	3.437398846
## [489,]	-1.636097238	-0.976865935	-0.888101928	-0.937022685
## [490,]	1.794616670	2.102882337	1.004777677	0.380148780
## [491,]	0.265904773	0.465020514	0.353747514	0.739658503
## [492,]	1.524425730	3.269267173	3.294045588	2.656528265
## [493,]	2.086138474	0.968686693	1.435034605	1.566402009
## [494,]	0.036242474	-0.129154099	-0.453705502	-0.542206272
## [495,]	1.986594443	-0.278549819	-0.737574723	-1.022093767
## [496,]	1.808837246	1.169395772	-0.508647932	0.105942081
## [497,]	0.294345925	-0.139568250	-0.341939052	-0.480097424
## [498,]	0.055440252	0.006797899	-0.077889246	0.092798715
## [499,]	-0.267366818	1.930575486	1.123945047	1.687527148
## [500,]	0.706742623	1.127739170	1.082550066	0.903821724
## [501,]	-1.520910574	-0.629033315	-0.656164593	-0.666166256
## [502,]	-1.016791162	-0.712914562	-0.700068361	-0.404329784
## [503,]	1.467543427	1.852942729	1.046172658	1.388579995
## [504,]	-0.400329202	1.167502290	1.746124162	0.270363015
## [505,]	1.503094866	0.832355998	0.165588508	0.173205190
## [506,]	-1.319689426	-1.298947203	-1.051587017	-1.094897707
## [507,]	-2.280289321	-1.469171223	-1.022949216	-1.099639628
## [508,]	-0.827657504	-1.025907116	-0.685391958	-0.605861399

## [509,]	0.962712987	2.258147851	2.867551840	2.537980256
## [510,]	1.112029032	0.998982403	0.795293983	0.924954195
## [511,]	0.792066077	0.429044358	-0.540885842	-0.459222666
## [512,]	-0.555333478	-0.645127911	-0.399013951	-0.038119521
## [513,]	1.033815866	0.894840900	0.413958397	0.074758800
## [514,]	0.007090294	-0.326265563	-0.626184591	-0.600191712
## [515,]	0.075349058	0.858864744	1.157813669	1.000206409
## [516,]	0.884499820	1.430696271	1.012304037	0.507459033
## [517,]	-0.826235447	-0.486643478	-0.023824892	0.547662271
## [518,]	0.941382123	1.051999895	1.362279789	2.035439783
## [519,]	1.311117093	0.836142961	1.108892327	1.471048175
## [520,]	0.273015061	0.832355998	-0.021943302	0.054141755
## [521,]	0.127965188	-0.057580484	-0.319234532	-0.689102718
## [522,]	0.233908478	0.027626200	-0.109750838	-0.275988678
## [523,]	-0.935733880	-1.103729221	-0.526084000	-0.554834212
## [524,]	-3.109348889	-1.149740831	-1.113892736	-1.260710292
## [525,]	1.467543427	-0.542690541	-1.113892736	-1.260710292
## [526,]	-0.150047068	-0.798121246	-0.624679319	-0.844503695
## [527,]	-1.232232885	-0.550075120	-0.431753618	-0.736006496
## [528,]	-0.877429520	-0.702879108	-0.199063646	0.181452008
## [529,]	-0.656299566	-1.027421902	-0.812963765	-0.700699806
## [530,]	-0.942133139	-0.947895663	-0.928367955	-1.112035626
## [531,]	-0.733090675	-0.061367448	-0.289254530	-0.283720070
## [532,]	-0.688295862	0.294607145	0.046672016	-0.909189674
## [533,]	-1.237210087	-1.119445121	-0.938026784	-0.787806821
## [534,]	0.138630620	0.970580175	1.135234588	1.024173724
## [535,]	0.365448804	1.033065077	2.078538407	1.700412801
## [536,]	-0.423793152	-0.409957462	-0.381954201	-0.467469484
## [537,]	-0.079655218	-0.939374994	-0.733058907	-0.673639935
## [538,]	-0.584485658	-0.981031596	-0.915322264	-0.964855696
## [539,]	-0.041259664	-0.048113075	-0.651272459	-0.650188046
## [540,]	-0.464321793	-0.550832513	-0.587549275	-0.397371531
## [541,]	-0.614348868	-0.592678463	-0.242089339	0.128363117
## [542,]	2.896711293	0.343837673	-0.695928863	-0.636786967
## [543,]	-0.883828779	-1.177385666	-1.090561019	-1.185354992
## [544,]	1.467543427	1.574600893	2.103626274	2.615294175
## [545,]	2.292336822	4.564408776	3.595099999	2.873007238
## [546,]	0.294345925	-0.471684971	-0.341813613	-0.392217270
## [547,]	-0.123739003	0.377920347	0.048051849	-0.665908543
## [548,]	0.028421158	-0.469980837	-0.776711796	-0.801723327
## [549,]	0.208311441	0.156382968	-0.554182411	-0.151513269
## [550,]	0.479213410	-0.254123903	-0.286996622	-0.552257082
## [551,]	-1.482515019	-0.401058097	-0.345451353	-0.779560003
## [552,]	-1.679469994	-0.827470215	-0.548788520	-0.881614376
## [553,]	1.581308033	2.561104951	1.737343408	0.940932405
## [554,]	0.777845502	-0.136538679	-0.451322154	-0.116464292
## [555,]	-0.600839321	-0.990120309	-0.766174892	-0.727759678
## [556,]	1.446212563	1.976019051	2.410952652	2.764767751
## [557,]	-0.206929371	-0.841292633	-0.782983763	-0.727501965
## [558,]	0.479213410	1.500755100	0.704977660	0.362882005
## [559,]	0.301456213	-0.888250984	-0.817479581	-0.595037450
## [560,]	-0.324960150	-0.292372237	-0.603480071	-0.678278770
## [561,]	0.132942390	0.103365475	0.540652128	0.181967434
## [562,]	-0.684740718	-0.736393737	-0.863766697	-0.824659789

```
## [563,] -1.877847026 -0.986712041 -0.677865598 -0.813062702
## [564,] 1.211573063 -0.302975736 -0.637223253 -0.384485878
## [565,] -1.542952466 -0.840724589 -0.504382994 -0.521073801
## [566,] 0.174893088 -0.241437575 -0.664694468 -0.735748783
## [567,] -0.411705663 0.016265309 -0.439656296 -0.419792568
## [568,] 0.962712987 -0.225721675 -0.248988503 0.413136052
## [569,] 0.265904773 0.892947418 1.309595267 1.973588648
## attr("scaled:center")
##      radius_mean      texture_mean      perimeter_mean      area_mean
##      14.12729174      19.28964851      91.96903339      654.88910369
## smoothness_mean compactness_mean      concavity_mean      points_mean
##      0.09636028      0.10434098      0.08879932      0.04891915
## attr("scaled:scale")
##      radius_mean      texture_mean      perimeter_mean      area_mean
##      3.52404883      4.30103577      24.29898104      351.91412918
## smoothness_mean compactness_mean      concavity_mean      points_mean
##      0.01406413      0.05281276      0.07971981      0.03880284
```

```
matstand.all <- data.frame(cancer$diagnosis, matstand)
matstand.all
```

##	cancer.diagnosis	radius_mean	texture_mean	perimeter_mean
## 1	B	-0.512845261	-1.604183e+00	-0.53990056
## 2	B	-1.000920224	-7.896900e-02	-0.93374423
## 3	B	-0.876063838	-5.718735e-01	-0.86625169
## 4	B	-0.807960355	-1.371681e+00	-0.78065139
## 5	B	0.301558892	-1.413531e+00	0.23379444
## 6	B	-0.725668646	-5.804381e-02	-0.73126661
## 7	B	-0.742694517	1.078892e+00	-0.71809733
## 8	M	-0.090036136	1.037041e+00	-0.01683336
## 9	B	-1.032134320	8.172307e-05	-1.01070219
## 10	B	-0.870388548	-1.006653e+00	-0.84279392
## 11	M	1.833887264	4.534609e-01	1.88612710
## 12	B	-0.532708777	-3.137962e-01	-0.56376987
## 13	B	-0.280158360	3.372098e-01	-0.24647261
## 14	B	-0.305697166	4.731766e-03	-0.38516156
## 15	M	1.550122751	1.327669e+00	1.47047181
## 16	B	0.131300184	7.882640e-01	0.18194041
## 17	B	0.449116439	-1.246130e+00	0.41281429
## 18	B	-0.413527681	-4.625975e-01	-0.44113098
## 19	M	1.692005007	1.062616e+00	1.75854973
## 20	B	-0.549734648	-1.394931e+00	-0.53043514
## 21	B	-0.685941614	-4.881728e-01	-0.71151269
## 22	B	-0.691616904	1.197468e+00	-0.64196245
## 23	B	-0.904440289	-1.626698e-01	-0.88806330
## 24	B	0.276020086	-6.741745e-01	0.31322164
## 25	B	-1.026459030	2.093336e-01	-0.96008279
## 26	M	-0.092873781	-8.136758e-01	-0.06333736
## 27	B	-0.192191361	-2.300954e-01	-0.22095714
## 28	M	0.332772989	1.390444e+00	0.42927589
## 29	B	-1.282982150	-5.695485e-01	-1.24816071
## 30	B	-0.206379587	-5.439733e-01	-0.26704961
## 31	B	-0.305697166	-1.267055e+00	-0.38104616
## 32	M	-0.385151230	7.394385e-01	-0.42178861
## 33	M	0.985431369	9.393903e-01	1.11243210
## 34	B	-0.527033487	-3.184462e-01	-0.55800831
## 35	B	0.128462539	-1.308905e+00	0.09551703
## 36	B	-0.132600813	-9.624771e-01	-0.15222998
## 37	M	1.365675817	4.697360e-01	1.30174045
## 38	B	-0.632026357	-1.078728e+00	-0.57035451
## 39	M	0.752744468	-1.138443e-01	0.71323841
## 40	M	0.599511631	-1.208194e-01	0.69266142
## 41	M	1.754433200	1.806623e+00	1.68447255
## 42	M	1.550122751	-2.649707e-01	1.59393378
## 43	M	-0.768233323	2.535091e-01	-0.59216612
## 44	B	-0.322723037	-1.176379e+00	-0.32466519
## 45	B	-0.064497330	-6.206990e-01	-0.12342219
## 46	M	1.121638336	5.929622e-01	1.04658572
## 47	B	-0.850525032	-6.206990e-01	-0.88477099
## 48	M	3.292436862	-4.253972e-01	3.38413230
## 49	B	-0.175165490	-9.291913e-02	-0.15922616
## 50	B	-0.473118229	1.395830e-01	-0.47487725
## 51	M	-0.075847910	-5.486233e-01	-0.04152575
## 52	B	0.247643635	-8.787763e-01	0.22556364

## 53	B	-0.660402808	-4.718976e-01	-0.68764338
## 54	B	0.026307314	1.990300e+00	0.02390909
## 55	M	2.600051450	1.715947e+00	2.75447627
## 56	B	-0.223405457	-7.974006e-01	-0.22548408
## 57	B	-0.677428679	-1.069428e+00	-0.64443169
## 58	B	-1.148477771	-9.717772e-01	-1.16091425
## 59	M	2.872465383	2.116587e-01	3.05490039
## 60	M	1.496207493	-2.579956e-01	1.44989481
## 61	M	1.402565204	1.283494e+00	1.49516420
## 62	M	0.948541983	1.253268e+00	0.99308554
## 63	M	0.934353757	1.457870e+00	0.92723915
## 64	M	-0.195029006	5.325116e-01	-0.23824182
## 65	M	0.344123569	-1.169404e+00	0.43339128
## 66	B	-0.507169971	6.813130e-01	-0.49874657
## 67	B	-0.243268973	-5.276981e-01	-0.30532282
## 68	B	0.136975474	-8.369260e-01	0.02925911
## 69	B	-0.078685556	-9.555021e-01	-0.12259911
## 70	B	-0.697292195	1.698083e-01	-0.68970108
## 71	M	-0.183678426	3.558100e-01	-0.14687996
## 72	B	-1.156990706	-4.091220e-01	-1.13416416
## 73	B	-1.443025336	-9.059411e-02	-1.31277247
## 74	B	1.056372498	-1.408881e+00	0.93135455
## 75	B	0.769770339	3.960709e-02	0.67619982
## 76	B	-0.501494680	5.836621e-01	-0.50162735
## 77	M	1.186904174	-1.649948e-01	1.09597051
## 78	B	-0.799447419	-5.804381e-02	-0.83003618
## 79	B	-0.387988875	-1.376331e+00	-0.39833083
## 80	M	1.096099529	3.186096e-01	1.06304732
## 81	B	0.239130699	-5.439733e-01	0.17494423
## 82	B	-0.518520551	-7.881005e-01	-0.54072364
## 83	B	-0.234756038	5.301866e-01	-0.27692657
## 84	B	0.145488410	-9.415519e-01	0.15642494
## 85	B	-0.810798000	-1.471657e+00	-0.77406675
## 86	B	-0.351099488	-1.434456e+00	-0.41479243
## 87	B	-0.507169971	-1.632083e+00	-0.53619670
## 88	B	-0.212054877	2.657581e+00	-0.23165718
## 89	M	1.995633037	8.719647e-01	1.86143471
## 90	B	-0.118412587	-1.417446e-01	-0.13329914
## 91	B	-0.373800649	-1.448407e+00	-0.43948482
## 92	B	-0.470280584	-4.602725e-01	-0.47405417
## 93	M	0.420739988	2.100692e-02	0.33050631
## 94	B	-0.319885392	1.357894e+00	-0.38516156
## 95	M	0.026307314	8.905649e-01	0.09880935
## 96	M	0.539921083	-8.787763e-01	0.56919945
## 97	B	-0.331235972	-2.324204e-01	-0.32054980
## 98	B	-0.646214582	-4.253972e-01	-0.67612026
## 99	B	-1.120101319	-4.091220e-01	-1.10494483
## 100	M	3.147716961	1.306744e+00	3.27301653
## 101	B	-0.969706127	2.558341e-01	-0.92469035
## 102	B	-1.250632996	-2.486956e-01	-1.28561084
## 103	B	-0.805122710	-1.453057e+00	-0.81233996
## 104	M	0.156838990	1.953835e-01	0.11403633
## 105	B	-0.263132489	-4.323722e-01	-0.32260749
## 106	B	-0.748369807	-1.092678e+00	-0.73990894

## 107	B	-0.444741778	-5.106875e-02	-0.41355781
## 108	B	-0.541221712	1.744583e-01	-0.51438508
## 109	B	-0.938492031	1.143992e+00	-0.94979429
## 110	B	-0.842012096	4.929862e-01	-0.86501707
## 111	B	-0.705805130	-2.231203e-01	-0.69134724
## 112	B	-1.676563530	3.279097e-01	-1.59261960
## 113	M	1.286221753	-5.044479e-01	1.21120168
## 114	M	-0.112737297	7.719888e-01	0.06712078
## 115	B	-0.671753388	5.371617e-01	-0.70986653
## 116	M	0.891789080	1.425320e+00	0.84081578
## 117	M	0.091573152	2.163087e-01	0.10374783
## 118	M	0.386688246	1.581832e-01	0.42927589
## 119	M	1.609713298	5.278616e-01	1.55277979
## 120	B	-0.305697166	-1.626698e-01	-0.28309967
## 121	B	-0.078685556	-4.835227e-01	-0.14523380
## 122	M	1.831049619	6.627128e-01	1.75854973
## 123	B	-0.717155711	1.209093e+00	-0.73003199
## 124	M	2.151703519	-4.742226e-01	2.01370446
## 125	B	-0.754045097	-7.578752e-01	-0.77982831
## 126	B	-0.756882742	-2.626457e-01	-0.75637054
## 127	M	-0.288671295	-8.671512e-01	-0.19585321
## 128	M	0.134137829	9.300903e-01	0.08234776
## 129	M	1.382701688	-8.826909e-02	1.29350966
## 130	M	0.040495540	7.580387e-01	0.07411696
## 131	M	0.219267183	7.533886e-01	0.41692969
## 132	B	-0.132600813	-3.711862e-02	-0.10325673
## 133	B	-0.260294844	2.039125e+00	-0.29174200
## 134	M	2.109138842	7.208383e-01	2.05897385
## 135	B	-0.870388548	-5.044479e-01	-0.85267087
## 136	M	0.715855082	4.860112e-01	0.74204620
## 137	B	-1.530424806	-5.695485e-01	-1.51031162
## 138	B	-0.586624034	-1.522807e+00	-0.62262007
## 139	M	0.832198532	3.976604e-01	0.81612338
## 140	B	-0.620675776	-2.440455e-01	-0.66912408
## 141	M	1.272033528	2.232838e-01	1.24000947
## 142	M	1.096099529	-2.071512e+00	1.26881726
## 143	M	1.703355588	2.083301e+00	1.61451077
## 144	M	0.034820250	6.650378e-01	0.18317503
## 145	M	0.128462539	5.208865e-01	0.22391748
## 146	B	-0.657565163	-4.416723e-01	-0.68723184
## 147	M	0.468979955	-3.254213e-01	0.47866067
## 148	B	0.673290405	-2.324204e-01	0.60212264
## 149	B	-0.481631164	-5.323482e-01	-0.55018905
## 150	B	-0.501494680	-1.742949e-01	-0.53331592
## 151	B	-0.464605294	-5.672235e-01	-0.52590820
## 152	B	-1.244390176	-3.944364e-02	-1.23622605
## 153	B	-0.348261843	-7.834505e-01	-0.33865755
## 154	B	-1.080374288	-6.834746e-01	-1.09712557
## 155	B	0.080222572	1.023827e-01	0.16712498
## 156	B	-1.331222117	-2.254453e-01	-1.32306097
## 157	B	-0.152464329	-3.370464e-01	-0.23577258
## 158	M	-0.901602644	4.790361e-01	-0.82592078
## 159	B	-1.009433159	-2.254453e-01	-1.03498305
## 160	B	-0.180840780	6.999132e-01	-0.20819940

## 161	B	-0.243268973	-1.053153e+00	-0.29750356
## 162	B	-0.813635645	1.558582e-01	-0.75102052
## 163	B	-0.073010265	-7.160249e-01	-0.14194148
## 164	B	-1.454943445	-1.136854e+00	-1.46545377
## 165	M	2.543298547	1.256329e-01	2.47462914
## 166	M	3.715245987	5.999372e-01	3.70924881
## 167	B	0.060359056	-1.353081e+00	0.02226293
## 168	M	0.897464370	6.603878e-01	0.92312375
## 169	B	-0.277320715	-9.183017e-01	-0.27404579
## 170	B	-0.109899652	-3.207712e-01	-0.15840308
## 171	M	-0.271645425	-1.463946e-01	-0.24647261
## 172	M	-0.041796169	7.680743e-02	-0.03494111
## 173	M	-0.118412587	3.581350e-01	-0.07280278
## 174	B	-0.152464329	5.929622e-01	-0.19791091
## 175	M	-0.197866651	7.913245e-02	-0.25223417
## 176	B	-0.359612424	-2.998460e-01	-0.36129224
## 177	M	1.442292236	-1.673198e-01	1.37993303
## 178	B	-0.870388548	-1.036878e+00	-0.89135562
## 179	M	1.283384108	-3.928469e-01	1.30585585
## 180	B	-0.552572293	2.860593e-01	-0.60698156
## 181	B	-0.538384067	6.285730e-02	-0.55265829
## 182	M	0.551271664	8.378249e-02	0.49923767
## 183	B	-0.101386717	-1.399581e+00	-0.16087232
## 184	M	0.281695376	-6.067489e-01	0.28029845
## 185	B	-0.824986226	1.326079e-01	-0.82427462
## 186	B	-0.912953225	-1.613483e+00	-0.93950579
## 187	M	0.829360887	-4.874373e-02	0.88196977
## 188	M	1.226631206	6.092373e-01	1.16181689
## 189	M	1.711868523	8.610751e-02	1.61039537
## 190	B	-1.244390176	-8.415760e-01	-1.25392227
## 191	M	0.562622244	-2.882209e-01	0.54039166
## 192	B	-0.623513421	-1.948286e+00	-0.65142787
## 193	B	0.224942474	-1.013628e+00	0.18440965
## 194	M	0.117111959	1.918224e+00	0.19593277
## 195	M	0.446278794	2.372339e-01	0.37989110
## 196	M	1.411078139	1.627597e+00	1.52808739
## 197	M	0.270344796	1.499720e+00	0.24819833
## 198	B	0.139813120	1.099817e+00	0.10704015
## 199	B	-0.189353716	-1.254694e-01	-0.18638779
## 200	B	-0.544059357	-1.208929e+00	-0.54278134
## 201	M	0.244805990	1.374169e+00	0.14695952
## 202	B	-0.944167321	6.255125e-01	-0.95390969
## 203	B	0.244805990	6.557377e-01	0.22885596
## 204	B	-0.424878262	3.418599e-01	-0.40409239
## 205	B	-0.685941614	-8.927265e-01	-0.69710880
## 206	M	0.378175311	1.083542e+00	0.48689147
## 207	B	-0.717155711	-2.161453e-01	-0.74443588
## 208	M	-0.671753388	-2.672957e-01	-0.69834341
## 209	B	-0.178003135	-1.529782e+00	-0.25840727
## 210	M	1.975769521	1.692697e+00	2.08778165
## 211	B	-0.351099488	-8.346009e-01	-0.32466519
## 212	M	0.165351926	5.348366e-01	0.14737106
## 213	M	0.871925564	1.216068e+00	0.91489296
## 214	B	-0.240431328	-1.294955e+00	-0.25429187



## 215	B	-0.921466160	-8.532011e-01	-0.88724022
## 216	B	-1.122938965	-1.025253e+00	-1.12840260
## 217	B	-0.390826520	-6.020988e-01	-0.38927696
## 218	B	0.020632024	2.883844e-01	0.01814753
## 219	M	-0.475955874	-8.346009e-01	-0.38680772
## 220	M	2.594376160	6.394626e-01	2.47462914
## 221	B	-0.399339456	-1.281005e+00	-0.41931937
## 222	B	-0.405014746	-1.655333e+00	-0.45635796
## 223	M	1.533096880	-9.059411e-02	1.54454899
## 224	B	-0.759720388	3.906853e-01	-0.74731666
## 225	B	-0.983894353	-9.624771e-01	-1.00740987
## 226	B	-1.569300544	-1.603448e-01	-1.55887333
## 227	B	-1.263118634	-1.429806e+00	-1.14609882
## 228	M	1.717543814	5.820726e-02	1.72151114
## 229	M	0.968405498	7.056787e-03	0.95193155
## 230	B	-0.816473290	-1.048503e+00	-0.84732086
## 231	B	-0.708642775	2.325103e+00	-0.70369343
## 232	B	-0.507169971	-1.008978e+00	-0.56294679
## 233	B	0.037657895	8.378249e-02	0.24120216
## 234	M	0.608024567	3.302348e-01	0.61446884
## 235	B	-0.385151230	2.357653e+00	-0.43701558
## 236	B	-0.694454549	-7.253249e-01	-0.67817796
## 237	M	0.207916603	9.114901e-01	0.34696791
## 238	B	-1.576678421	-1.439106e+00	-1.54076557
## 239	B	-0.986731998	1.378819e+00	-0.98600980
## 240	B	-1.034971965	1.326079e-01	-1.03909844
## 241	M	-0.047471459	-5.207231e-01	-0.02218337
## 242	B	-1.532694922	-8.043757e-01	-1.48685385
## 243	B	-1.342288933	5.557618e-01	-1.32594175
## 244	M	0.914490241	8.766148e-01	0.78320019
## 245	M	1.589849783	1.233079e-01	1.59393378
## 246	B	-1.261132283	1.170683e-02	-1.27244156
## 247	B	-1.162665996	4.627610e-01	-1.18437203
## 248	B	0.097248443	1.325344e+00	0.15807110
## 249	B	-1.683090114	-5.695485e-01	-1.65681982
## 250	B	-0.603649905	2.078651e+00	-0.62550085
## 251	B	0.258994215	-5.927987e-01	0.27824075
## 252	M	0.434928213	9.091651e-01	0.75027700
## 253	B	-0.810798000	-8.811014e-01	-0.76501288
## 254	M	1.073398368	4.023104e-01	1.33466365
## 255	B	-0.053146749	-1.422831e+00	-0.06827584
## 256	B	-1.340018817	5.604119e-01	-1.33211485
## 257	B	0.114274313	1.170683e-02	0.09387087
## 258	B	-0.785259194	-3.998219e-01	-0.80163993
## 259	B	-0.382313585	-6.509243e-01	-0.43619250
## 260	B	-0.166652555	-1.146154e+00	-0.18556471
## 261	B	-0.575273454	-3.649466e-01	-0.57200067
## 262	B	-1.088887223	1.934499e+00	-1.08231013
## 263	M	0.378175311	4.425713e-02	0.40046809
## 264	B	-0.064497330	-1.154338e-02	-0.13329914
## 265	M	0.820847952	1.090517e+00	0.85727737
## 266	M	-0.319885392	5.883121e-01	-0.18391855
## 267	B	-1.114426029	-4.207471e-01	-1.10782561
## 268	B	-1.486725071	-1.081053e+00	-1.36544958

## 269	B	-0.532708777	7.324634e-01	-0.56747373
## 270	M	1.496207493	9.789157e-01	1.52808739
## 271	B	-0.376638295	-4.253972e-01	-0.36705380
## 272	M	1.430941655	1.281168e+00	1.66389556
## 273	B	-0.019095008	-4.904978e-01	-0.09132208
## 274	B	-0.515682906	-6.439492e-01	-0.52590820
## 275	M	1.433779300	7.440886e-01	1.46224101
## 276	M	3.967796404	-1.905700e-01	3.97263434
## 277	B	0.210754248	2.139837e-01	0.17082883
## 278	M	0.701666856	2.043775e+00	0.67208442
## 279	B	-0.927141450	5.092614e-01	-0.96543280
## 280	B	-1.815608141	1.441595e+00	-1.81032420
## 281	M	1.113125400	-7.299750e-01	1.16181689
## 282	B	-0.813635645	1.256329e-01	-0.85061317
## 283	B	-0.586624034	-9.059411e-02	-0.63002779
## 284	B	-0.138276103	-8.578512e-01	-0.18885703
## 285	M	0.869087919	6.464377e-01	0.80789259
## 286	B	0.145488410	-5.672235e-01	0.09222472
## 287	M	0.017794379	1.050991e+00	0.03707837
## 288	M	1.635252105	2.256088e-01	1.58570298
## 289	M	1.933204844	9.928658e-01	1.93139649
## 290	B	-0.419202972	-2.603207e-01	-0.38186924
## 291	B	-1.334911056	1.997275e+00	-1.34610720
## 292	B	-0.124087878	-7.485752e-01	-0.16992620
## 293	M	-0.101386717	6.975881e-01	-0.05510657
## 294	B	-0.544059357	-2.951960e-01	-0.56212371
## 295	M	2.236832873	6.069123e-01	2.27297460
## 296	M	2.980295898	5.371617e-01	3.02609260
## 297	M	1.822536683	3.651101e-01	1.88612710
## 298	M	1.612550944	6.650378e-01	1.56512598
## 299	B	-0.583786389	-1.360056e+00	-0.58187763
## 300	M	0.602349276	5.123219e-02	0.73381540
## 301	M	1.436616945	-7.788004e-01	1.41285622
## 302	B	0.037657895	-2.603207e-01	-0.03082571
## 303	B	-0.915790870	-1.471657e+00	-0.95802509
## 304	M	-0.206379587	2.860593e-01	-0.13700300
## 305	M	0.460467020	2.232838e-01	0.43750668
## 306	M	1.811186103	1.981000e+00	1.74620354
## 307	M	0.310071828	2.634331e+00	0.47042987
## 308	B	-0.336911263	-7.253249e-01	-0.36170378
## 309	B	0.233455409	-1.208194e-01	0.24161370
## 310	B	-0.160977264	-1.253105e+00	-0.13906070
## 311	M	1.799835522	3.209347e-01	1.75854973
## 312	M	0.900302015	-5.137480e-01	0.86550817
## 313	B	-0.121250233	-3.835468e-01	-0.17321851
## 314	B	-0.634864002	-4.486474e-01	-0.64895863
## 315	M	-0.240431328	2.302588e-01	-0.19132627
## 316	B	-0.189353716	2.074001e+00	-0.25017647
## 317	M	1.748757910	-1.150804e+00	1.77501133
## 318	M	2.577350289	1.785698e+00	2.53224473
## 319	B	-0.850525032	7.324634e-01	-0.84279392
## 320	B	0.179540151	-1.057803e+00	0.11938635
## 321	B	-0.475955874	-6.695244e-01	-0.37528460
## 322	M	0.741393888	5.348366e-01	0.74616160

## 323	M	1.740244975	8.696397e-01	1.66389556
## 324	B	-0.623513421	5.208865e-01	-0.63537781
## 325	B	-0.484468810	-9.880524e-01	-0.54977751
## 326	M	1.229468851	-1.789449e-01	1.19885548
## 327	B	-0.027607943	4.557859e-01	-0.08967592
## 328	M	0.468979955	8.417395e-01	0.56508405
## 329	B	-0.319885392	3.465099e-01	-0.34812297
## 330	M	2.662479643	1.157942e+00	2.59809111
## 331	B	-1.245525234	-1.701834e+00	-1.26462230
## 332	B	-0.356774779	5.820726e-02	-0.38269232
## 333	B	-0.944167321	-2.227289e+00	-0.95473277
## 334	B	-0.552572293	-1.211254e+00	-0.60574694
## 335	M	0.233455409	-3.998219e-01	0.20087125
## 336	B	0.324260053	-1.483282e+00	0.25519451
## 337	B	-0.450417068	-2.835709e-01	-0.51644278
## 338	B	-1.446714274	-4.556225e-01	-1.36544958
## 339	M	1.317435850	4.976363e-01	1.27293266
## 340	B	0.454791729	-1.862260e+00	0.44573748
## 341	B	0.571135180	-1.029903e+00	0.50746846
## 342	M	1.388376978	1.232343e+00	1.23589407
## 343	M	0.605186921	6.022623e-01	0.63916123
## 344	B	-0.802285065	-2.556706e-01	-0.74237818
## 345	M	0.576810470	5.232115e-01	0.58566104
## 346	B	-1.234458418	-5.346732e-01	-1.21276828
## 347	B	-1.489562716	-8.834264e-01	-1.44981526
## 348	B	-0.765395678	-4.602725e-01	-0.75348976
## 349	M	0.261831860	-5.106875e-02	0.21774438
## 350	B	-0.606487550	1.302094e+00	-0.59093150
## 351	B	-0.030445588	-8.439010e-01	-0.09790671
## 352	M	0.976918434	-9.857273e-01	0.94781615
## 353	B	-0.353937134	2.239077e+00	-0.38968850
## 354	B	-0.790934484	4.581109e-01	-0.80205147
## 355	M	0.185215442	1.081217e+00	0.22350594
## 356	B	-1.322992946	3.999854e-01	-1.31112631
## 357	B	-1.206365731	-4.695726e-01	-1.19548360
## 358	B	-0.649052227	-8.129402e-02	-0.67735488
## 359	M	1.169878303	1.605082e-01	1.13712450
## 360	B	-1.360449862	6.162124e-01	-1.35639570
## 361	M	1.802673168	5.046114e-01	1.66801096
## 362	M	0.488843471	1.083542e+00	0.48277607
## 363	B	-0.527033487	2.483205e+00	-0.59875076
## 364	B	-1.097400158	-1.643708e+00	-1.07901781
## 365	B	-0.552572293	-3.370464e-01	-0.58352379
## 366	B	-0.734181581	-1.127554e+00	-0.71274731
## 367	M	1.008132530	3.372098e-01	1.04658572
## 368	B	-1.240701238	2.071676e+00	-1.24651455
## 369	B	-0.734181581	-1.992462e+00	-0.75060898
## 370	M	1.510395719	9.381808e-03	1.42108702
## 371	B	-0.450417068	-6.904496e-01	-0.44113098
## 372	B	-1.405852184	-1.262405e+00	-1.34857644
## 373	B	-0.518520551	-6.269385e-02	-0.57981993
## 374	B	-0.558247583	-2.928710e-01	-0.56294679
## 375	B	-0.427715907	-4.974728e-01	-0.46705800
## 376	B	-0.473118229	-1.501882e+00	-0.54072364

## 377	B	0.173864861	1.425320e+00	0.11239017
## 378	B	-0.492981745	-4.207471e-01	-0.46623492
## 379	B	-0.793772129	-1.192654e+00	-0.83044772
## 380	B	-0.739856872	-1.013628e+00	-0.74484742
## 381	B	-0.078685556	7.215739e-02	-0.13535684
## 382	B	-1.026459030	8.835898e-01	-1.03374843
## 383	M	0.100086088	5.046114e-01	0.09387087
## 384	M	0.568297535	-3.277463e-01	0.61858424
## 385	B	-0.790934484	-1.580197e-01	-0.79052835
## 386	B	-1.097400158	-6.299991e-01	-1.07490241
## 387	M	2.163054099	3.953354e-01	2.27708999
## 388	B	-1.032134320	-1.580197e-01	-1.03333689
## 389	M	-0.146789039	1.323019e+00	-0.16128386
## 390	B	0.616537502	-8.346009e-01	0.52393006
## 391	M	1.027996046	2.032150e+00	1.04247032
## 392	B	-0.830661516	2.343703e+00	-0.87654019
## 393	B	-0.138276103	-6.857996e-01	-0.19585321
## 394	M	1.428104010	1.699672e+00	1.40874083
## 395	B	-0.126925523	-6.881246e-01	-0.17321851
## 396	B	-0.070172620	-7.276500e-01	-0.14811458
## 397	B	-0.714318065	-7.602003e-01	-0.67941258
## 398	M	0.352636505	8.068641e-01	0.33873711
## 399	M	1.575661557	5.557618e-01	1.56101059
## 400	B	-1.231620773	1.512081e-01	-1.22881833
## 401	B	-1.214594902	-8.392510e-01	-1.19219128
## 402	B	-0.214892522	-6.741745e-01	-0.24153414
## 403	M	1.459318106	1.669447e+00	1.47870261
## 404	M	1.848075490	-4.509724e-01	1.76266513
## 405	B	-0.251781909	1.953835e-01	-0.20984556
## 406	M	1.791322587	5.790120e-01	1.72151114
## 407	B	0.579648115	-7.485752e-01	0.58977644
## 408	B	-0.771070968	-1.969211e+00	-0.76665904
## 409	M	0.210754248	-6.090739e-01	0.27453689
## 410	B	-1.294048966	-7.857755e-01	-1.30701091
## 411	B	-0.351099488	-1.204279e+00	-0.28886122
## 412	B	-0.796609774	1.811273e+00	-0.83168234
## 413	B	-0.958355547	-1.004328e+00	-0.97572130
## 414	B	-0.685941614	-6.090739e-01	-0.70986653
## 415	B	-0.677428679	-1.225205e+00	-0.72962045
## 416	M	1.507558074	-1.091943e-01	1.48693340
## 417	B	-0.765395678	-9.066766e-01	-0.77818215
## 418	B	0.083060217	-6.392991e-01	0.08975548
## 419	M	1.723219104	1.753148e+00	1.71739574
## 420	M	-0.660402808	-6.299991e-01	-0.53413900
## 421	B	-1.247511586	-9.183017e-01	-1.16009117
## 422	M	0.276020086	6.348126e-01	0.21774438
## 423	B	-0.844849742	-1.443757e+00	-0.86830939
## 424	B	-1.378894556	-1.492582e+00	-1.25433381
## 425	B	-0.771070968	-1.015953e+00	-0.75883978
## 426	M	-0.410690036	1.057966e+00	-0.38186924
## 427	B	-0.617838131	-1.006653e+00	-0.60657002
## 428	B	0.207916603	-5.462983e-01	0.12020943
## 429	B	-1.125776610	6.983236e-02	-1.12099488
## 430	M	0.338448279	-4.695726e-01	0.46219908

## 431	M	-0.146789039	1.255593e+00	-0.17321851
## 432	M	1.186904174	3.000095e-01	1.18650928
## 433	B	-0.603649905	-8.462260e-01	-0.61809314
## 434	M	1.237981786	-4.114471e-01	1.20708628
## 435	B	-0.895927354	-4.858477e-01	-0.83291696
## 436	B	-0.004906782	-1.490257e+00	-0.07979896
## 437	M	1.328786430	1.605082e-01	1.19062468
## 438	B	-0.345424198	-6.881246e-01	-0.38845388
## 439	B	-1.563341489	-1.743684e+00	-1.54858483
## 440	B	-0.674591034	2.070086e-01	-0.65307403
## 441	B	-0.325560682	1.403185e-02	-0.30655744
## 442	B	-0.143951394	9.161401e-01	-0.19667629
## 443	M	0.264669505	1.256329e-01	0.34285251
## 444	B	-0.186516071	-1.215904e+00	-0.19132627
## 445	M	0.945704337	4.647799e+00	0.88196977
## 446	B	-1.311926130	-1.592558e+00	-1.30166089
## 447	B	-0.107062007	1.041691e+00	-0.14111840
## 448	B	-0.595136970	-3.161212e-01	-0.65348557
## 449	B	-0.634864002	-2.184703e-01	-0.60286616
## 450	M	0.837873822	1.827549e+00	0.79143099
## 451	B	-1.046322546	-8.904015e-01	-1.04321384
## 452	M	-0.507169971	1.760123e+00	-0.44524638
## 453	M	1.538772170	9.114901e-01	1.51985660
## 454	B	-0.640539292	5.232115e-01	-0.62303161
## 455	B	-0.634864002	4.371857e-01	-0.64113937
## 456	B	0.088735507	-9.555021e-01	0.08234776
## 457	B	-0.169490200	-1.941311e+00	-0.16704542
## 458	M	1.873614296	2.750582e+00	1.79970372
## 459	B	-1.548301970	-1.125229e+00	-1.54529251
## 460	B	-0.317047747	6.813130e-01	-0.40985395
## 461	M	3.771998890	1.622947e+00	3.90678796
## 462	M	1.331624075	6.231874e-01	1.30585585
## 463	B	-0.876063838	-1.013628e+00	-0.87654019
## 464	B	-0.098549072	-8.136758e-01	-0.14811458
## 465	M	0.854899693	-6.718494e-01	0.98897014
## 466	B	-0.490144100	-3.742467e-01	-0.43207711
## 467	B	-0.263132489	-8.067007e-01	-0.32507673
## 468	M	1.107450110	-5.672235e-01	1.05070112
## 469	B	-1.100237803	-7.229999e-01	-1.04732924
## 470	B	-0.024770298	-7.695003e-01	-0.09008746
## 471	B	-0.385151230	4.929862e-01	-0.40944241
## 472	B	0.239130699	1.093577e-01	0.14531336
## 473	B	-0.311372457	-2.021951e-01	-0.38516156
## 474	M	1.533096880	3.064460e+00	1.48281801
## 475	B	-0.592299325	2.057726e+00	-0.62220853
## 476	M	1.161365367	-9.756917e-02	1.10008591
## 477	B	-0.589461680	7.975640e-01	-0.54401596
## 478	M	1.978607166	2.860593e-01	1.89847330
## 479	B	0.236293054	-4.409368e-02	0.20827896
## 480	M	-0.087198491	1.209093e+00	0.01485522
## 481	B	0.105761378	-1.952936e+00	0.09510549
## 482	M	0.083060217	1.116827e-01	0.10333629
## 483	M	1.277708818	1.353244e+00	1.35112524
## 484	B	-1.198420325	-2.858959e-01	-1.12634490

## 485	B	-0.700129840	-5.160730e-01	-0.75184360
## 486	M	0.460467020	-1.619343e-02	0.62269963
## 487	B	-1.265672515	-1.859200e-01	-1.25433381
## 488	M	2.310611646	8.843253e-02	2.50343693
## 489	B	-0.274483070	2.907094e-01	-0.32548827
## 490	M	-0.864713257	-1.068693e-01	-0.76830520
## 491	M	1.101774820	2.953594e-01	1.08773971
## 492	M	1.836724909	2.334403e+00	1.98078127
## 493	M	0.378175311	-1.720434e+00	0.43339128
## 494	B	-0.898764999	-3.881968e-01	-0.87160171
## 495	B	-1.569016779	3.930103e-01	-1.53541555
## 496	B	-0.353937134	-2.486956e-01	-0.30943822
## 497	B	-1.206365731	2.565696e-02	-1.15309499
## 498	M	-0.271645425	5.859871e-01	-0.26951885
## 499	M	1.538772170	2.204202e+00	1.71328034
## 500	M	0.398038827	3.317887e+00	0.48277607
## 501	M	0.727205662	2.116587e-01	0.62269963
## 502	M	0.537083438	9.184652e-01	0.44162208
## 503	M	0.568297535	3.232597e-01	0.66385362
## 504	B	-1.009433159	2.163087e-01	-0.89794026
## 505	B	-0.711480420	-2.579956e-01	-0.64155091
## 506	B	-0.824986226	3.376013e+00	-0.87160171
## 507	B	0.046170830	-5.741986e-01	-0.06868738
## 508	B	0.193728377	-1.067103e+00	0.11074401
## 509	M	1.927529553	1.348594e+00	2.10012784
## 510	M	0.389525891	4.162605e-01	0.44985288
## 511	B	-0.297184231	-8.322759e-01	-0.26087651
## 512	M	1.079073659	1.206768e+00	0.95604695
## 513	M	-0.649052227	-1.370945e-01	-0.57776223
## 514	B	-0.135438458	-1.425156e+00	-0.16828004
## 515	M	0.630725728	9.300903e-01	0.70089221
## 516	M	-0.368125359	7.068882e-01	-0.27610349
## 517	M	1.828211974	-3.533215e-01	1.68447255
## 518	M	1.578499202	4.557859e-01	1.56512598
## 519	M	1.161365367	-1.370945e-01	1.16593229
## 520	B	-0.288671295	7.557137e-01	-0.20367247
## 521	B	-1.034971965	-1.002002e+00	-1.00740987
## 522	B	-0.470280584	-1.603448e-01	-0.44771562
## 523	M	0.284533021	2.446004e+00	0.19510969
## 524	B	-1.806811442	1.220718e+00	-1.81279344
## 525	B	-2.027863997	-1.362381e+00	-1.98275941
## 526	B	-0.356774779	-7.160249e-01	-0.39462698
## 527	B	-0.427715907	1.088192e+00	-0.43701558
## 528	M	1.084748949	1.674833e-01	0.91489296
## 529	B	-0.782421549	-9.291913e-02	-0.81480920
## 530	B	-1.265388750	-2.765958e-01	-1.27203002
## 531	B	-0.620675776	3.418599e-01	-0.58023147
## 532	B	-1.826391193	1.429970e+00	-1.79550876
## 533	B	-0.399339456	-3.765717e-01	-0.45224256
## 534	M	0.661939824	1.907335e-01	0.71323841
## 535	M	1.606875653	1.355569e+00	1.58158758
## 536	B	-0.368125359	-8.276259e-01	-0.37363844
## 537	B	-0.739856872	-1.254694e-01	-0.76665904
## 538	B	-0.688779259	-4.176866e-02	-0.72591659

## 539	B	-0.073010265	3.279097e-01	-0.09049900
## 540	B	-0.717155711	-1.499557e+00	-0.72550505
## 541	M	0.818010306	2.256088e-01	0.72970001
## 542	B	-1.371232914	-1.253105e+00	-1.31729941
## 543	B	-0.439066487	-2.068452e-01	-0.49956965
## 544	M	1.762946136	5.162365e-01	1.80793452
## 545	M	1.717543814	1.088192e+00	2.12893563
## 546	B	-0.334073618	-7.602003e-01	-0.36334994
## 547	B	-1.469131671	-8.206508e-01	-1.36750728
## 548	B	-0.387988875	-1.045442e-01	-0.41561551
## 549	B	-0.021932653	1.827549e+00	-0.02424107
## 550	B	-0.589461680	-1.083378e+00	-0.57323529
## 551	B	-0.362450069	4.836862e-01	-0.38433848
## 552	B	-0.847687387	-1.213579e+00	-0.85308241
## 553	M	-0.473118229	1.104467e+00	-0.32919213
## 554	B	-0.674591034	-4.021470e-01	-0.66171636
## 555	B	-0.260294844	1.385794e+00	-0.32384211
## 556	M	2.123327068	6.952631e-01	2.15774343
## 557	B	-0.745532162	-1.952201e-01	-0.76912828
## 558	B	0.159676636	-1.234505e+00	0.25725221
## 559	B	-0.864713257	-1.064778e+00	-0.89547102
## 560	B	0.190890732	-3.788968e-01	0.16095188
## 561	M	0.034820250	5.650619e-01	0.06835540
## 562	B	-0.546897003	-9.485270e-01	-0.57446991
## 563	B	0.077384927	1.790348e+00	0.01156290
## 564	B	-0.359612424	-1.387956e+00	-0.37651922
## 565	B	-0.271645425	-2.486956e-01	-0.31643440
## 566	B	-1.097400158	-1.064778e+00	-1.06049852
## 567	M	0.327097698	7.254884e-01	0.28606000
## 568	B	0.114274313	-1.234505e+00	0.07782082
## 569	M	2.055223584	-9.741022e-01	2.03016606
##	area_mean	smoothness_mean	compactness_mean	concavity_mean
## 1	-0.542146756	0.457882546	-0.653837927	-0.613766097
## 2	-0.876603348	0.036953503	0.196146087	-0.312711686
## 3	-0.800448406	0.806286653	-0.498004369	-0.731804513
## 4	-0.767485819	1.424881700	0.175317786	-0.532481406
## 5	0.161718134	-1.189571158	-0.662737292	-0.688277063
## 6	-0.696729922	-0.775041374	-0.513530920	-0.425857969
## 7	-0.714347856	-0.266655790	-0.042432629	0.280992699
## 8	-0.162224529	2.555417474	1.371998332	0.840452144
## 9	-0.905871851	0.250973169	-0.351448872	-0.738201920
## 10	-0.798459284	0.493433986	-0.253177162	-0.436896631
## 11	1.889980655	0.863168956	1.137206580	1.630719971
## 12	-0.552944845	-0.698250265	-0.711021080	-0.626560909
## 13	-0.335278109	-0.683318660	0.086324138	0.247124077
## 14	-0.362841651	-1.120601365	-1.258237342	-1.105212334
## 15	1.523413958	0.486323698	-0.106621665	0.962128302
## 16	0.006282488	-0.826946476	0.542653271	0.176878048
## 17	0.303514089	-0.123739003	-0.184065074	-0.218883062
## 18	-0.468833417	0.457882546	-0.524513115	-0.713364931
## 19	1.682543687	0.827617517	1.504542064	1.749887342
## 20	-0.565732056	0.728073486	-0.175165709	-0.755763427
## 21	-0.666608937	0.098101979	-0.812890405	-0.636094299
## 22	-0.706107209	1.936822428	0.963006247	-0.547534126

## 23	-0.809541533	0.287235637	-0.563140145	-0.493720651
## 24	0.055726368	1.325337669	1.445844126	0.313606926
## 25	-0.911270896	1.126249608	0.491529260	-0.301547585
## 26	-0.201154480	0.308566501	0.447979177	-0.136845735
## 27	-0.283560947	0.415220819	-0.429649673	-0.615396808
## 28	0.220255141	0.841838093	1.237561119	0.997251316
## 29	-1.063864939	-0.821258245	-0.228372550	-0.057442634
## 30	-0.291233273	-1.208057907	-0.897150348	-0.840309540
## 31	-0.353180203	-0.912980959	-1.268462144	-1.056704942
## 32	-0.422231139	-0.413127720	-0.884842716	-0.522948016
## 33	0.925256673	-0.246746984	1.818860055	1.565491516
## 34	-0.536463552	-0.676208372	-0.739991353	-0.711107023
## 35	0.011113212	0.139341649	-0.287070488	-0.082530502
## 36	-0.211100088	-0.972707377	-0.546477505	-0.580900990
## 37	1.350076217	-0.445835045	-0.027284774	0.240852111
## 38	-0.631088909	1.339558245	0.478274887	-0.648512793
## 39	0.657577736	-0.548223190	-0.237082566	-0.057442634
## 40	0.426839629	0.728073486	1.436376716	1.329665561
## 41	1.799049381	0.258794485	0.084430656	0.791530803
## 42	1.588770811	1.112029032	1.178863181	2.032125852
## 43	-0.763791736	3.280666839	3.399917422	1.914212875
## 44	-0.399498321	-0.123739003	-0.088822935	-0.645000492
## 45	-0.157677965	-1.996588834	-0.968534615	-0.834915649
## 46	1.048866373	-1.610500201	-0.339330588	0.269703158
## 47	-0.777999748	-1.055897746	-1.249716674	-0.942166283
## 48	3.850686244	1.318227381	2.498620049	3.110904155
## 49	-0.275036140	0.678301471	0.196146087	-0.037623219
## 50	-0.521687220	-0.842589109	-0.055687002	-0.257142060
## 51	-0.215930812	0.443661971	0.896734381	0.128082146
## 52	0.084142391	-0.899471412	0.099578511	-0.297909845
## 53	-0.633646351	-0.390374799	-0.795659720	-0.756014306
## 54	-0.088058708	-1.004703673	-0.008349956	0.269703158
## 55	2.927165495	1.261345078	1.970338605	3.305335129
## 56	-0.383301188	0.813396941	0.930817055	0.352493121
## 57	-0.650411804	-1.092871243	-0.146384784	-0.270187751
## 58	-0.958725654	-0.262389617	-1.086687884	-1.093860074
## 59	3.143127271	3.437093173	3.452934915	4.239858194
## 60	1.392700252	0.521875137	0.754723241	0.925750894
## 61	1.276194557	-0.394640972	2.171047684	1.529114108
## 62	0.936907242	0.607198592	1.059573823	1.594342564
## 63	0.832904598	0.301456213	0.194252605	0.995996923
## 64	-0.261112289	-1.048076429	-0.833718706	-0.723776396
## 65	0.140690277	0.777845502	2.066906181	1.491482307
## 66	-0.541010116	0.344117940	-0.053793521	-0.440283493
## 67	-0.308282887	-0.846855282	-1.030072776	-0.668081330
## 68	0.028446986	-1.434876090	-1.310118746	-0.932382014
## 69	-0.191777192	-0.085343448	-0.519968759	-0.552049943
## 70	-0.678259507	0.372559092	-0.185769207	-0.587047518
## 71	-0.271910377	0.372559092	0.400642130	0.219527423
## 72	-0.977764390	0.308566501	-0.588512803	-0.798914559
## 73	-1.166162622	0.236041564	1.758268635	1.363534182
## 74	0.958219260	-1.278449757	-0.798499943	-0.556314880
## 75	0.640243962	-1.557884071	-0.608015666	-0.467880147
## 76	-0.536463552	-0.614348868	-0.187283993	-0.359375120



## 77	1.097173612	-0.745178165	-0.372277172	-0.089178787
## 78	-0.741058918	-1.064430091	-1.085551795	-0.648638233
## 79	-0.428482664	-0.598706234	-0.470738230	-0.605612540
## 80	0.957082619	0.514764850	0.493422742	0.392633709
## 81	0.088120634	0.155695311	-0.482667166	-0.787499579
## 82	-0.543283397	-1.106380790	-0.602335220	-0.631703922
## 83	-0.309135368	-0.749444338	-0.768961625	-0.694423591
## 84	-0.008493844	1.197352487	0.559694607	0.136235703
## 85	-0.763223416	1.943932716	0.127980740	-0.122921969
## 86	-0.394951757	-1.906288177	-1.269598234	-0.830399833
## 87	-0.529643706	-0.450101217	-0.781458606	-0.742843175
## 88	-0.277593582	-0.278032250	-0.569577984	-0.760279243
## 89	2.128675248	-0.147913982	-0.040539147	0.262176798
## 90	-0.238379470	0.199068067	0.050347983	-0.438401903
## 91	-0.415127134	-0.637812818	-1.261077565	-0.998576353
## 92	-0.496681120	-0.503428376	-0.530950954	-0.661182166
## 93	0.294705122	-1.277027699	-0.912298203	-0.585918564
## 94	-0.382732867	-0.900893470	-1.015114269	-0.962612895
## 95	-0.127841141	0.792066077	2.593294143	1.371060543
## 96	0.393024562	-0.103119168	0.620286027	0.396396889
## 97	-0.368524856	-1.624720777	-0.480016291	-0.604985343
## 98	-0.631373069	-0.898760383	-0.907375151	-0.776711796
## 99	-0.971228704	0.692522047	-0.365839334	-0.892115987
## 100	3.475594740	0.706742623	3.070451576	3.074526748
## 101	-0.880865751	0.841838093	0.465020514	-0.054181212
## 102	-1.042268762	-1.909843321	-1.531845474	-1.113892736
## 103	-0.758392692	0.140763706	-0.535116614	-0.704333298
## 104	0.084142391	0.164227657	-0.612370674	-0.186268834
## 105	-0.321922578	-1.721420692	-1.119066424	-0.569987768
## 106	-0.710369613	0.585867728	-0.417720737	-0.448060732
## 107	-0.480483986	-0.622881213	-0.010243437	0.178132442
## 108	-0.573404382	0.941382123	0.205613496	-0.088426151
## 109	-0.833410993	-1.026745565	-0.725600890	-0.919712641
## 110	-0.780273029	0.386779668	-0.843754160	-1.001561809
## 111	-0.688773435	1.268455366	-0.050006557	-0.227036619
## 112	-1.281531676	-0.164267644	0.495316224	0.543160914
## 113	1.199471295	0.642750032	0.107152439	0.713758413
## 114	-0.217635773	1.190242199	2.366076318	1.555456369
## 115	-0.645012760	-0.710337754	-1.035374525	-0.906039753
## 116	0.778345834	-0.927912564	0.124193776	0.396396889
## 117	-0.034636585	0.167782800	0.307861518	0.366291448
## 118	0.255206850	1.396440548	0.981941066	1.258165139
## 119	1.634236448	-0.179910277	0.497209705	0.481695639
## 120	-0.406034006	0.841838093	0.493422742	0.090701223
## 121	-0.188083109	-0.605105493	-0.813837146	-0.935768876
## 122	1.804732586	-0.388241713	0.576735944	0.943312401
## 123	-0.675417904	-1.537264236	-0.898665134	-0.866275483
## 124	2.532182775	-0.179199249	-0.354478443	0.351238728
## 125	-0.716621138	-0.398196116	-0.861174193	-0.789381169
## 126	-0.715484497	-0.556755536	-0.518832670	-0.694423591
## 127	-0.354316844	3.088689066	1.366317887	1.483955946
## 128	0.027878666	-0.678341459	-0.719163052	-0.061456693
## 129	1.372809036	-1.008969846	-0.455590375	0.049055363
## 130	-0.071293255	0.528985425	0.209400460	0.721284774

## 131	0.085563192	0.221109960	2.237319550	2.314364362
## 132	-0.226160580	-0.411705663	0.196146087	0.097474948
## 133	-0.331015705	-0.686162775	-0.673530139	-0.739205434
## 134	2.341795421	1.040926154	0.218867870	1.945572709
## 135	-0.819487141	1.638190336	0.052241464	-0.604232707
## 136	0.709579058	1.119139320	0.783125469	0.799057163
## 137	-1.195146966	0.536095713	-0.569199287	-1.113892736
## 138	-0.586191592	-0.231104350	-0.983303774	-0.866526362
## 139	0.749361490	1.104918745	0.023839236	0.777732476
## 140	-0.617449218	-0.977684579	-1.076084386	-0.866526362
## 141	1.247778534	-0.139381636	0.042774055	0.755153395
## 142	0.983509520	1.567087457	3.280628064	2.650541786
## 143	1.722326119	0.102368152	-0.017817365	0.692433726
## 144	-0.026111778	0.607198592	1.826433983	1.564237123
## 145	-0.028669220	0.642750032	1.561346520	0.673617825
## 146	-0.642171158	0.308566501	-0.922523006	-0.818733974
## 147	0.358357013	0.052596137	0.470700959	0.134730431
## 148	0.520612505	0.035531446	-0.372277172	-0.378567339
## 149	-0.504637606	-1.478248846	-1.321668985	-0.945553145
## 150	-0.534758590	-0.824102360	-0.685269726	-0.782356566
## 151	-0.492418716	-0.799927382	-1.249716674	-1.057783720
## 152	-1.037722198	0.792066077	-0.397839178	-1.001825232
## 153	-0.405465686	-0.681896603	-0.175165709	-0.499992617
## 154	-0.937697797	-0.143647809	-1.030072776	-0.986948126
## 155	-0.011051286	-0.625014299	1.197798000	0.594591043
## 156	-1.069263984	0.322787076	-0.847919820	-0.773952131
## 157	-0.234685387	-1.200236590	-1.208438769	-0.863390379
## 158	-0.806415771	1.872829837	0.330583300	0.195693949
## 159	-0.892232160	-1.062297005	-1.130806012	-0.863892136
## 160	-0.266795493	-0.628569443	-0.518075277	-0.517930443
## 161	-0.293222395	-1.621876662	-1.018522537	-0.704835056
## 162	-0.741058918	-1.149042517	0.260524471	0.049431681
## 163	-0.173875098	-0.634968702	-0.935777379	-0.925482851
## 164	-1.161047738	-1.870736738	-1.385668673	-1.067718516
## 165	2.918640689	-0.209062458	0.438511767	0.988470563
## 166	4.532670797	0.927161547	1.648446686	2.487470647
## 167	-0.038898989	0.191957779	-0.532087043	-0.395877967
## 168	0.832336278	-0.452945332	0.434724804	0.102492521
## 169	-0.329594904	-0.179199249	-0.366596727	0.051815029
## 170	-0.198597038	-1.203080705	-0.768393581	-0.752502004
## 171	-0.341813794	1.382219972	0.355198565	0.423993544
## 172	-0.157393805	0.685411759	0.169637341	0.298554206
## 173	-0.218772414	1.602638897	1.139100062	0.060972100
## 174	-0.266795493	-1.194548360	-0.411850943	-0.603103753
## 175	-0.254292443	-0.418104922	-0.785056221	-0.379069096
## 176	-0.422231139	0.211866585	-0.168159826	-0.626059152
## 177	1.412591468	0.635639744	0.423363912	0.545669701
## 178	-0.786240394	-1.347419549	-1.072865467	-0.773701252
## 179	1.196629693	0.962712987	1.216732819	1.362279789
## 180	-0.557491409	-1.154019719	-1.211089644	-0.814970794
## 181	-0.550955724	-0.035571433	-0.444418832	-0.588678229
## 182	0.462643818	-0.332781467	-0.380608493	0.111524153
## 183	-0.205132723	-0.311450603	-0.797742550	-0.980550720
## 184	0.175357825	-0.540401874	-0.160207202	-0.166825737

## 185	-0.760381813	0.642750032	-0.692086261	-1.051097803
## 186	-0.827443628	-0.794950180	-1.081764831	-0.958849714
## 187	0.682299676	1.261345078	1.000875885	1.281998613
## 188	1.193788091	-0.146491924	-0.137296071	0.332422827
## 189	1.759266949	-1.149042517	-0.354099746	0.334931614
## 190	-1.037153878	-0.425926238	-1.087823973	-0.975533146
## 191	0.449288287	0.060417453	0.177211268	0.071132687
## 192	-0.602957046	-0.543245989	-0.983114426	-0.786997822
## 193	0.090962237	-1.093582271	-0.356939969	-0.419084245
## 194	0.011113212	1.247124502	1.044425968	0.942058008
## 195	0.317437940	-0.027750117	-0.309602922	-0.286871183
## 196	1.355759422	1.787506382	1.415548416	1.315867234
## 197	0.175357825	0.429441395	-0.125935180	0.435283084
## 198	0.022195461	-0.470721052	-0.346147122	-0.724779910
## 199	-0.294927356	0.792066077	0.179104750	-0.586922078
## 200	-0.548114121	-1.086471984	-0.494406753	-0.256013106
## 201	0.124777304	-0.177066162	-1.004132074	-0.813089204
## 202	-0.838241716	-0.593729033	-0.888250984	-0.660554970
## 203	0.110285132	-0.797083266	-0.034858702	-0.253504319
## 204	-0.495828639	0.211155557	0.313541963	0.222036210
## 205	-0.666608937	1.325337669	-0.597033471	-0.611382749
## 206	0.217129379	1.559977170	1.565133484	1.432525818
## 207	-0.688205115	-0.802060468	-0.867043987	-0.691538486
## 208	-0.635919632	0.236041564	-0.855872444	-0.777088114
## 209	-0.252019161	-1.606945057	-1.291373275	-1.079296566
## 210	1.864406234	1.261345078	3.386663049	2.005783591
## 211	-0.392962636	-1.292670332	-0.161721988	0.284755879
## 212	0.005714168	1.232903927	0.608925136	0.508037900
## 213	0.780050795	0.763624926	1.489394209	1.008540857
## 214	-0.321354258	-0.905159642	-0.352016916	-0.477037219
## 215	-0.841083319	0.308566501	0.048454501	-0.472270524
## 216	-0.974638627	1.211573063	-0.449341885	-0.977916494
## 217	-0.457751168	1.147580472	0.139341631	-0.627188106
## 218	-0.103687521	-0.501295290	0.122300294	-0.478793369
## 219	-0.505205927	2.235454519	1.243241565	0.865540012
## 220	2.930007098	-0.851121454	0.192359123	0.546924094
## 221	-0.462581892	0.022021899	-0.386478286	-0.952326869
## 222	-0.454341245	-0.605105493	-0.878594226	-0.817855899
## 223	1.597295618	1.325337669	1.133419616	1.642009512
## 224	-0.720031061	0.984043850	-0.202999892	-0.538000737
## 225	-0.867510220	-0.600128292	-1.161101722	-1.113892736
## 226	-1.232371956	0.784955789	-0.868558772	-1.113892736
## 227	-1.086597758	2.071917898	2.197556431	0.376326595
## 228	1.691068494	1.204462775	0.843716889	1.561728336
## 229	0.843134366	-0.474987225	0.292713663	0.185658802
## 230	-0.752709487	-0.945688283	-1.131563405	-1.101678707
## 231	-0.681385269	-0.198397026	-0.352206264	-0.215747078
## 232	-0.527938745	-0.678341459	-1.110167060	-0.849341173
## 233	-0.071009095	-1.279160785	2.252467405	2.653050573
## 234	0.451277409	1.460433139	0.521824970	0.740100674
## 235	-0.417684576	-0.967019147	-1.173977399	-0.863390379
## 236	-0.666040617	1.168911336	-0.221745363	-0.577137810
## 237	0.046917401	0.571647153	1.773416490	1.014812824
## 238	-1.232087796	0.514764850	-0.530572257	-0.792140835

## 239	-0.874898386	0.014911611	-0.605932836	-0.815472552
## 240	-0.901325288	0.756514638	-0.845079597	-0.507895296
## 241	-0.149153158	0.941382123	0.446085695	0.114032940
## 242	-1.204808414	1.325337669	-0.422833138	-0.595577393
## 243	-1.097111686	-1.185304985	-0.829553045	-0.645376810
## 244	0.790564724	-0.692562034	-0.784677525	-0.751247611
## 245	1.566037992	0.699632335	1.525370364	1.917976055
## 246	-1.049088607	-0.814147957	-1.023256241	-0.820741004
## 247	-0.987709998	-1.080072724	-1.234947515	-1.082909219
## 248	0.004293366	-0.568131996	0.353305083	0.151790181
## 249	-1.287214880	-0.736645819	-0.850381346	-0.914695068
## 250	-0.603525366	-0.852543512	-0.754381815	-0.605236222
## 251	0.098066242	0.175604117	0.607031654	-0.145375610
## 252	0.337044996	1.033815866	3.920624938	2.870060627
## 253	-0.747026283	-0.903737585	0.133661185	0.149281394
## 254	0.963618304	1.894160700	2.901931689	2.886367741
## 255	-0.172454297	2.022145883	-0.128586055	0.153044574
## 256	-1.090291841	0.571647153	-0.809482138	-0.857118412
## 257	0.013670654	-0.887383923	-0.498761762	-0.007894096
## 258	-0.724861785	-0.553200392	-0.969670704	-0.764795059
## 259	-0.433029228	0.138630620	-0.984629211	-0.655662835
## 260	-0.251735001	0.101657123	-0.436466208	-0.277964990
## 261	-0.593011438	0.464992834	-0.128018010	-0.513916384
## 262	-0.947643405	-0.430903440	-0.525649204	-0.361382149
## 263	0.267141579	0.912940971	0.340050710	0.725047954
## 264	-0.147732357	-1.169662352	-0.967209178	-0.738201920
## 265	0.694518566	1.659521200	0.856971262	1.917976055
## 266	-0.383869508	2.199903080	1.682529360	1.218024551
## 267	-0.948211726	-1.124867538	-0.857197881	-0.389606000
## 268	-1.167583423	0.104501238	0.923243128	-0.034361796
## 269	-0.535326911	-1.026745565	-0.991067050	-0.898889711
## 270	1.421116275	0.450772259	0.974367138	1.456359292
## 271	-0.416547935	-1.131977826	-0.291425496	-0.186896031
## 272	1.330185001	0.073927000	2.678500827	1.476429586
## 273	-0.130114423	-1.131266797	-0.960581991	-0.777589872
## 274	-0.522823861	-0.329937352	-0.682618852	-0.690911289
## 275	1.401225059	-0.791395036	0.728214494	0.283501485
## 276	5.240229770	1.268455366	0.894840900	2.901420462
## 277	0.073912623	-0.034860404	-0.395566999	-0.257894696
## 278	0.577444551	-0.839744994	-0.038645666	0.046546577
## 279	-0.836536755	-1.567838474	-1.175302836	-1.113892736
## 280	-1.352855894	-1.093582271	-1.052037166	-1.113892736
## 281	0.997717532	0.720963198	2.087734482	0.998505710
## 282	-0.758108532	-0.799927382	-1.140084073	-1.050332623
## 283	-0.595568880	-0.888805980	-0.878594226	-1.019687793
## 284	-0.226160580	-0.151469126	-0.720299141	-0.523700652
## 285	0.776925033	0.063972597	-0.272490677	0.022713102
## 286	0.031572749	-0.707493639	-0.707423464	-0.462611695
## 287	-0.125567859	-0.123027974	0.497209705	0.284755879
## 288	1.588770811	0.521875137	0.504783633	0.656056318
## 289	2.015011156	0.308566501	1.065254268	2.288022101
## 290	-0.481052307	0.799176365	0.550227198	-0.108245566
## 291	-1.090007681	-1.075806552	-1.034427785	-1.113892736
## 292	-0.215362492	-0.948532398	-0.768772277	-0.793269789

## 293	-0.187514789	1.680852064	0.423363912	0.623442090
## 294	-0.558343890	-0.287986653	-0.617104379	-0.562963165
## 295	2.350320228	0.706742623	1.724185962	1.956862249
## 296	3.370455455	0.472103122	2.011995207	1.783755963
## 297	1.855881427	0.585867728	1.317087358	1.501517454
## 298	1.719484517	0.138630620	-0.031071738	0.741355068
## 299	-0.595853040	0.969823275	-0.269839803	-0.639606600
## 300	0.457244774	0.443661971	1.608683567	1.690930854
## 301	1.426799479	-0.669809113	0.268098398	0.382598562
## 302	-0.061915967	-2.175768089	-0.987280086	-0.803430375
## 303	-0.818634661	-1.508112056	-1.271681064	-1.075131980
## 304	-0.279014383	1.012485002	0.805847251	0.698705693
## 305	0.302377448	0.436551683	0.304074554	0.324896467
## 306	1.887139053	-0.339180726	0.057921910	0.835434571
## 307	0.176210306	0.600088304	1.976019051	2.084810374
## 308	-0.418537056	0.172760002	-0.302597039	-0.700444679
## 309	0.098350403	-1.065141120	0.234015725	0.021333270
## 310	-0.265943013	0.621419168	0.281352772	-0.127939542
## 311	1.830307006	-0.341313813	0.510464079	0.796548376
## 312	0.776640872	0.315676789	-0.004562992	0.474169279
## 313	-0.238095310	0.223243046	-0.469034096	-0.543394628
## 314	-0.623132422	1.858609261	-0.610477192	-0.370162903
## 315	-0.311692810	0.550316289	0.743362349	0.121308422
## 316	-0.263669731	-1.506689998	-1.080818091	-0.954459338
## 317	1.824623802	0.280125349	0.538866307	1.369806149
## 318	2.884541461	-0.090320650	1.209158891	1.332174348
## 319	-0.785672074	-0.049792009	-0.424158576	-0.508773371
## 320	0.039245075	-0.541112902	-0.502548725	-0.535868268
## 321	-0.506342567	-0.086765506	0.885373490	0.822890637
## 322	0.609838817	-0.018506742	0.554014162	0.577029535
## 323	1.730850926	-0.396774058	0.510464079	0.723793560
## 324	-0.614607615	0.093835806	-0.489483700	-0.696430620
## 325	-0.506910888	-1.215879223	-1.333219225	-0.981805113
## 326	1.193788091	0.169204858	0.018158791	0.560722422
## 327	-0.146311556	-0.402462288	-0.660654462	-0.930500424
## 328	0.362903577	1.360889109	1.341702622	1.561728336
## 329	-0.385006149	1.218683351	-0.538714229	-0.720514973
## 330	3.103344838	0.749404350	0.453659622	1.781247177
## 331	-1.041132121	-0.274477106	-1.198971360	-1.113892736
## 332	-0.413990493	-0.355534388	-0.483045862	-0.888478246
## 333	-0.844777402	-0.029883203	-0.889576421	-0.796405772
## 334	-0.549819083	-1.352396751	-1.367491247	-0.973024360
## 335	0.065956136	1.446212563	0.495316224	0.816618670
## 336	0.200648086	-1.033855853	-0.796038416	-0.374804158
## 337	-0.463150212	-1.564283330	-1.473904928	-1.098915279
## 338	-1.149113008	0.728073486	0.699812266	2.812358532
## 339	1.242095330	-0.369754964	0.678983966	0.215764243
## 340	0.262310856	0.564536865	0.483955332	0.380089775
## 341	0.412347457	-0.100275053	-0.366028682	-0.423976379
## 342	1.196629693	-0.431614469	0.307861518	0.727556741
## 343	0.488502399	1.431991988	0.453659622	1.142760948
## 344	-0.754414449	-0.031305261	0.533185861	0.827908211
## 345	0.440195160	0.315676789	0.455553104	0.194439556
## 346	-1.036301397	0.521875137	-0.384395456	-0.570238647

## 347	-1.176108230	-0.954931658	-0.518075277	-0.521693623
## 348	-0.729976669	0.912940971	-0.179520717	-0.859125441
## 349	0.133586271	-0.299363114	-0.347851256	-0.174853854
## 350	-0.606935289	0.472103122	-0.230266032	-0.431377300
## 351	-0.137502588	-1.187438072	-0.918925390	-0.852100838
## 352	0.853079974	0.150007081	0.215080906	0.124820723
## 353	-0.399498321	-1.075806552	-0.872913780	-0.336796039
## 354	-0.734239072	-0.623592242	-0.730713292	-0.470012616
## 355	0.038108434	1.481764003	0.824782070	0.475423672
## 356	-1.095406725	0.571647153	-0.503874163	-0.841438494
## 357	-1.021525065	0.891610108	-0.606311532	-0.893621259
## 358	-0.644728600	-0.543957017	-0.669175131	-0.779095144
## 359	1.094332010	-0.123027974	0.088217620	0.299808599
## 360	-1.110751377	-0.281587394	-0.914381034	-0.612637143
## 361	1.850198223	-0.910847873	-0.394998955	0.020329755
## 362	0.363187737	-0.878140548	-0.078408785	0.132723402
## 363	-0.538452673	-1.377282758	-1.332272484	-1.113892736
## 364	-0.947075085	0.255950370	-0.547613594	-0.872672890
## 365	-0.579087586	0.578757441	-0.639447465	-0.801548785
## 366	-0.716052817	0.247418025	0.145022076	-0.268807918
## 367	0.877517754	1.076477593	1.176969699	1.213006977
## 368	-1.034312275	-1.174639553	-1.099752909	-0.920590716
## 369	-0.698434883	-0.738778906	-0.845458293	-0.942417161
## 370	1.460898707	0.507654562	0.273778844	0.615915730
## 371	-0.507479208	1.382219972	0.078750211	-0.370288342
## 372	-1.119560344	-1.361640125	-0.318691635	-0.362761982
## 373	-0.541294276	-0.940711082	-1.180036541	-1.016601986
## 374	-0.567152857	-0.390374799	-0.491566530	-0.748111627
## 375	-0.460308610	-0.748733309	-0.947516966	-0.741839660
## 376	-0.504637606	-1.609789172	-1.210142903	-1.023915099
## 377	0.038960915	-0.967730176	-0.609719800	-0.598964255
## 378	-0.545556679	0.557426577	0.480168369	-0.374804158
## 379	-0.733954912	-0.182754393	-1.242521443	-1.095239906
## 380	-0.706391370	0.351228228	-0.497246976	-0.570991283
## 381	-0.177000861	-0.676919401	-0.777103597	-0.945553145
## 382	-0.911270896	0.365448804	-0.688677994	-0.800921588
## 383	-0.019007772	-0.136537521	-0.092231203	0.396396889
## 384	0.432806994	0.543206001	0.976260620	0.584555896
## 385	-0.749299564	0.607198592	-0.366407378	-0.574252705
## 386	-0.949348367	-0.539690845	-0.448395144	-0.567228102
## 387	2.375894649	-0.167111759	1.737440335	1.639500725
## 388	-0.910986735	0.742294062	-0.711210428	-0.825758577
## 389	-0.205132723	-0.105252255	-0.364135200	-0.031978449
## 390	0.468611183	-0.148625011	-0.704772590	-0.420714956
## 391	0.928382435	0.256661399	0.512357560	1.016067217
## 392	-0.764075896	-1.555039956	-1.301976774	-1.113892736
## 393	-0.236106188	-1.387237161	-0.828416956	-0.880951886
## 394	1.372809036	0.401000243	0.775551541	1.295796940
## 395	-0.225592260	-0.255279329	-0.601956524	-0.894123016
## 396	-0.165634451	-1.855805133	-1.060936531	-0.857369290
## 397	-0.700992325	0.884499820	0.235909207	-0.223649757
## 398	0.208320412	-0.310028546	-0.014030401	0.293536632
## 399	1.531938765	0.114455641	0.559694607	1.223042124
## 400	-1.024082507	0.429441395	-0.971942883	-1.028230212

## 401	-1.027776590	-0.102408139	-0.381555233	-0.821619079
## 402	-0.288107511	-1.792523571	-0.588702151	-0.098837616
## 403	1.441007491	-0.167111759	1.279217721	0.964637089
## 404	1.932604689	-0.135115464	0.061708874	0.801565950
## 405	-0.318228495	-0.961330917	0.340050710	0.153044574
## 406	1.813257393	-0.345579985	0.165850377	0.115287334
## 407	0.379669031	0.173471031	0.747149313	-0.279595701
## 408	-0.714916176	-0.187020565	-0.709884991	-0.673349782
## 409	0.078459187	1.410661124	1.146673989	1.006032070
## 410	-1.066422381	-0.833345735	-1.201811582	-0.906666950
## 411	-0.405465686	-0.622881213	0.572948981	0.609643763
## 412	-0.736512354	-1.957482250	-1.253692986	-0.909050297
## 413	-0.851313087	-1.310446052	-1.002617289	-0.831528787
## 414	-0.657231650	0.621419168	-0.821600422	-0.663314635
## 415	-0.646717721	-1.296225476	-1.153906491	-0.832281423
## 416	1.455215502	0.891610108	0.766084132	1.716018721
## 417	-0.724861785	0.002113093	-0.671257961	-0.674478736
## 418	-0.038898989	0.081748317	0.180998232	-0.109499959
## 419	1.645602857	0.191246750	1.184543627	0.944566795
## 420	-0.633362190	0.905830684	1.243241565	0.967145875
## 421	-1.007885374	0.770735214	1.051999895	4.039155254
## 422	0.164559736	-0.412416691	-0.634903109	-0.454959895
## 423	-0.775726466	0.083881403	-1.007540342	-0.865271969
## 424	-1.154227893	4.766717009	2.263828296	0.106632019
## 425	-0.718610259	-0.410283605	-0.431543155	-0.338552190
## 426	-0.442974836	1.126249608	0.413896503	0.301062993
## 427	-0.648422683	1.382219972	0.307861518	-0.967003271
## 428	0.053453086	-0.506272492	-0.636228546	-0.694172712
## 429	-0.975206947	0.280125349	-0.554808825	-1.050859469
## 430	0.165980537	2.640740929	2.349034981	1.956862249
## 431	-0.233832907	-0.268788876	-0.487022174	-0.450945836
## 432	1.128431238	0.742294062	0.387387757	0.854250472
## 433	-0.601252084	0.061839511	-0.618997861	-0.593194045
## 434	1.173896874	0.344117940	0.518038006	0.756407788
## 435	-0.805279130	-0.512671751	0.131767703	0.072387080
## 436	-0.109086565	-0.232526408	-0.970996142	-0.892492305
## 437	1.270511353	-0.506983520	-0.861552889	-0.107869248
## 438	-0.393530956	-1.205213791	-0.959635250	-0.628066181
## 439	-1.222994668	0.082459346	-0.977433980	-0.855362261
## 440	-0.668029738	0.891610108	0.184785196	-0.255511348
## 441	-0.400350802	-0.040548635	0.154489486	-0.222395363
## 442	-0.232127945	-0.277321222	-0.698145403	-0.740836146
## 443	0.144100200	0.536095713	0.964899729	1.018576004
## 444	-0.308567047	0.763624926	0.211293942	-0.388100728
## 445	0.755044695	0.125121073	0.482061850	0.663582678
## 446	-1.082619515	0.429441395	-0.746429191	-0.743094054
## 447	-0.184389026	-1.132688855	-0.686784512	-0.524704167
## 448	-0.593579758	-1.388659219	-1.238734479	-1.094499814
## 449	-0.632793870	-0.194130853	0.209400460	-0.281477291
## 450	0.784313199	0.186269549	0.126087258	0.149281394
## 451	-0.924342266	0.635639744	-0.513530920	-1.030563384
## 452	-0.504353446	0.500544274	0.586203354	0.247124077
## 453	1.475106719	0.329897364	0.519931488	1.214261371
## 454	-0.633362190	-2.149460023	0.038987091	-0.012911669

## 455	-0.628247306	0.097390950	-0.438170342	-0.793395228
## 456	-0.042024751	0.237463622	-0.042432629	-0.049289077
## 457	-0.271910377	2.327888262	0.006797899	-0.251246411
## 458	2.171299283	-0.118761802	0.188572160	0.600863010
## 459	-1.215322342	-0.354112331	-1.166024775	-1.113892736
## 460	-0.365114933	-2.406852445	-1.608720838	-1.093885161
## 461	5.245912975	0.856058668	1.788564345	3.445827187
## 462	1.293244171	0.386779668	0.654368701	0.885610306
## 463	-0.801869207	-1.172506467	-0.635281805	-0.669084845
## 464	-0.196039596	-0.582352572	-0.703636501	-0.981554235
## 465	0.732596037	1.581308033	2.333887126	1.682150100
## 466	-0.531632828	0.642750032	0.516144524	-0.142866823
## 467	-0.334141468	-0.799927382	-0.981410292	-1.095566049
## 468	0.952251895	-0.489918829	0.357092047	0.253396044
## 469	-0.939686919	0.692522047	0.127980740	-0.270187751
## 470	-0.124147058	-0.837611907	-0.859470059	-0.670590117
## 471	-0.419105377	-0.630702530	-0.725790239	-0.723525517
## 472	0.100339524	-0.863919973	-0.962286125	-0.869662345
## 473	-0.372503099	-0.464321793	-1.262592351	-0.792517153
## 474	1.614345231	-0.864631001	0.163956895	0.322387680
## 475	-0.582497509	-0.628569443	-0.839588499	-0.816977824
## 476	1.057391180	0.078193173	0.139341631	0.303571779
## 477	-0.588464874	-1.920508753	0.056028428	-0.117528077
## 478	2.071843202	0.034109388	0.249163580	0.858013652
## 479	0.092098878	-0.457922534	-0.115710378	-0.368783070
## 480	-0.167623573	1.410661124	1.207265409	0.588319076
## 481	-0.040319790	0.976933562	0.105258957	-0.004758112
## 482	-0.035204906	0.082459346	0.184785196	0.063731766
## 483	1.230728920	0.713852911	1.597322676	1.795045504
## 484	-1.001633849	0.044774820	0.474487923	0.525599407
## 485	-0.664619816	-1.475404731	-1.288343704	-1.009702822
## 486	0.294705122	1.986594443	2.500513531	2.541409563
## 487	-1.039427160	-0.490629858	-0.790736667	-0.744097568
## 488	2.427043490	2.576748338	3.265480209	4.234840621
## 489	-0.330163225	-1.636097238	-0.976865935	-0.888101928
## 490	-0.833410993	1.794616670	2.102882337	1.004777677
## 491	1.000559134	0.265904773	0.465020514	0.353747514
## 492	1.733692528	1.524425730	3.269267173	3.294045588
## 493	0.233042352	2.086138474	0.968686693	1.435034605
## 494	-0.822044583	0.036242474	-0.129154099	-0.453705502
## 495	-1.230666995	1.986594443	-0.278549819	-0.737574723
## 496	-0.459740290	1.808837246	1.169395772	-0.508647932
## 497	-1.013284418	0.294345925	-0.139568250	-0.341939052
## 498	-0.350622761	0.055440252	0.006797899	-0.077889246
## 499	1.568879595	-0.267366818	1.930575486	1.123945047
## 500	0.255775170	0.706742623	1.127739170	1.082550066
## 501	0.576023750	-1.520910574	-0.629033315	-0.656164593
## 502	0.406095932	-1.016791162	-0.712914562	-0.700068361
## 503	0.408937534	1.467543427	1.852942729	1.046172658
## 504	-0.899620326	-0.400329202	1.167502290	1.746124162
## 505	-0.699287364	1.503094866	0.832355998	0.165588508
## 506	-0.761802615	-1.319689426	-1.298947203	-1.051587017
## 507	-0.063336768	-2.280289321	-1.469171223	-1.022949216
## 508	0.073344302	-0.827657504	-1.025907116	-0.685391958



## 509	1.966703917	0.962712987	2.258147851	2.867551840
## 510	0.421156424	1.112029032	0.998982403	0.795293983
## 511	-0.383301188	0.792066077	0.429044358	-0.540885842
## 512	0.977542155	-0.555333478	-0.645127911	-0.399013951
## 513	-0.608924411	1.033815866	0.894840900	0.413958397
## 514	-0.244346835	0.007090294	-0.326265563	-0.626184591
## 515	0.527148190	0.075349058	0.858864744	1.157813669
## 516	-0.431040106	0.884499820	1.430696271	1.012304037
## 517	1.907030269	-0.826235447	-0.486643478	-0.023824892
## 518	1.557513185	0.941382123	1.051999895	1.362279789
## 519	1.074440794	1.311117093	0.836142961	1.108892327
## 520	-0.356590126	0.273015061	0.832355998	-0.021943302
## 521	-0.912975857	0.127965188	-0.057580484	-0.319234532
## 522	-0.491566235	0.233908478	0.027626200	-0.109750838
## 523	0.183598472	-0.935733880	-1.103729221	-0.526084000
## 524	-1.346604368	-3.109348889	-1.149740831	-1.113892736
## 525	-1.453164455	1.467543427	-0.542690541	-1.113892736
## 526	-0.405465686	-0.150047068	-0.798121246	-0.624679319
## 527	-0.450363002	-1.232232885	-0.550075120	-0.431753618
## 528	0.929519076	-0.877429520	-0.702879108	-0.199063646
## 529	-0.735659873	-0.656299566	-1.027421902	-0.812963765
## 530	-1.047383646	-0.942133139	-0.947895663	-0.928367955
## 531	-0.607787770	-0.733090675	-0.061367448	-0.289254530
## 532	-1.376725353	-0.688295862	0.294607145	0.046672016
## 533	-0.436439151	-1.237210087	-1.119445121	-0.938026784
## 534	0.505836173	0.138630620	0.970580175	1.135234588
## 535	1.526255560	0.365448804	1.033065077	2.078538407
## 536	-0.420526178	-0.423793152	-0.409957462	-0.381954201
## 537	-0.698719043	-0.079655218	-0.939374994	-0.733058907
## 538	-0.671155501	-0.584485658	-0.981031596	-0.915322264
## 539	-0.199165358	-0.041259664	-0.048113075	-0.651272459
## 540	-0.688489275	-0.464321793	-0.550832513	-0.587549275
## 541	0.708726577	-0.614348868	-0.592678463	-0.242089339
## 542	-1.128369312	2.896711293	0.343837673	-0.695928863
## 543	-0.471390859	-0.883828779	-1.177385666	-1.090561019
## 544	1.730850926	1.467543427	1.574600893	2.103626274
## 545	1.676860482	2.292336822	4.564408776	3.595099999
## 546	-0.401203282	0.294345925	-0.471684971	-0.341813613
## 547	-1.164173501	-0.123739003	0.377920347	0.048051849
## 548	-0.449794682	0.028421158	-0.469980837	-0.776711796
## 549	-0.154836363	0.208311441	0.156382968	-0.554182411
## 550	-0.584202471	0.479213410	-0.254123903	-0.286996622
## 551	-0.398930000	-1.482515019	-0.401058097	-0.345451353
## 552	-0.768054140	-1.679469994	-0.827470215	-0.548788520
## 553	-0.508615849	1.581308033	2.561104951	1.737343408
## 554	-0.659220771	0.777845502	-0.136538679	-0.451322154
## 555	-0.332436506	-0.600839321	-0.990120309	-0.766174892
## 556	2.137200055	1.446212563	1.976019051	2.410952652
## 557	-0.703265607	-0.206929371	-0.841292633	-0.782983763
## 558	0.003440886	0.479213410	1.500755100	0.704977660
## 559	-0.801869207	0.301456213	-0.888250984	-0.817479581
## 560	0.056578849	-0.324960150	-0.292372237	-0.603480071
## 561	-0.062200127	0.132942390	0.103365475	0.540652128
## 562	-0.559764691	-0.684740718	-0.736393737	-0.863766697

```
## 563 -0.024975137 -1.877847026 -0.986712041 -0.677865598
## 564 -0.426493543 1.211573063 -0.302975736 -0.637223253
## 565 -0.334141468 -1.542952466 -0.840724589 -0.504382994
## 566 -0.947075085 0.174893088 -0.241437575 -0.664694468
## 567 0.158308211 -0.411705663 0.016265309 -0.439656296
## 568 -0.030374182 0.962712987 -0.225721675 -0.248988503
## 569 2.077526407 0.265904773 0.892947418 1.309595267
## points_mean
## 1 -0.307171959
## 2 -0.579832380
## 3 -0.621581896
## 4 -0.024718442
## 5 -0.575966684
## 6 -0.892696038
## 7 -0.202798168
## 8 1.104064774
## 9 -0.951196903
## 10 -0.399690949
## 11 1.628253144
## 12 -0.659981142
## 13 -0.356137441
## 14 -1.153321259
## 15 1.074943198
## 16 -0.297894289
## 17 0.268301311
## 18 -0.717708868
## 19 2.038016914
## 20 -0.517981244
## 21 -0.425977681
## 22 -0.093012404
## 23 -0.505095591
## 24 0.938612987
## 25 -0.470046615
## 26 0.045637224
## 27 -0.544267977
## 28 0.994536722
## 29 -0.670031952
## 30 -0.881098950
## 31 -1.033175429
## 32 -0.563854170
## 33 1.321574599
## 34 -0.576997536
## 35 -0.139916181
## 36 -0.623901313
## 37 0.788366272
## 38 -0.486797964
## 39 0.434010810
## 40 1.072108354
## 41 1.144525725
## 42 2.053479698
## 43 1.450431130
## 44 -0.720028286
## 45 -0.915632501
## 46 0.228355786
```

```
## 47 -0.907643396
## 48 3.669340602
## 49 0.126043700
## 50 -0.462057510
## 51 0.182998287
## 52 -0.286554914
## 53 -0.838576295
## 54 -0.124711110
## 55 2.914241328
## 56 0.539930879
## 57 -0.580605519
## 58 -1.198756072
## 59 3.924476535
## 60 1.178286136
## 61 1.306369528
## 62 1.427236955
## 63 0.439422784
## 64 -0.737295061
## 65 1.253538350
## 66 -0.533444028
## 67 -0.627767009
## 68 -0.776982873
## 69 -0.304337115
## 70 -0.704823215
## 71 0.140991057
## 72 -0.803269605
## 73 0.004145421
## 74 -0.183985115
## 75 -0.546587394
## 76 -0.295574871
## 77 0.237633456
## 78 -0.686010162
## 79 -0.604057408
## 80 1.013349776
## 81 -0.286297201
## 82 -0.834452886
## 83 -0.636013827
## 84 0.559774785
## 85 0.169597207
## 86 -0.958928295
## 87 -0.578543814
## 88 -0.419534854
## 89 0.963868867
## 90 -0.285781775
## 91 -0.917951918
## 92 -0.650188046
## 93 -0.527001202
## 94 -0.806619875
## 95 0.444834759
## 96 0.553847384
## 97 -0.775436594
## 98 -0.673124508
## 99 -0.767189776
## 100 3.494095720
```

```
## 101 -0.521846940
## 102 -1.260710292
## 103 -0.550710803
## 104 0.094602706
## 105 -0.975937357
## 106 -0.753273271
## 107 -0.129092232
## 108 -0.702503798
## 109 -1.050416433
## 110 -0.983411036
## 111 -0.362580268
## 112 -0.701988371
## 113 0.972373399
## 114 0.807437038
## 115 -0.973360227
## 116 0.217531837
## 117 0.280413825
## 118 1.087828851
## 119 0.979073938
## 120 0.183256000
## 121 -0.966659687
## 122 1.203284303
## 123 -0.922333040
## 124 0.920830786
## 125 -0.662300560
## 126 -0.873625271
## 127 1.213592825
## 128 0.097695263
## 129 0.189441113
## 130 0.321390202
## 131 1.241941262
## 132 -0.020595033
## 133 -0.416700011
## 134 2.318924153
## 135 -0.160790939
## 136 1.102518495
## 137 -1.260710292
## 138 -0.754819549
## 139 1.299411275
## 140 -0.913055370
## 141 0.731669398
## 142 2.530248864
## 143 1.262558307
## 144 0.969280842
## 145 1.002783540
## 146 -0.860481905
## 147 0.441742202
## 148 -0.014667633
## 149 -0.822855798
## 150 -0.765643498
## 151 -1.095181192
## 152 -0.753788697
## 153 -0.464892354
## 154 -1.119096964
```

```
## 155 0.440711350
## 156 -0.898365725
## 157 -0.941661520
## 158 0.200265062
## 159 -0.974391079
## 160 -0.388609287
## 161 -0.578286101
## 162 0.179390304
## 163 -0.722605416
## 164 -1.171232316
## 165 1.324151730
## 166 3.579141030
## 167 -0.074457063
## 168 0.673941672
## 169 -0.363095694
## 170 -0.918209631
## 171 0.630903590
## 172 0.404889234
## 173 0.281702390
## 174 -0.708688911
## 175 -0.374692781
## 176 -0.664104551
## 177 1.057160996
## 178 -1.073971407
## 179 1.339614513
## 180 -0.804558170
## 181 -0.202282742
## 182 0.449989020
## 183 -0.766674350
## 184 -0.209498708
## 185 -1.065286476
## 186 -0.907901109
## 187 1.548362094
## 188 0.503851050
## 189 0.730380832
## 190 -0.898108012
## 191 0.270878441
## 192 -0.797857631
## 193 -0.430616516
## 194 0.637088704
## 195 0.076562792
## 196 2.525094603
## 197 0.428083410
## 198 -0.498652765
## 199 -0.448398717
## 200 -0.607665390
## 201 -0.513600122
## 202 -0.898881152
## 203 -0.261814460
## 204 0.290980060
## 205 -0.423142837
## 206 0.935005004
## 207 -0.802754179
## 208 -0.354848876
```

```
## 209 -1.146826889
## 210  2.594677130
## 211 -0.387063009
## 212  0.832692918
## 213  0.786562280
## 214 -0.522620080
## 215 -0.855843070
## 216 -0.928260441
## 217 -0.488859668
## 218 -0.472623745
## 219  0.823930674
## 220  1.239621845
## 221 -0.764870359
## 222 -0.641683515
## 223  1.476202437
## 224 -0.685237022
## 225 -1.260710292
## 226 -1.260710292
## 227  0.553074245
## 228  1.983897171
## 229  0.669045123
## 230 -1.184916880
## 231 -0.740903044
## 232 -0.731367661
## 233  0.748936173
## 234  0.926758186
## 235 -0.874398411
## 236 -0.453552979
## 237  1.027266281
## 238 -0.871563567
## 239 -0.844503695
## 240 -0.469531189
## 241  0.091252436
## 242 -0.764870359
## 243 -1.128555033
## 244 -0.529578332
## 245  1.249414941
## 246 -1.012919182
## 247 -1.127756123
## 248 -0.258206477
## 249 -1.108221473
## 250 -0.759458384
## 251  0.322163341
## 252  2.287998585
## 253 -0.550195377
## 254  1.826692202
## 255  0.444061620
## 256 -0.936764972
## 257 -0.506899583
## 258 -0.719512860
## 259 -0.522620080
## 260 -0.028584138
## 261 -0.403556645
## 262 -0.555091926
```

```
## 263 0.823415248
## 264 -0.727244252
## 265 1.839577855
## 266 1.149679986
## 267 -0.984699602
## 268 -0.520558375
## 269 -0.935734120
## 270 1.029327985
## 271 -0.208467856
## 272 1.620521752
## 273 -0.422885124
## 274 -0.675186213
## 275 0.484522570
## 276 2.849813062
## 277 0.015227083
## 278 0.105684368
## 279 -1.260710292
## 280 -1.260710292
## 281 1.522590788
## 282 -1.114741613
## 283 -1.041963444
## 284 -0.299182854
## 285 0.421382870
## 286 -0.541433133
## 287 0.404631521
## 288 1.169781605
## 289 2.115330833
## 290 0.046925790
## 291 -1.260710292
## 292 -0.737295061
## 293 0.421125157
## 294 -0.738325913
## 295 2.607562783
## 296 2.530248864
## 297 2.146256400
## 298 1.187048380
## 299 -0.539629142
## 300 1.108703609
## 301 1.230601888
## 302 -0.906612543
## 303 -1.090928926
## 304 0.845320859
## 305 0.404631521
## 306 0.888616653
## 307 1.169266179
## 308 -0.644776071
## 309 -0.342736362
## 310 -0.113629449
## 311 1.355077297
## 312 0.891966923
## 313 -0.446337013
## 314 0.647397226
## 315 0.326286750
## 316 -0.972844801
```

```
## 317 1.427236955
## 318 1.927200297
## 319 -0.679051909
## 320 -0.351498606
## 321 -0.011832789
## 322 0.290206921
## 323 0.977012234
## 324 -0.743222462
## 325 -0.975164218
## 326 1.005876097
## 327 -0.772086325
## 328 1.182151832
## 329 -0.579059240
## 330 2.373043896
## 331 -1.260710292
## 332 -0.722089990
## 333 -0.823113511
## 334 -1.130539424
## 335 0.961807163
## 336 -0.447110152
## 337 -1.120282444
## 338 -0.133215642
## 339 0.308762261
## 340 0.339945542
## 341 -0.093785543
## 342 0.870834452
## 343 0.796097664
## 344 -0.525197210
## 345 0.185833130
## 346 -0.802496466
## 347 -0.647095489
## 348 -0.781106282
## 349 -0.143524164
## 350 -0.159244661
## 351 -0.577255249
## 352 0.788881698
## 353 -0.656888585
## 354 -0.771313185
## 355 1.066180953
## 356 -0.873109845
## 357 -0.757654393
## 358 -0.901715995
## 359 0.646366374
## 360 -0.930322145
## 361 0.291237773
## 362 0.121662578
## 363 -1.260710292
## 364 -0.753530984
## 365 -0.502776174
## 366 -0.592202607
## 367 1.455585392
## 368 -0.991915567
## 369 -1.031165267
## 370 0.953302632
```



```
## 371 -0.415669158
## 372 -0.698895815
## 373 -1.040752193
## 374 -0.867182445
## 375 -0.675186213
## 376 -0.964597983
## 377 -0.480612850
## 378 -0.518496671
## 379 -1.174814528
## 380 -0.505868731
## 381 -0.669774239
## 382 -0.777498299
## 383 0.011876813
## 384 0.737081372
## 385 -0.592202607
## 386 -0.632405844
## 387 1.543207833
## 388 -0.801981040
## 389 -0.103836352
## 390 -0.084765586
## 391 0.876504139
## 392 -1.260710292
## 393 -0.816670684
## 394 1.229828748
## 395 -0.776209734
## 396 -1.041473789
## 397 -0.101774648
## 398 0.667756558
## 399 1.581864792
## 400 -1.056163434
## 401 -0.638075532
## 402 -0.539113716
## 403 0.696104995
## 404 1.043502204
## 405 -0.530609185
## 406 0.745585903
## 407 0.130167109
## 408 -0.584728928
## 409 1.038863369
## 410 -0.831102616
## 411 -0.235012301
## 412 -1.180174960
## 413 -1.057761255
## 414 -0.590656328
## 415 -0.548649099
## 416 1.816383680
## 417 -0.519785236
## 418 -0.172388027
## 419 1.999359954
## 420 0.650232070
## 421 0.764141244
## 422 -0.401494940
## 423 -0.800434761
## 424 0.092798715
```

```
## 425 -0.652249750
## 426  0.510551590
## 427 -0.800177048
## 428 -0.519269810
## 429 -0.973102514
## 430  1.940085950
## 431 -0.465665493
## 432  1.174935866
## 433 -0.780590856
## 434  1.105868765
## 435 -0.329592995
## 436 -0.556380491
## 437  0.245107135
## 438 -0.648126341
## 439 -1.059719874
## 440 -0.297378863
## 441 -0.500456756
## 442 -0.631117279
## 443  1.011030358
## 444  0.096406698
## 445  1.009999506
## 446 -0.725697973
## 447 -0.656630872
## 448 -1.116597147
## 449 -0.450975848
## 450  0.396642416
## 451 -0.947331207
## 452 -0.085023299
## 453  1.370540081
## 454 -0.645806924
## 455 -0.699153528
## 456  0.164958372
## 457  0.428856549
## 458  0.967476850
## 459 -1.260710292
## 460 -1.212981833
## 461  3.092063341
## 462  0.992732731
## 463 -0.726213399
## 464 -1.004620821
## 465  2.349849720
## 466 -0.539371429
## 467 -1.176670062
## 468  0.351027204
## 469 -0.238877997
## 470 -0.502003035
## 471 -0.522620080
## 472 -0.761004663
## 473 -0.507415009
## 474  0.449731307
## 475 -0.648126341
## 476  0.788108559
## 477 -0.493240790
## 478  1.715875585
```

```
## 479 -0.018791042
## 480 0.481172301
## 481 0.228355786
## 482 0.244076283
## 483 1.945240211
## 484 -0.303048550
## 485 -0.961247713
## 486 1.940085950
## 487 -0.870532715
## 488 3.437398846
## 489 -0.937022685
## 490 0.380148780
## 491 0.739658503
## 492 2.656528265
## 493 1.566402009
## 494 -0.542206272
## 495 -1.022093767
## 496 0.105942081
## 497 -0.480097424
## 498 0.092798715
## 499 1.687527148
## 500 0.903821724
## 501 -0.666166256
## 502 -0.404329784
## 503 1.388579995
## 504 0.270363015
## 505 0.173205190
## 506 -1.094897707
## 507 -1.099639628
## 508 -0.605861399
## 509 2.537980256
## 510 0.924954195
## 511 -0.459222666
## 512 -0.038119521
## 513 0.074758800
## 514 -0.600191712
## 515 1.000206409
## 516 0.507459033
## 517 0.547662271
## 518 2.035439783
## 519 1.471048175
## 520 0.054141755
## 521 -0.689102718
## 522 -0.275988678
## 523 -0.554834212
## 524 -1.260710292
## 525 -1.260710292
## 526 -0.844503695
## 527 -0.736006496
## 528 0.181452008
## 529 -0.700699806
## 530 -1.112035626
## 531 -0.283720070
## 532 -0.909189674
```

```
## 533 -0.787806821
## 534  1.024173724
## 535  1.700412801
## 536 -0.467469484
## 537 -0.673639935
## 538 -0.964855696
## 539 -0.650188046
## 540 -0.397371531
## 541  0.128363117
## 542 -0.636786967
## 543 -1.185354992
## 544  2.615294175
## 545  2.873007238
## 546 -0.392217270
## 547 -0.665908543
## 548 -0.801723327
## 549 -0.151513269
## 550 -0.552257082
## 551 -0.779560003
## 552 -0.881614376
## 553  0.940932405
## 554 -0.116464292
## 555 -0.727759678
## 556  2.764767751
## 557 -0.727501965
## 558  0.362882005
## 559 -0.595037450
## 560 -0.678278770
## 561  0.181967434
## 562 -0.824659789
## 563 -0.813062702
## 564 -0.384485878
## 565 -0.521073801
## 566 -0.735748783
## 567 -0.419792568
## 568  0.413136052
## 569  1.973588648
```

```
colnames(matstand.all) <- colnames(cancer[2:10])
t2testcan <- hotelling.test(radius_mean + texture_mean + perimeter_mean + area_mean + smoothness
_mean + compactness_mean + concavity_mean + points_mean + symmetry_mean + dimension_mean ~ diagn
osis, data=cancer)
cat("T2 statistic =",t2testcan$stat[[1]],"\n")
```

```
## T2 statistic = 1220.313
```

```
print(t2testcan)
```

```
## Test stat: 120.09  
## Numerator df: 10  
## Denominator df: 558  
## P-value: 0
```

```
# In the above we standardized using scale function  
matabsdev.all
```

##	cancer.diagnosis	radius_mean	texture_mean	perimeter_mean	area_mean
## 1	B	0.034051742	1.162510676	0.027573173	0.0161971331
## 2	B	0.454023221	0.362703331	0.366270503	0.3182594580
## 3	B	0.329166835	0.130201196	0.298777961	0.2421045162
## 4	B	0.261063352	0.930008541	0.213177663	0.2091419295
## 5	B	0.848455895	0.971858925	0.801268167	0.7200620236
## 6	B	0.178771643	0.383628523	0.163792876	0.1383860322
## 7	B	0.195797514	1.520563965	0.150623600	0.1560039664
## 8	M	0.485237318	0.441754057	0.443228462	0.3475279617
## 9	B	0.323491545	0.564980189	0.275320187	0.2401153946
## 10	B	0.014188226	0.127876174	0.003703859	0.0053990444
## 11	M	0.266738642	0.778882153	0.321001115	0.2230657808
## 12	B	0.241199836	0.446404100	0.182312172	0.1955022385
## 13	B	0.678197187	1.229936296	0.749414141	0.5646263776
## 14	B	0.996013442	0.804457388	0.980288020	0.8618579786
## 15	M	0.133369321	0.020925192	0.126342746	0.0895104725
## 16	B	0.002837645	0.953258755	0.037038590	0.0073881660
## 17	B	0.139044612	0.046500427	0.144038962	0.1082650478
## 18	B	0.144719902	1.639140054	0.074488720	0.1477633198
## 19	M	0.357543287	0.279002562	0.320589575	0.2511976436
## 20	B	0.822917089	0.232502135	0.880695366	0.6140702577
## 21	B	0.479562027	0.651005979	0.392609056	0.3529270061
## 22	B	0.354705642	0.211576943	0.346516588	0.2747829427
## 23	B	0.736085147	0.127876174	0.680686979	0.5055210497
## 24	B	0.340517416	0.102300940	0.300424120	0.2671106165
## 25	B	0.241199836	0.825382580	0.186427570	0.2051636863
## 26	M	0.019863516	0.123226132	0.009465417	0.0218803377
## 27	B	0.675359542	0.867232965	0.662990764	0.5694571016
## 28	M	0.414296189	0.520804783	0.415243750	0.3472438014
## 29	B	0.085129354	0.637055851	0.002880779	0.0727450190
## 30	B	0.224173966	0.734706747	0.242808535	0.1588455687
## 31	B	0.482399673	0.179026644	0.444051542	0.4006659247
## 32	M	0.303628029	0.179026644	0.317297256	0.2196558580
## 33	M	0.371731512	0.348753203	0.408247572	0.2833077496
## 34	B	0.073778773	0.581255338	0.092596475	0.0366566697
## 35	B	0.794540637	0.437104014	0.793037369	0.6424862807
## 36	B	0.113505805	0.030225278	0.120169648	0.0753024610
## 37	M	0.573204317	2.431972335	0.591382823	0.4702851812
## 38	B	0.323491545	0.355728267	0.341989649	0.1750427019
## 39	M	0.130531676	0.627755765	0.076957960	0.0920679146
## 40	M	0.601580768	0.530104868	0.593440522	0.4003817645
## 41	M	0.039727032	1.122985313	0.068727162	0.0173337740
## 42	M	0.303628029	0.086025790	0.262150910	0.2500610027
## 43	M	0.683872477	0.395253630	0.596732841	0.5867908756
## 44	B	0.468211447	0.513829719	0.444874622	0.3665666971
## 45	B	0.150395192	0.611480616	0.122227348	0.1199156172
## 46	M	0.610093704	0.032550299	0.566690429	0.4194204999
## 47	B	0.896128333	0.351078224	0.745298742	0.6078187326
## 48	M	1.603269500	0.967208883	1.498828282	1.5165631492
## 49	B	1.316667342	0.481279420	1.243673550	1.1985878515
## 50	B	0.045402322	1.025334417	0.065846383	0.0218803377
## 51	M	0.252550417	0.383628523	0.262562450	0.1827150281
## 52	B	0.158908127	0.934658584	0.169142895	0.1298612253

## 53	B	0.786027702	0.102300940	0.742417963	0.6464645240
## 54	B	0.028376451	0.346428182	0.026750093	0.0150604922
## 55	M	0.312140965	0.971858925	0.290547163	0.2492085220
## 56	B	0.692385412	0.499879591	0.723898668	0.5498500457
## 57	B	0.263900997	1.029984459	0.206593025	0.2048795261
## 58	B	0.195797514	0.992784118	0.152681299	0.1633921324
## 59	M	0.039727032	1.190410933	0.031277032	0.0287001833
## 60	M	0.334842126	3.099253463	0.335816551	0.2807503076
## 61	M	0.428484415	0.299927755	0.434174585	0.3199644193
## 62	M	0.173096353	1.006734246	0.127988906	0.1432167561
## 63	M	0.076616419	0.018600171	0.093419555	0.0616627700
## 64	M	0.227011611	1.799566527	0.182312172	0.1756110223
## 65	M	0.215661030	0.209251922	0.246923934	0.1898190339
## 66	B	0.099317580	0.016275149	0.108646531	0.0730291792
## 67	B	0.573204317	0.032550299	0.537471097	0.4128848147
## 68	B	0.422809125	0.697506406	0.357216625	0.3225218614
## 69	B	0.703735993	0.192976772	0.718137109	0.4839248722
## 70	B	0.258225707	1.011384288	0.244866235	0.2000488021
## 71	M	0.283764513	0.009300085	0.244866235	0.2364213116
## 72	B	0.201472804	0.651005979	0.172435214	0.1520257232
## 73	B	0.102155225	0.390603587	0.153915919	0.0778599031
## 74	B	0.005675290	0.616130658	0.053088646	0.0150604922
## 75	B	0.391595028	1.585664563	0.382320558	0.2750671029
## 76	B	0.295115094	0.934658584	0.297543341	0.2219291399
## 77	M	0.158908127	0.218552007	0.123873507	0.1304295457
## 78	B	1.129666527	0.769582068	1.025145868	0.7231877862
## 79	B	0.124856386	0.978833990	0.142392802	0.0866688702
## 80	M	0.241199836	0.279002562	0.284374064	0.1523098834
## 81	B	0.468211447	0.041850384	0.422239928	0.3702607801
## 82	B	0.170258708	1.650765160	0.162558257	0.1170740149
## 83	B	0.207148095	0.316202904	0.212354584	0.1582772483
## 84	B	0.209985740	0.179026644	0.188896810	0.1571406074
## 85	B	0.414296189	0.404553715	0.464216997	0.3321833092
## 86	B	0.286602158	2.480797783	0.275731727	0.2273281843
## 87	B	0.323491545	0.062775577	0.285197144	0.2611432517
## 88	B	0.983527803	0.127876174	0.942837890	0.6368030761
## 89	M	0.039727032	1.081134929	0.055146345	0.0278477026
## 90	B	0.073778773	0.197626815	0.101650353	0.0591053279
## 91	B	0.110668160	0.000000000	0.119758108	0.0838272679
## 92	B	1.220187407	0.209251922	1.169596369	1.0789563945
## 93	M	0.065265838	0.090675833	0.017284675	0.0537062835
## 94	B	0.045402322	0.267377456	0.034157811	0.0235852991
## 95	M	0.082291709	0.125551153	0.041565529	0.0659251734
## 96	M	0.697493174	0.402228694	0.668752322	0.4793783085
## 97	B	0.198635159	0.341778139	0.228816179	0.1528782039
## 98	B	0.533477285	0.241802221	0.529651839	0.3793539075
## 99	B	0.627119574	0.544054997	0.734598705	0.5472926036
## 100	M	0.784325115	0.216226986	0.755587239	0.5109200941
## 101	B	0.394432673	0.104625961	0.331701152	0.3236585023
## 102	B	0.462536157	0.216226986	0.467509316	0.3338882706
## 103	B	0.366056222	1.141585484	0.359274325	0.2915483963
## 104	M	0.303628029	0.611480616	0.269970168	0.2651214949
## 105	B	0.266738642	0.597530488	0.183546791	0.1827150281
## 106	B	0.473886737	0.274352520	0.425532247	0.3844687916

## 107	B	0.908046443	0.695181384	0.897980041	0.6027038485
## 108	B	0.607256058	0.911408370	0.589736663	0.5194449010
## 109	B	0.269576288	0.476629377	0.293427942	0.2287489854
## 110	B	0.436997350	0.120901110	0.409070651	0.3597468516
## 111	B	0.394432673	1.034634502	0.369562822	0.2915483963
## 112	B	0.187284579	0.141826303	0.206181485	0.1361127503
## 113	M	0.323491545	0.595205466	0.323881894	0.2278965047
## 114	M	0.005675290	0.727731683	0.039507830	0.0008524807
## 115	B	0.008512935	0.504529634	0.014815436	0.0073881660
## 116	M	0.445510286	0.957908797	0.406601412	0.3532111663
## 117	M	0.278089223	0.574280274	0.256800892	0.2020379238
## 118	M	0.366056222	1.171810762	0.372032061	0.2690997381
## 119	M	0.697493174	0.399903673	0.686448538	0.4788099881
## 120	B	0.076616419	1.506613837	0.083954138	0.0446131562
## 121	B	0.771839476	0.571955253	0.751883380	0.6493061263
## 122	M	0.686710122	1.541489157	0.674513881	0.5805393505
## 123	B	0.357543287	0.316202904	0.381085939	0.2634165335
## 124	M	0.002837645	0.767257046	0.024692393	0.0102297683
## 125	B	0.397270319	1.067184801	0.386435957	0.2798978269
## 126	B	0.791702992	1.097410079	0.796329688	0.6686290219
## 127	M	0.122018741	0.783532196	0.163381337	0.0625152507
## 128	M	0.139044612	0.451054142	0.129635066	0.1082650478
## 129	M	0.170258708	0.225527071	0.176962153	0.1298612253
## 130	M	0.368893867	1.088109993	0.309066458	0.3063247283
## 131	M	0.195797514	0.392928609	0.242808535	0.1653812540
## 132	B	0.306465674	0.853282836	0.313181857	0.2369896321
## 133	B	0.374569158	0.411528779	0.319766495	0.2827394292
## 134	M	0.576041962	0.583580360	0.560928871	0.4162947374
## 135	B	0.156070482	0.160426473	0.178196773	0.1005927215
## 136	M	0.567529027	0.730056705	0.585621264	0.4546563685
## 137	B	0.147557547	0.839332708	0.148154361	0.0957619976
## 138	B	0.141882257	1.213661146	0.111115770	0.1040026443
## 139	M	0.212823385	0.832357644	0.179842932	0.1616871711
## 140	B	0.436997350	0.520804783	0.439936143	0.3091663306
## 141	M	1.022403541	0.281327584	0.991399597	0.6740280663
## 142	M	0.716221632	0.988134075	0.578625086	0.5282538682
## 143	M	0.269576288	0.606830573	0.279847126	0.1943655975
## 144	M	0.161745773	2.766775410	0.136219704	0.1230413797
## 145	M	0.039727032	0.567305210	0.004526939	0.0304051446
## 146	B	0.584554897	0.525454826	0.808675885	0.4873347950
## 147	M	0.161745773	2.799325709	0.130458145	0.1406593140
## 148	B	0.147557547	0.283652605	0.110704231	0.1076967273
## 149	B	1.029781419	0.997434160	0.973291841	0.6737439061
## 150	B	0.439834996	1.820491719	0.418536069	0.3165544966
## 151	B	0.488074963	0.574280274	0.471624715	0.3429813980
## 152	B	0.985797919	0.362703331	0.919380116	0.6464645240
## 153	B	0.795391931	0.997434160	0.758468018	0.5387677967
## 154	B	0.714235280	0.453379164	0.704967833	0.4907447178
## 155	B	0.615768994	0.904433306	0.616898296	0.4293661080
## 156	B	0.644145445	1.767016228	0.725544827	0.5626372560
## 157	B	1.136193111	0.127876174	1.089346091	0.7288709908
## 158	M	0.056752903	2.520323146	0.058027125	0.0451814766
## 159	B	0.805891218	0.151126388	0.845714475	0.6564101320
## 160	B	0.263900997	0.439429036	0.197539148	0.1886823929



## 161	B	0.493750253	0.981159011	0.499197887	0.3858895928
## 162	B	0.793121815	1.002084203	0.764641117	0.5319479512
## 163	B	0.661171316	0.453379164	0.661344604	0.5720145436
## 164	B	0.238362191	0.041850384	0.234166198	0.1665178950
## 165	M	0.164583418	0.209251922	0.131281225	0.1253146616
## 166	M	0.380244448	0.704481470	0.381909019	0.3066088885
## 167	B	0.028376451	0.076725705	0.004526939	0.0346675481
## 168	M	0.541990220	2.376171823	0.514836403	0.3892995155
## 169	B	0.482399673	0.430128950	0.434174585	0.4106115328
## 170	B	0.567529027	0.020925192	0.540351876	0.3898678360
## 171	M	0.939828068	0.639380872	0.797975848	0.6092395338
## 172	M	0.014188226	1.174135783	0.000000000	0.0230169787
## 173	M	0.170258708	0.016275149	0.200419927	0.1417959549
## 174	B	0.527801995	0.048825448	0.476151654	0.4282294671
## 175	M	0.031214096	0.202276858	0.041565529	0.0355200288
## 176	B	0.757651250	0.655656021	0.738302564	0.6322565125
## 177	M	0.380244448	0.950933733	0.397959074	0.2781928655
## 178	B	1.268711139	1.883267296	1.242850470	0.7945120040
## 179	M	0.266738642	0.567305210	0.283139445	0.1997646419
## 180	B	0.039727032	0.351078224	0.062554063	0.0372249902
## 181	B	0.408620899	0.416178822	0.378616699	0.3321833092
## 182	M	0.692385412	0.125551153	0.659698445	0.5899166381
## 183	B	0.127694031	0.181351666	0.185604491	0.0772915826
## 184	M	0.788014053	2.438947399	0.778633473	0.5316637909
## 185	B	0.422809125	0.306902819	0.397547534	0.3429813980
## 186	B	0.002837645	0.146476345	0.005350019	0.0000000000
## 187	M	0.036889387	0.918383434	0.014403896	0.0375091504
## 188	M	0.584554897	0.181351666	0.536648017	0.4964279224
## 189	M	0.368893867	1.029984459	0.390551356	0.2602907710
## 190	B	0.209985740	0.283652605	0.205769945	0.1398068333
## 191	M	0.780352412	0.320852947	0.809087425	0.6566942923
## 192	B	0.385919738	0.811432452	0.428413026	0.2924008770
## 193	B	0.425646770	0.058125534	0.394255215	0.3202485796
## 194	M	0.087966999	0.006975064	0.081484898	0.0647885325
## 195	M	0.357543287	2.515673104	0.317297256	0.2946741588
## 196	M	0.303628029	1.174135783	0.275320187	0.2273281843
## 197	M	0.726437154	0.616130658	0.686860078	0.5975889644
## 198	B	0.070941128	0.227852093	0.192189129	0.0520013221
## 199	B	0.076616419	0.962558840	0.067904082	0.0562637256
## 200	B	0.062428193	0.546380018	0.017696215	0.0514330017
## 201	M	0.519289059	0.897458242	0.477797813	0.4120323340
## 202	B	0.227011611	0.788182239	0.219350762	0.1733377405
## 203	B	0.698628232	1.260161573	0.697148575	0.4827882313
## 204	B	0.190122224	0.499879591	0.184781411	0.1443533970
## 205	B	0.397270319	1.785616399	0.387259037	0.2864335122
## 206	M	0.005675290	0.769582068	0.038273210	0.0085248069
## 207	B	0.871157056	1.041609566	0.822668241	0.7589919752
## 208	M	0.096479935	0.158101452	0.051030946	0.0951936772
## 209	B	0.899817272	0.013950128	0.797975848	0.5907691188
## 210	M	1.001688732	1.420588047	1.013211211	0.8206547452
## 211	B	1.118032182	0.588230402	1.074942194	0.9706913468
## 212	M	0.255388062	0.186001708	0.174904454	0.1960705589
## 213	M	0.687561416	0.093000854	0.645294549	0.4779575074
## 214	B	0.942665713	0.441754057	0.882341526	0.6177643407

## 215	B	0.218498675	0.018600171	0.186016031	0.1716327791
## 216	B	0.059590548	1.743766015	0.023457774	0.0485913994
## 217	B	0.516451414	0.402228694	0.469567015	0.4208413011
## 218	B	0.192959869	2.680749620	0.177785233	0.1588455687
## 219	M	0.244037481	0.899783264	0.234577738	0.1758951826
## 220	M	0.776095944	0.841657730	0.743652582	0.5370628353
## 221	B	0.659468729	0.027900256	0.628009873	0.4631811754
## 222	B	0.102155225	0.360378310	0.109881151	0.0863847100
## 223	M	0.813552860	1.057884716	0.788921970	0.5524074877
## 224	B	0.019863516	2.924876862	0.031277032	0.0198912161
## 225	B	0.550503156	1.202036039	0.511544084	0.3887311951
## 226	B	0.005675290	0.104625961	0.016050056	0.0207436968
## 227	B	0.187284579	0.685881299	0.145273581	0.1577089278
## 228	M	0.693804235	2.513348082	0.679040820	0.4759683858
## 229	M	0.187284579	1.550789242	0.183135251	0.1400909935
## 230	B	0.096479935	0.248777285	0.126342746	0.0508646812
## 231	B	0.858955182	0.820732538	0.781102712	0.5612164549
## 232	B	0.028376451	0.378978481	0.012346197	0.0170496138
## 233	B	0.011350581	0.148801367	0.004526939	0.0088089671
## 234	M	0.119181096	0.055800512	0.100415733	0.0980352795
## 235	B	0.073778773	1.060209737	0.026750093	0.0537062835
## 236	B	0.720761864	1.866992146	0.679863899	0.5973048041
## 237	M	0.053915258	0.020925192	0.101238813	0.0127872104
## 238	B	0.246875127	0.750981897	0.262973990	0.1756110223
## 239	B	0.192959869	0.571955253	0.177373693	0.1480474800
## 240	B	0.468211447	0.513829719	0.432116885	0.3813430291
## 241	M	0.479562027	1.325262171	0.466274696	0.3529270061
## 242	B	0.244037481	0.283652605	0.223054621	0.1909556748
## 243	B	0.550503156	0.188326730	0.507428685	0.3910044769
## 244	M	0.485237318	0.283652605	0.465863156	0.3526428458
## 245	M	1.163434505	0.392928609	1.091403790	1.0269550724
## 246	B	0.283764513	2.785375581	0.309066458	0.2057320067
## 247	B	0.408620899	0.244127242	0.371620521	0.3222377012
## 248	B	0.419971480	0.246452263	0.394255215	0.3327516297
## 249	B	0.476724382	0.285977626	0.419359149	0.3927094383
## 250	B	0.167421063	0.318527925	0.111938850	0.1426484356
## 251	B	0.684723771	0.592880445	0.661344604	0.4657386175
## 252	M	0.667697900	0.397578651	0.624717554	0.4694327005
## 253	B	0.332004481	0.232502135	0.325939593	0.2702363790
## 254	M	0.295115094	0.637055851	0.357628165	0.2401153946
## 255	B	1.126545118	0.306902819	1.157250173	0.9380129203
## 256	B	0.224173966	1.527539029	0.199185307	0.1565722869
## 257	B	0.747151964	0.344103160	0.739537184	0.5080784918
## 258	B	0.195797514	0.762607004	0.278612506	0.1528782039
## 259	B	0.249712772	2.252945691	0.264208610	0.1781684644
## 260	B	0.411458544	0.562655167	0.408247572	0.2929691975
## 261	B	0.139044612	0.167401537	0.142392802	0.0988877602
## 262	B	0.130531676	0.783532196	0.162146717	0.0883738316
## 263	M	0.218498675	0.465004271	0.210708424	0.1665178950
## 264	B	0.629957220	0.197626815	0.657229205	0.5194449010
## 265	M	0.700614583	0.476629377	0.592617443	0.4495414844
## 266	M	0.297952739	1.002084203	0.300835660	0.2173825762
## 267	B	0.831997553	1.050909651	0.686860078	0.5958840030
## 268	B	0.224173966	0.574280274	0.191366049	0.1602663699

## 269	B	0.070941128	0.564980189	0.039096290	0.0900787930
## 270	M	0.754813605	0.104625961	0.687683157	0.6117969759
## 271	B	0.578879607	0.511504698	0.553521153	0.4168630579
## 272	M	0.056752903	0.404553715	0.050619407	0.0429081948
## 273	B	0.349030351	0.044175406	0.265443229	0.2469352401
## 274	B	0.541990220	1.048584630	0.487674770	0.4492573241
## 275	M	0.201472804	0.246452263	0.179019852	0.1648129336
## 276	M	1.016444487	1.302011958	0.981111099	0.6646507787
## 277	B	0.127694031	0.648680957	0.085600297	0.1096858489
## 278	M	0.221336320	0.455704185	0.260916291	0.1579930881
## 279	B	0.402945609	1.357812470	0.370797441	0.3262159444
## 280	B	0.360380932	0.774232110	0.376147460	0.2497768424
## 281	M	0.765029128	1.150885570	0.734187165	0.5242756249
## 282	B	0.439834996	1.483363623	0.426355327	0.3739548631
## 283	B	0.048239967	0.125551153	0.086011837	0.0352358686
## 284	B	0.087966999	0.223202050	0.035392431	0.0744499803
## 285	M	0.499425543	0.448729121	0.475740114	0.3659983766
## 286	B	0.093642289	0.964883861	0.055557885	0.0750183008
## 287	M	0.087966999	0.878858071	0.073665640	0.0699034167
## 288	M	0.635632510	0.513829719	0.649821487	0.5163191385
## 289	M	0.377406803	1.499638773	0.400428314	0.2864335122
## 290	B	1.001404967	0.683556278	0.977818780	0.6569784525
## 291	B	0.229849256	1.122985313	0.157619778	0.1932289566
## 292	B	0.329166835	0.571955253	0.309066458	0.2435253174
## 293	M	0.448347931	0.372003416	0.419359149	0.3623042937
## 294	B	0.056752903	0.067425619	0.135396624	0.0267110616
## 295	M	0.283764513	0.365028352	0.242396996	0.2242024217
## 296	M	0.553340801	0.281327584	0.479855513	0.3813430291
## 297	M	0.522126704	0.327828011	0.477386273	0.4341968319
## 298	M	0.161745773	0.934658584	0.158031318	0.1392385129
## 299	B	0.786027702	0.551030061	0.712787091	0.6586834139
## 300	M	0.235524546	0.239477199	0.182312172	0.1858407906
## 301	M	0.045402322	2.499397954	0.054734805	0.0241536196
## 302	B	0.042564677	1.239236381	0.023457774	0.0301209844
## 303	B	0.783190057	0.397578651	0.775752694	0.6504427672
## 304	M	0.652658381	1.511263879	0.662579224	0.5180240999
## 305	M	0.651523323	0.155776431	0.558871172	0.4432899593
## 306	M	0.153232837	0.074400683	0.184369871	0.1062759261
## 307	M	0.718775512	0.255752349	0.686860078	0.4810832699
## 308	B	0.272413933	0.732381726	0.241985456	0.2281806649
## 309	B	0.351867996	0.053475491	0.304127979	0.2637006937
## 310	B	1.022119777	0.834682666	0.967941823	0.6723231049
## 311	M	0.192959869	0.192976772	0.258035511	0.0986035999
## 312	M	0.659468729	0.467329292	0.585621264	0.4549405287
## 313	B	0.462536157	0.657981043	0.330466532	0.3412764366
## 314	B	0.164583418	0.183676687	0.074077180	0.1409434742
## 315	M	0.278089223	3.817685061	0.304127979	0.2034587249
## 316	B	0.593067833	0.132526217	0.498786347	0.4950071212
## 317	M	0.740625380	0.625430744	0.678217740	0.6316881920
## 318	M	0.249712772	0.390603587	0.306597219	0.1750427019
## 319	B	0.411458544	0.983484032	0.399193694	0.3139970545
## 320	B	0.258225707	1.197385997	0.363801263	0.2017537635
## 321	B	0.488074963	0.560330146	0.439936143	0.3546319674
## 322	M	0.076616419	0.281327584	0.119758108	0.0667776541

## 323	M	1.259914439	1.662390267	1.245319709	0.7882604789
## 324	B	1.480966995	0.920708456	1.415285684	0.8948205653
## 325	B	0.190122224	0.274352520	0.172846754	0.1528782039
## 326	M	0.119181096	1.529864050	0.130458145	0.1079808875
## 327	B	0.235524546	0.348753203	0.247335474	0.1773159837
## 328	M	0.718491748	0.165076516	0.704556293	0.4890397564
## 329	B	0.073778773	0.783532196	0.012757737	0.0494438801
## 330	M	1.279494190	1.871642189	1.228035034	0.8183814633
## 331	B	0.147557547	0.065100598	0.115231169	0.1219047388
## 332	B	0.178771643	0.385953545	0.193835289	0.1378177117
## 333	B	0.192959869	0.316202904	0.199185307	0.1403751538
## 334	B	0.141882257	0.399903673	0.158442858	0.1128116114
## 335	M	0.473886737	0.769582068	0.476974733	0.3591785311
## 336	B	0.170258708	1.057884716	0.158031318	0.1301453855
## 337	B	0.824335911	0.811432452	0.749825681	0.5700254220
## 338	B	0.107830515	0.234827157	0.067904082	0.0869530305
## 339	M	0.212823385	0.318527925	0.204123786	0.1571406074
## 340	B	0.922234668	0.378978481	0.800033547	0.6058296110
## 341	B	0.158908127	0.337128096	0.151858220	0.1085492080
## 342	M	0.524964350	2.269220840	0.543232656	0.4035075270
## 343	M	0.042564677	0.641705893	0.005761558	0.0258585810
## 344	B	0.184446934	0.925358498	0.183135251	0.1594138892
## 345	M	0.300790384	0.771907089	0.285608684	0.2097102500
## 346	B	0.127694031	0.039525363	0.094242635	0.1008768818
## 347	B	0.286602158	1.827466783	0.243631615	0.2259073831
## 348	B	0.198635159	0.246452263	0.201654546	0.1449217175
## 349	M	0.706573638	0.792832281	0.824725941	0.5617847753
## 350	B	0.317816255	0.623105723	0.327997293	0.2435253174
## 351	B	0.737787735	0.062775577	0.728425606	0.6149227384
## 352	M	0.000000000	0.506854655	0.006996178	0.0014208012
## 353	B	0.624281929	2.232020499	0.579036626	0.5333687523
## 354	B	0.187284579	0.946283691	0.190954509	0.1318503469
## 355	M	0.275251578	0.192976772	0.251039333	0.2242024217
## 356	B	0.550503156	0.623105723	0.493024789	0.3887311951
## 357	B	0.661171316	0.792832281	0.645294549	0.5279697079
## 358	B	0.997432264	0.532429890	0.931726312	0.9496634897
## 359	M	0.926491136	0.051150470	0.971234142	1.1025416936
## 360	B	0.642726623	0.823057559	0.555578852	0.7359749965
## 361	M	0.784608879	0.558005125	0.843656776	0.8951047255
## 362	M	1.000269909	1.318287107	0.978230320	0.9885934413
## 363	B	0.574623139	0.885833135	0.485617071	0.5671838197
## 364	B	1.292547358	0.234827157	1.336681565	1.2096701005
## 365	B	0.078035241	0.434778993	0.197539148	0.1378177117
## 366	B	0.458279689	0.034875320	0.386847497	0.5626372560
## 367	M	0.154651660	0.618455680	0.201654546	0.1298612253
## 368	B	0.307884497	0.625430744	0.222231541	0.3605993323
## 369	B	0.847037072	1.302011958	0.769579596	1.0116104199
## 370	M	0.642726623	0.769582068	0.679040820	0.8013318495
## 371	B	1.675629451	0.251102306	1.507059080	1.5512306973
## 372	B	0.214242208	0.088350811	0.131692765	0.2614274119
## 373	B	2.385040734	0.930008541	2.469239344	3.0632472828
## 374	B	0.983244039	1.053234673	0.956418706	1.0033697732
## 375	B	1.692655322	1.211336125	1.839583311	2.1397265343
## 376	B	1.965069255	0.292952690	2.140007431	2.3556883093

## 377	B	0.588811365	0.762607004	0.535001858	0.6052612906
## 378	B	0.495169076	0.778882153	0.580271246	0.4887555961
## 379	B	0.041145854	0.748656876	0.078192579	0.1494682811
## 380	B	0.026957629	0.953258755	0.012346197	0.0454656369
## 381	B	1.102425134	0.027900256	1.153134774	1.0485512499
## 382	B	0.563272559	1.674015374	0.481501672	0.6467486842
## 383	M	1.091074554	0.148801367	1.061772918	1.0593493386
## 384	M	0.279508046	0.669606150	0.181077552	0.3097346510
## 385	B	0.188703401	0.186001708	0.148154361	0.1696436575
## 386	B	1.088236908	0.367353374	0.946541749	1.3412362871
## 387	M	0.486656140	0.483604441	0.584386645	0.4927338394
## 388	B	0.881088814	0.385953545	0.816083603	0.9152801019
## 389	M	0.367475045	1.383387705	0.345693508	0.3944143997
## 390	B	2.240320832	0.802132367	2.358123574	2.6881557788
## 391	M	0.750557138	0.309227840	0.800856627	0.7032965700
## 392	B	0.378825625	1.009059267	0.296308721	0.4120323340
## 393	B	1.020133425	0.267377456	0.847772175	1.0050747346
## 394	M	0.015607048	0.920708456	0.074077180	0.0090931274
## 395	B	0.815822976	0.288302648	0.811145125	0.8220755463
## 396	B	0.520707882	0.346428182	0.485617071	0.5322321114
## 397	B	0.702317170	0.023250214	0.637886831	0.8467974863
## 398	M	0.923653491	0.158101452	0.843656776	1.0172936245
## 399	M	1.244307391	0.978833990	1.098811508	1.7447438141
## 400	B	1.196067424	1.371762598	1.110746165	1.1417558054
## 401	B	0.773258299	0.425478908	0.832545199	0.7595602956
## 402	B	0.475305560	0.592880445	0.378616699	0.5853700745
## 403	M	0.866900588	0.253427327	0.840775997	0.8587322160
## 404	M	0.688128945	0.248777285	0.497963268	0.7018757689
## 405	B	1.201742714	0.216226986	1.144080896	1.5543564598
## 406	M	0.191541046	0.018600171	0.172846754	0.0778599031
## 407	B	0.075197596	0.106950982	0.098769574	0.0380774709
## 408	B	0.364637400	0.281327584	0.325116514	0.4603395731
## 409	M	0.188703401	2.576123659	0.353924306	0.1960705589
## 410	B	0.795959460	1.578689499	0.699617814	0.9348871577
## 411	B	0.872575878	0.160426473	0.731717926	0.8135507394
## 412	B	0.778933589	0.016275149	0.690975476	0.8161081815
## 413	B	0.438416173	0.830032623	0.436232284	0.4290819478
## 414	B	1.808998772	0.025575235	1.740813738	1.5938547318
## 415	B	1.635902419	0.378978481	1.559736186	2.1312017274
## 416	M	2.807849859	0.095325875	2.794355858	3.7452318356
## 417	B	0.009931758	0.155776431	0.008230798	0.0448973164
## 418	B	1.179041553	0.651005979	1.161365571	1.1292527553
## 419	M	0.949192297	0.427803929	0.949834068	0.9448327658
## 420	M	1.025808716	0.146476345	0.987695738	1.0062113756
## 421	B	1.105262779	0.425478908	1.167127130	1.0417314043
## 422	M	0.534896108	0.671931171	0.465040076	0.6251525067
## 423	B	0.375987980	0.897458242	0.390962896	0.4091907317
## 424	B	0.356124464	0.420828865	0.415655290	0.3247951433
## 425	B	0.625700752	1.111360207	0.634594511	0.6120811361
## 426	M	0.078035241	0.553355082	0.032923191	0.1051392852
## 427	B	0.319235077	0.104625961	0.246923934	0.4063491294
## 428	B	0.804472395	0.418503843	0.695502415	0.9718279877
## 429	B	0.344773884	0.792832281	0.374501301	0.3381506741
## 430	M	0.790284170	1.413612982	0.718960189	0.7763257492

## 431	M	0.461117334	0.267377456	0.535001858	0.4700010209
## 432	M	0.503682011	1.122985313	0.613194437	0.5683204606
## 433	B	0.637051332	0.995109139	0.666694623	0.6120811361
## 434	M	0.662590139	0.869557986	0.767933436	0.6626616571
## 435	B	0.529220817	0.578930317	0.428001486	0.5703095822
## 436	B	1.579149516	0.771907089	1.613236371	1.4233585937
## 437	M	1.068373393	1.188085911	1.172888688	1.0769672729
## 438	B	0.742044202	0.030225278	0.767521896	0.7817247936
## 439	B	0.035470564	0.711456534	0.000000000	0.0073881660
## 440	B	1.383352002	1.339212299	1.301700674	1.2926448877
## 441	B	1.686980032	0.134851238	1.559736186	2.1425681366
## 442	B	0.625700752	0.595205466	0.629656033	0.8098566564
## 443	M	0.810147685	0.446404100	0.806618186	0.9036295324
## 444	B	0.061009370	0.497554569	0.037038590	0.0556954051
## 445	M	0.299371562	0.174376601	0.300424120	0.3361615525
## 446	B	0.699479525	0.406878737	0.567925049	0.7405215602
## 447	B	0.954867587	1.025334417	0.937076331	0.9365921191
## 448	B	0.007094113	0.372003416	0.131692765	0.0031257625
## 449	B	0.682453654	0.381303502	0.679040820	0.7785990311
## 450	M	0.472467915	0.404553715	0.164615956	0.4503939651
## 451	B	0.166002240	0.102300940	0.419770688	0.1761793428
## 452	M	0.529220817	0.460354228	0.514424863	0.5202973817
## 453	M	0.086548177	0.585905381	0.057615585	0.0929203953
## 454	B	1.227281520	0.083700769	1.098811508	1.1713084694
## 455	B	0.588811365	0.474304356	0.613194437	0.6336773136
## 456	B	0.523545527	0.776557132	0.749002601	0.5427460399
## 457	B	0.526383172	0.239477199	0.547348055	0.6137860975
## 458	M	3.060400276	0.695181384	3.057741388	4.4527908091
## 459	B	0.205729272	1.539164136	0.242808535	0.2099944102
## 460	B	0.205729272	1.234586338	0.246923934	0.2102785704
## 461	M	0.038308209	0.141826303	0.107000372	0.0105139285
## 462	M	0.889601749	0.546380018	0.877814587	0.9130068200
## 463	B	0.727855977	0.279002562	0.670810022	0.8013318495
## 464	B	1.025808716	0.488254484	1.016503530	1.2275721950
## 465	M	1.008782845	0.192976772	0.969999522	0.9749537502
## 466	B	1.329436745	0.102300940	1.358081639	1.5628812667
## 467	B	2.072899770	0.032550299	2.111199639	2.5830164936
## 468	M	0.915140555	0.139501281	0.971234142	1.0684424660
## 469	B	0.705154816	0.160426473	0.650233027	0.9320455554
## 470	B	0.305046852	0.453379164	0.181077552	0.3301941876
## 471	B	0.529220817	1.283411787	0.497963268	0.6393605182
## 472	B	1.113775715	0.218552007	1.051895961	1.0664533444
## 473	B	0.446929108	0.281327584	0.477386273	0.4850615132
## 474	M	0.903789975	1.476388559	0.831310579	1.0997000913
## 475	B	0.597324300	2.129719559	0.444463082	0.6112286554
## 476	M	0.892439394	0.183676687	0.843656776	1.0428680453
## 477	B	0.007094113	1.018359353	0.049384787	0.0107980888
## 478	M	1.147827456	0.274352520	1.106219226	1.0991317709
## 479	B	0.841361782	1.655415203	0.860118371	1.0371848407
## 480	M	1.669954161	1.281086765	1.617351770	2.0971024997
## 481	B	0.166002240	0.030225278	0.168731355	0.1776001439
## 482	M	0.832848847	0.365028352	0.749002601	0.9434119647
## 483	M	0.322072723	0.683556278	0.283962525	0.4063491294
## 484	B	0.438416173	0.337128096	0.349808907	0.4245353841

## 485	B	1.755083515	0.653331000	1.683198153	2.3159058771
## 486	M	0.673940719	0.904433306	0.714021710	0.7214828248
## 487	B	0.410039722	0.006975064	0.358039705	0.4546563685
## 488	M	0.480980850	0.727731683	0.321001115	0.4091907317
## 489	B	0.302209207	0.097650897	0.275731727	0.2989365623
## 490	M	0.330585658	0.018600171	0.329231913	0.3472438014
## 491	M	0.645564268	0.555680103	0.697148575	0.6538526900
## 492	M	0.069522306	1.490338687	0.032923191	0.0656410132
## 493	M	0.722180686	0.576605295	0.691387016	0.7493305273
## 494	B	0.262482175	0.344103160	0.222231541	0.3068930487
## 495	B	0.895277039	0.000000000	0.753118000	1.0627592614
## 496	B	0.418552657	0.578930317	0.432116885	0.4242512239
## 497	B	0.100736402	0.167401537	0.131692765	0.0900787930
## 498	M	0.602999591	0.495229548	0.506194066	0.6734597459
## 499	M	0.807310040	0.000000000	0.821022082	0.8064467336
## 500	M	0.339098593	0.832357644	0.296308721	0.3546319674
## 501	M	1.255657971	0.109276004	1.362197038	1.5884556875
## 502	M	1.054185167	0.818407516	1.076176814	0.9925716845
## 503	M	0.120599918	1.527539029	0.127577366	0.1409434742
## 504	B	0.520707882	1.195060975	0.493847869	0.5853700745
## 505	B	0.554759623	0.302252776	0.576155847	0.5791185494
## 506	B	0.668265429	0.051150470	0.646117628	0.7444998034
## 507	B	0.551921978	1.164835698	0.563809650	0.6535685297
## 508	B	0.940679362	0.955583776	0.847772175	1.1451657282
## 509	M	0.883926459	0.074400683	0.806618186	1.0258184314
## 510	M	0.696641880	1.113685228	0.640356070	0.7089797746
## 511	B	0.600161946	0.613805637	0.572040448	0.6677765412
## 512	M	0.815822976	1.248536466	0.802502787	0.8581638956
## 513	M	1.567798936	1.134610420	1.449031955	1.4208011516
## 514	B	0.631376042	0.130201196	0.697148575	0.6228792249
## 515	M	1.318086164	0.553355082	1.296762195	1.2304137973
## 516	M	0.568947849	0.974183947	0.452693880	0.6214584237
## 517	M	1.054185167	0.750981897	1.088111471	1.0212718678
## 518	M	0.279508046	0.204601879	0.271616328	0.3409922764
## 519	M	0.330585658	0.916058413	0.292193322	0.3864579132
## 520	B	0.421390302	0.344103160	0.275731727	0.4830723915
## 521	B	0.642726623	0.378978481	0.572040448	0.6433387614
## 522	B	0.038308209	4.143188051	0.032923191	0.0323942663
## 523	M	0.069522306	1.322937150	0.123461967	0.0031257625
## 524	B	1.414566099	1.255511530	1.360139339	1.2917924070
## 525	B	0.631376042	0.406878737	0.604963639	0.6876677574
## 526	B	0.966218168	2.245970627	0.884810765	1.3838603216
## 527	B	2.864602762	1.118335271	2.991895005	4.4584740137
## 528	M	0.424227947	0.118576089	0.390962896	0.5058052100
## 529	B	0.052496435	1.176460804	0.074077180	0.0548429245
## 530	B	0.200053982	1.071834844	0.135808164	0.1648129336
## 531	B	0.625700752	2.559848509	0.567925049	0.8269062702
## 532	B	0.253969239	0.602180530	0.185192951	0.2699522188
## 533	B	1.071211038	0.218552007	0.983580339	1.2844042410
## 534	M	0.994594619	0.704481470	0.900037741	0.9550625341
## 535	M	0.824335911	0.392928609	0.811556664	0.8226438668
## 536	B	0.370312690	0.848632794	0.436232284	0.4432899593
## 537	B	0.446929108	0.520804783	0.292193322	0.4927338394
## 538	B	1.403215518	0.416178822	1.588543978	1.6396045289

## 539	B	1.772109386	0.611480616	1.683198153	1.6208499537
## 540	B	0.194378692	0.209251922	0.172846754	0.2131201727
## 541	M	0.929328781	1.829791805	1.065888317	0.9462535670
## 542	B	0.529220817	2.225045435	0.481501672	0.5543966093
## 543	B	1.179041553	0.081375747	1.184411805	1.1380617224
## 544	M	0.631376042	1.699590609	0.798387388	0.7814406334
## 545	M	0.509357301	2.813275837	0.432116885	0.5316637909
## 546	B	0.180190466	0.292952690	0.292193322	0.2114152114
## 547	B	0.370312690	0.413853801	0.473270874	0.3813430291
## 548	B	0.339098593	0.181351666	0.251039333	0.3785014268
## 549	B	1.020133425	0.843982751	1.185234885	1.1792649558
## 550	B	0.517870237	0.088350811	0.465040076	0.3662825369
## 551	B	0.171677531	0.702156449	0.041153989	0.1901031941
## 552	B	1.556448355	0.641705893	1.492655183	1.3963633718
## 553	M	0.276670400	0.425478908	0.214000743	0.2602907710
## 554	B	1.275521487	0.202276858	1.190996444	1.2184790676
## 555	B	0.920815846	0.857932879	0.769579596	1.1195913074
## 556	M	0.671103074	0.048825448	0.650233027	0.7700742242
## 557	B	0.253969239	0.641705893	0.251039333	0.2870018326
## 558	B	0.622863107	1.941392830	0.719783269	0.6038404894
## 559	B	0.177352821	0.337128096	0.000000000	0.1420801152
## 560	B	0.245456304	0.313877883	0.201654546	0.2816027882
## 561	M	0.699479525	0.850957815	0.666694623	0.7388165988
## 562	B	0.089385822	0.279002562	0.185192951	0.0787123838
## 563	B	0.855550008	0.011625107	0.893041563	0.9434119647
## 564	B	0.810147685	0.583580360	1.214042677	0.8894215209
## 565	B	1.380514357	0.599855509	1.244085089	1.2960548105
## 566	B	1.215930939	0.190651751	1.242850470	1.3497610940
## 567	M	0.872575878	0.060450555	0.846537555	0.8496390886
## 568	B	0.580298430	0.220877029	0.628832953	0.6291307499
## 569	M	1.147827456	1.478713580	1.115273104	1.2900874456

##	smoothness_mean	compactness_mean	concavity_mean	points_mean
## 1	0.856078662	0.1037628068	0.0348721359	0.3494589134
## 2	0.435149619	0.7462212076	0.3359265462	0.0767984928
## 3	1.204482769	0.0520707516	0.0831662808	0.0350489766
## 4	1.823077815	0.7253929069	0.1161568266	0.6319124304
## 5	0.791375042	0.1126621717	0.0396388307	0.0806641887
## 6	0.376845258	0.0365442002	0.2227802636	0.2360651657
## 7	0.131540326	0.5076424911	0.9296309311	0.4538327039
## 8	0.649169284	0.1986262489	0.0895636871	0.2945660310
## 9	0.891630102	0.2968979583	0.2117416019	0.2569399238
## 10	0.300054149	0.1609459595	0.0220773234	0.0033502698
## 11	0.285122544	0.6363992587	0.8957623100	0.3004934314
## 12	0.722405250	0.7081622219	0.4565741011	0.4966903862
## 13	0.428750360	1.0927283910	0.8255162809	0.3587365836
## 14	0.274457113	0.3660100468	0.4297551707	0.9249321829
## 15	0.856078662	0.0255620053	0.0647266982	0.0610779959
## 16	1.126269602	0.3749094116	0.1071251943	0.1386496279
## 17	0.496298095	0.2628152845	0.0125439338	0.2306531913
## 18	2.335018544	1.5130813676	0.1011041061	0.5636184687
## 19	0.685431753	0.0130650249	0.1549175820	0.1515352810
## 20	1.723533785	1.9959192462	0.9622451589	1.5952438597
## 21	1.524445724	1.0416043803	0.3470906472	0.1865842576
## 22	0.813416935	0.1204254474	0.0332414245	0.1123628954



## 23	0.423062130	0.3217025708	0.5911955982	0.0134010793
## 24	0.809861791	0.3470752280	0.1916713079	0.2244680778
## 25	0.514784843	0.7183870240	0.4080667092	0.3765445563
## 26	0.278012257	0.1899162322	0.0624687901	0.0796333365
## 27	0.537537765	0.2630046327	0.5661077307	0.5167146912
## 28	0.574511262	0.0035976156	0.0677372423	0.0327295590
## 29	1.737754361	1.0283500072	0.0001254393	0.1698329085
## 30	0.274457113	0.4612521851	0.0036377408	0.0633974135
## 31	1.598392718	0.4184594947	0.1862774164	0.2590016283
## 32	0.657701630	0.6996415534	0.2935280500	0.2510125233
## 33	1.076497587	0.7462212076	0.6110150136	0.7826745722
## 34	0.444392993	0.4943881180	0.3914961727	0.1945733625
## 35	0.501275296	0.6496536319	0.3507283880	0.3700759584
## 36	0.007821317	0.2455845994	0.1073760730	0.1819454224
## 37	0.606507557	0.5417251649	0.9183413908	0.5319197619
## 38	1.211593057	1.4808921757	1.0011313536	1.1965617513
## 39	0.694675127	0.4036903361	0.3784504816	0.0760253536
## 40	0.135806499	0.5366127638	0.4452218410	0.5421251992
## 41	0.742314056	0.4962815999	0.2083547398	0.1231868441
## 42	0.448659166	0.4799976557	0.0194430973	0.0288638631
## 43	1.036679975	0.7600436253	0.2837437817	0.1203520004
## 44	0.312852667	0.0301063618	0.0965882900	0.3522937571
## 45	0.770755207	0.3643059131	0.0615907148	0.0481923428
## 46	0.706762616	0.0384376821	0.1502763265	0.1466387328
## 47	0.634237680	2.3083437558	2.0121724149	0.6607762934
## 48	0.880253641	0.2484248222	0.0923233525	0.4726457575
## 49	1.159687955	0.0579405454	0.1807580855	0.1100434779
## 50	0.216152752	0.3627911276	0.2892631126	0.3610560012
## 51	0.666233975	0.5354766747	0.0000000000	0.0293792892
## 52	0.200510119	0.0793368906	0.0430256928	0.0525734648
## 53	0.553891427	0.0674079548	0.1388613468	0.3703336715
## 54	0.708184674	0.0522600998	0.0169343106	0.1778220134
## 55	0.351248222	0.2188865049	0.0457853582	0.0206170450
## 56	1.595548603	1.1097697279	0.7848739355	1.2164056571
## 57	2.342128831	0.6780558600	0.5257162640	0.8262280798
## 58	1.508092062	0.7195231131	0.1817616002	0.3022974228
## 59	0.051905102	0.2313834853	0.0942049426	0.0780870581
## 60	0.120163865	0.0195028633	0.1116410105	0.2370960179
## 61	0.597264183	0.6004231031	0.2102363299	0.3708490976
## 62	0.239616702	0.7110024447	0.3499381202	0.2613210458
## 63	0.105232261	0.0191241670	0.0125439338	0.0064428266
## 64	0.502697354	0.4650391489	0.3139746621	0.1499890026
## 65	1.226524661	0.0700588294	0.0436528895	0.1188057220
## 66	0.500564268	0.3573000301	0.1280735637	0.0164936360
## 67	1.090718163	0.1842357866	0.2434777543	0.1105589040
## 68	1.240034208	1.0150956341	0.5944570210	0.1347839319
## 69	1.511647206	0.9817703530	0.4652545033	0.6040794196
## 70	0.538959822	0.0149585068	0.0556950659	0.1059200689
## 71	1.323224577	0.5689913039	0.0786504647	0.3193064850
## 72	0.984063844	0.1323543832	0.2005775009	0.0966423986
## 73	0.224685097	0.5398316830	0.8267706743	0.5275386399
## 74	1.339578239	0.7556886170	0.5602120818	0.0458729252
## 75	0.628549450	0.1755257700	0.2710744086	0.3937855602
## 76	0.784975783	0.2936790391	0.3529235764	0.3267801638

## 77	1.666651482	0.5000685636	0.4216016138	0.2940506048
## 78	0.233928472	1.0453913441	1.1917991468	0.0453574991
## 79	0.312141638	0.4852994050	0.2574015208	0.3167293544
## 80	1.240034208	1.0434978622	0.7393394560	0.8398868722
## 81	0.206909378	0.2637620254	0.2871306438	0.3100288147
## 82	1.139068120	0.3485900135	0.2176372508	0.2657021679
## 83	0.000000000	0.3110990723	0.1407429368	0.0056696874
## 84	0.158559420	0.0312424510	0.0457853582	0.2169943990
## 85	0.013509547	0.7462212076	0.7461131802	0.6360358394
## 86	0.287966660	0.1234550184	0.0905672018	0.2399308616
## 87	2.036386452	0.6023165850	0.0444055255	0.4958399331
## 88	0.934291829	0.0191241670	0.4652545033	0.6040794196
## 89	0.167091765	0.4332286534	0.2178881295	0.0981886770
## 90	0.579488463	0.5260092653	0.2178881295	0.2564244976
## 91	0.706762616	0.3724478851	0.1700957418	0.2038510328
## 92	0.433727561	0.1777979482	0.2700708939	0.6419632398
## 93	1.080052731	0.7715938647	0.2969149122	0.1662249256
## 94	0.425906245	0.1351946060	0.1337183339	0.1090126256
## 95	0.401731266	0.6996415534	0.4091454875	0.4385503192
## 96	1.190262193	0.1522359429	0.3531869990	0.0971578247
## 97	0.283700487	0.3749094116	0.1486456151	0.1917385188
## 98	0.254548307	0.4799976557	0.3383098936	0.4624660915
## 99	0.226818184	1.7478731203	1.2432292752	1.0973422221
## 100	0.720983192	0.2978446992	0.1253138983	0.2417348531
## 101	0.802040474	0.6583636485	0.2147521460	0.2850306476
## 102	0.664100889	0.5807308916	0.2152539034	0.3177602066
## 103	0.230373328	0.0319998437	0.1307077898	0.2680215855
## 104	1.223680546	0.4684474163	0.0561968233	0.0783447711
## 105	0.750846401	0.8105995914	0.6980699139	0.8360211762
## 106	0.236772587	0.3857022583	0.2768446181	0.0659745441
## 107	1.472540622	0.8355935522	0.4190802831	0.5146014441
## 108	0.590153895	0.0179880778	0.2527602653	0.5821738092
## 109	0.218996867	0.1834783938	0.7004532613	0.2935351787
## 110	0.804884589	0.2183184604	0.1038637716	0.2615787589
## 111	0.796352244	0.1382241770	0.0455344796	0.0520580387
## 112	0.610062701	0.3819152945	0.0225790808	0.0074736788
## 113	0.949223433	0.5227903461	0.1250630196	0.4173405341
## 114	0.755823603	0.6610145231	0.1663325617	0.1479272981
## 115	0.362624682	0.1056562887	0.0599600034	0.4543481300
## 116	0.086745512	0.2476674295	0.3319124874	0.1100434779
## 117	1.040946147	0.1420111407	0.4024595708	0.4086556039
## 118	0.396754064	0.5316897110	0.3102114819	0.2512702364
## 119	0.027730123	0.5377488530	0.3268949139	0.2414771400
## 120	0.145049873	0.4330393052	0.1383595894	0.1412267585
## 121	0.695386156	0.1931351514	0.2295539879	0.2260143562
## 122	0.072524936	0.2039279981	0.0761416779	0.1579781076
## 123	1.190262193	0.7291798707	0.0617161541	0.2082321549
## 124	0.688275868	0.0556683672	0.3926251268	0.0489654820
## 125	0.195532917	0.3381758632	0.0119167371	0.2422502792
## 126	0.398887151	0.5152164186	0.3951339135	0.3948164124
## 127	0.609351672	0.8636170839	0.8706744425	0.9476109325
## 128	1.723533785	0.0469583505	0.0372554833	0.2334880350
## 129	0.403864352	0.3169688661	0.0429002535	0.1461233067
## 130	1.208748942	0.7412981547	0.4306583339	0.4901960170

## 131	0.894474217	0.3883531329	0.9333941113	0.2695678639
## 132	0.506963527	0.1980582043	0.1716010139	0.1340107927
## 133	0.706762616	0.5985296212	0.1763677087	0.1992121977
## 134	1.609769179	0.1007332358	0.3292782613	0.2716295684
## 135	1.545776588	0.6894167513	0.0214501267	0.1677712040
## 136	0.103099174	0.6723754144	0.1698448631	0.1840071269
## 137	0.420218014	0.1635968341	0.3036886364	0.1082394864
## 138	0.206909378	0.3285191056	0.1692176665	0.0149473577
## 139	1.382239966	0.3470752280	0.1106374958	0.0286061500
## 140	0.201932176	0.6110266016	0.4652545033	0.6040794196
## 141	1.183151905	0.3184836516	0.4652545033	0.6040794196
## 142	2.470114013	2.7476315512	1.0249648277	1.2097051175
## 143	0.547492168	0.5814882843	0.4530404750	0.5282860078
## 144	0.199799090	0.1978688561	0.4328911541	0.0842721716
## 145	0.280145343	0.5600919391	0.2007029402	0.0747367883
## 146	0.880964670	2.8025425256	3.3016888057	1.4055670454
## 147	0.568823031	0.6239022783	0.2147521460	0.2177675382
## 148	1.567107451	0.3283297574	0.0715004224	0.2030778936
## 149	0.912960965	0.0195028633	0.1435026022	0.2149326945
## 150	0.413107726	0.0558577154	0.1668343190	0.1878728229
## 151	1.154710754	0.2950044764	0.1407429368	0.1870996837
## 152	1.723533785	0.1272419821	0.0530608398	0.1082394864
## 153	0.787108870	0.2794779250	0.0032614228	0.4719241609
## 154	0.415951842	0.4731811210	0.1721027712	0.3562883095
## 155	0.681876609	0.6848723948	0.4342709869	0.4711252504
## 156	0.169935881	0.9033802033	0.8004284134	0.3984243953
## 157	0.338449704	0.3003062256	0.2660568351	0.4515906002
## 158	0.454347396	0.2043066945	0.0434020108	0.1028275121
## 159	0.573800233	1.1571067748	0.5032626226	0.9787942131
## 160	0.505541469	0.6837363057	0.7979196266	0.1064354950
## 161	2.420341998	0.4214890657	0.8016828068	1.1006924919
## 162	0.969843268	0.2594070171	0.2084801791	0.2801340994
## 163	0.489187807	0.0513133589	0.6407441366	0.1497312896
## 164	0.155004276	0.4195955839	0.1161568266	0.0628819874
## 165	0.536826736	0.4345540907	0.0070246029	0.1340107927
## 166	0.499853239	0.1136089126	0.3706732427	0.6280467344
## 167	0.863188950	0.4220571103	0.1347218486	0.2530742278
## 168	0.032707324	0.0244259162	0.2872560832	0.1015389468
## 169	0.771466236	0.4171340574	0.0895636871	0.0706133792
## 170	0.726671422	0.3071227604	0.2590322322	0.3280687291
## 171	0.502697354	1.4733182482	0.6142764364	0.1360724972
## 172	0.628549450	0.4409919291	0.2502514786	0.2791032472
## 173	0.733781710	0.2586496243	0.4617422018	0.4481630165
## 174	0.733070682	0.4105068709	0.1289516391	0.2337457481
## 175	0.068258764	0.1325437314	0.0422730568	0.0185553405
## 176	0.363335711	0.1545081211	0.3907435367	0.6718579551
## 177	1.169642358	0.6252277157	0.4652545033	0.6040794196
## 178	0.695386156	0.5019620455	0.4652545033	0.6040794196
## 179	0.401731266	0.5900089528	0.4016943909	0.4581107407
## 180	0.490609865	0.3285191056	0.3710495607	0.3853325717
## 181	0.246726990	0.1702240207	0.1249375803	0.3574480183
## 182	0.309297523	0.1573483439	0.1860265377	0.1151977391
## 183	1.197372481	1.1003023185	0.5403926665	0.7035566619
## 184	0.677610436	0.4843526640	0.4652545033	0.6040794196

## 185	0.550336283	0.2186971568	0.1446315563	0.0806641887
## 186	0.110209462	0.0670292584	0.0856750676	0.0816950410
## 187	1.368019390	0.2802353177	0.0090316323	0.1170017306
## 188	1.777571973	0.4372049653	0.1547921426	0.2499816711
## 189	1.109915940	0.7216059432	0.4264937479	0.4342980537
## 190	0.570956118	0.2474780813	0.0518064464	0.0118548009
## 191	0.666945004	0.7840908451	0.6699715023	0.3138945107
## 192	1.019615284	0.8314278920	0.5206986905	0.5430014236
## 193	0.621439162	0.0810410243	0.1052436043	0.2102938594
## 194	2.256805377	0.0604020719	0.2784753295	1.3040280985
## 195	1.108493882	0.5307429700	0.3058211051	0.3162139282
## 196	0.348404107	0.1259165448	0.1398648615	0.0224210365
## 197	0.142916787	0.0475263951	0.1127699645	0.3051322665
## 198	0.311430610	1.4354486107	1.4715288697	0.6447980835
## 199	0.492031922	0.0605914201	0.0477923876	0.0865915892
## 200	0.817683108	0.7831441042	0.3331668807	0.3185333458
## 201	0.004266173	0.1105793416	0.2818621916	0.1154554522
## 202	1.616879466	0.0113608913	0.0718767405	0.0775716319
## 203	0.123719009	0.6488962391	0.4652545033	0.6040794196
## 204	0.042661727	0.0670292584	0.2398400135	0.0654591180
## 205	0.368312913	0.3395013005	0.1477675397	0.1664826387
## 206	0.954200635	0.8174161261	0.3243861271	0.4739085515
## 207	0.635659737	0.2459632958	0.2738340740	0.2095207202
## 208	1.166087214	0.9238298076	0.4502770463	0.4636515716
## 209	1.126269602	1.2498873868	3.4609967644	0.5234152309
## 210	0.962732980	1.0340304528	1.0287280079	0.9965764144
## 211	0.297921063	0.1840464384	0.2246618537	0.5628453295
## 212	0.366890855	1.0832609816	1.4765464432	0.1314336621
## 213	0.920071253	0.1656796642	0.0783995860	0.1458655936
## 214	0.556735542	0.0319998437	0.1269446097	0.0095353833
## 215	1.311137087	0.3705544033	0.2104872085	0.1244754094
## 216	0.870299238	0.3198090890	0.2172609328	0.4973862115
## 217	0.789241956	0.3688502696	0.2034626056	0.0793756234
## 218	0.677610436	0.3228386600	0.3118421933	0.0002577131
## 219	0.225396126	0.1806381710	0.1786256168	0.1146823130
## 220	0.969843268	0.0462009578	0.1928002619	0.2164789729
## 221	1.289806223	0.0562364117	0.2449830264	0.1010235207
## 222	0.145760902	0.1191000100	0.1304569111	0.2450851229
## 223	0.116608721	0.3643059131	0.0360010899	0.2736912729
## 224	0.979086643	0.7821973632	0.4652545033	0.6040794196
## 225	0.654146486	0.0024615264	0.2240346570	0.0969001117
## 226	0.976953556	0.0893723446	0.1529105526	0.1538546986
## 227	0.645614141	0.6950971969	0.3798303143	0.0644282657
## 228	0.776443438	0.5496777888	0.2719524840	0.3352846949
## 229	0.340582790	0.2953831728	0.2937789287	0.3745343944
## 230	1.780416088	0.6288253312	0.2783498902	0.2409617139
## 231	0.963444009	0.2313834853	0.2858762504	0.0422649423
## 232	0.542514966	0.6299614204	0.3679637530	0.3841213203
## 233	0.007821317	0.0585085900	0.0994733947	0.2105515724
## 234	0.350537193	0.3974418459	0.0932014279	0.0185553405
## 235	1.211593057	0.6600677822	0.3752768664	0.3079671102
## 236	0.569534060	0.0596446791	0.0496739777	0.1760180220
## 237	0.955622693	1.0302434891	0.2738340740	0.1381342017
## 238	0.215441723	0.6924463223	0.4466016738	0.5181836557

## 239	0.749424344	0.0528281444	0.0776469500	0.1507621418
## 240	0.278723285	0.2270284770	0.2969149122	0.0131433662
## 241	0.763644920	0.1386028734	0.1522833559	0.1208674265
## 242	1.005394708	0.1836677420	0.0743855272	0.0644282657
## 243	0.141494729	0.1016799768	0.0814101301	0.0242250279
## 244	1.140490178	0.1611353077	0.1771203447	0.1453501675
## 245	0.249571105	0.1546974693	0.2279232765	0.5718652867
## 246	1.156843840	0.7519016532	0.4652545033	0.6040794196
## 247	0.989041046	0.2783418359	0.2323136533	0.1600398121
## 248	0.142916787	0.0518814034	0.2454847837	0.1195788612
## 249	1.457609018	0.5108614103	0.2087310578	0.3848429169
## 250	1.282695936	0.7859843270	0.4249884759	0.5548562245
## 251	0.827637511	0.4218677621	0.3795919796	0.3995325615
## 252	0.295787976	0.1685198870	0.1729808466	0.0185553405
## 253	1.394327455	0.0386270303	0.5498006168	0.1175171567
## 254	0.563134801	0.8901258302	0.8016828068	0.1260216878
## 255	0.571667146	1.2972244337	0.3690425313	0.7867979812
## 256	0.211175550	0.1598098704	0.0247115495	0.0719019446
## 257	0.435149619	0.6517364619	0.2580287175	0.1744717436
## 258	0.224685097	1.1230241010	1.2582819957	0.4216185710
## 259	1.559286135	0.7036178654	0.2604120649	0.5235440874
## 260	0.912249936	0.4525421685	0.1828905543	0.4011303825
## 261	1.019615284	0.2715253011	0.0146764025	0.0659745441
## 262	0.898029361	0.6038313705	0.1836431903	0.1079817734
## 263	0.400309208	0.1211828401	0.0258405036	0.1368456364
## 264	0.479944433	0.7310733526	0.5391382731	0.4842428453
## 265	1.168931329	1.6020750158	4.6877934864	1.4207721161
## 266	0.482077519	0.4574652214	0.2166337361	0.1438038891
## 267	5.164913124	2.8139034169	0.7552702518	0.7494295871
## 268	0.012087489	0.1185319655	0.3100860426	0.0043811221
## 269	1.780416088	0.8579366383	0.3183650389	0.1435461761
## 270	0.108076376	0.0861534254	0.0455344796	0.1373610626
## 271	0.678321465	0.0047337047	0.4022212361	0.3164716413
## 272	0.460035627	0.0689227403	0.0554441872	0.1239599833
## 273	0.114475635	0.6818428238	0.7210253127	0.3270378769
## 274	0.165669708	0.4209210212	0.2438540723	0.1002503815
## 275	0.807017676	0.4095601299	0.0205720514	0.0085045311
## 276	0.480655461	0.4273588596	0.2067240284	0.4030890018
## 277	1.289806223	0.7348603163	0.3931268841	0.3592520098
## 278	0.357647481	0.7045646063	0.4262428693	0.1561741162
## 279	0.120874894	0.1480702828	0.0921979132	0.0255135932
## 280	1.161821041	0.7613690626	0.2605375042	0.7530375700
## 281	0.827637511	0.1963540706	0.0944558212	0.0690671009
## 282	0.734492739	0.1367093915	0.1239340656	0.0000000000
## 283	0.990463103	0.6886593585	0.4458615817	0.4599662748
## 284	0.204065262	0.7594755807	0.3671609412	0.2056550242
## 285	1.033835859	0.0365442002	0.3819251513	0.2907003350
## 286	1.751263908	0.5890622118	0.6357265631	0.0108239486
## 287	0.495587066	0.1119047789	0.1447569956	0.0425226554
## 288	0.635659737	0.5076424911	0.5993491552	0.8215892447
## 289	2.726084378	0.5568730199	0.3973918216	1.0854874212
## 290	0.044083785	0.6159496545	0.4652545033	0.6040794196
## 291	2.008656329	1.0586457172	0.4452469289	0.5563509603
## 292	0.774310351	0.0852066844	0.0204466120	0.0695825270

## 293	0.184156456	0.1535613802	0.3329160021	0.3479899489
## 294	1.040946147	1.0662196447	0.5057714093	0.1172594436
## 295	0.401731266	0.4313351715	0.4469278160	0.5200391897
## 296	1.090718163	0.6780558600	0.3784504816	0.4177528750
## 297	0.439415792	0.3093949386	0.0219518841	0.1546278378
## 298	0.232506414	0.1757151182	0.0748872846	0.1340107927
## 299	0.465723857	0.4122110045	0.2210241129	0.1043737905
## 300	0.066125677	0.7125172302	0.1438789203	0.1492158635
## 301	0.230373328	0.2895133789	0.1683395911	0.0085045311
## 302	1.522312638	0.6061035487	0.5311101555	0.1633900819
## 303	0.059726418	0.4343647425	0.2798551622	0.6378398308
## 304	1.375129678	0.6553340775	0.6438801200	0.8849866582
## 305	0.442970936	1.0245630434	1.1742376395	0.3535823224
## 306	1.077208616	0.7382685837	0.3610645894	0.3046168404
## 307	0.092433743	0.2406615465	0.0954593359	0.2139018423
## 308	1.237901122	0.4267908150	0.2394636955	0.2803918125
## 309	0.434438590	0.4209210212	0.1949327307	0.1144246000
## 310	2.384790559	0.2715253011	0.0889364904	0.3654628946
## 311	2.207033361	1.7194708922	0.1399903008	0.7625729533
## 312	0.692542041	0.4105068709	0.3066991805	0.1765334481
## 313	0.002133086	1.7175774103	2.3947623946	0.9269938874
## 314	1.901290982	1.3824311181	0.8142267405	0.8298360627
## 315	0.921493311	0.7488720822	0.4029487843	0.4382668349
## 316	1.882093205	0.9190961029	0.3743109835	0.4430087552
## 317	0.429461389	0.4758319956	0.0367537259	0.0507694734
## 318	1.190262193	0.9791194784	0.1077523910	0.1974082062
## 319	0.405286410	0.2238095578	0.0224536414	0.0564391608
## 320	0.671211177	1.3824311181	0.6266949308	0.7107726276
## 321	0.526161304	0.4924946361	0.3294037006	0.0324718459
## 322	0.632104594	0.5777013206	0.5388873944	0.3806421940
## 323	2.711152773	0.5996657103	0.4652545033	0.6040794196
## 324	1.865739543	0.0073845793	0.4652545033	0.6040794196
## 325	0.248149047	0.2480461258	0.0239589135	0.1878728229
## 326	0.834036770	0.0000000000	0.2168846148	0.0793756234
## 327	0.258103450	0.4773467811	0.1643255323	0.0440689338
## 328	0.543937024	0.3978205423	0.2797297229	0.4554047535
## 329	0.334894560	0.4887076724	0.3593837023	0.3729108021
## 330	0.290099746	0.8446822652	0.6953102485	0.2525588017
## 331	0.839013971	0.5693700003	0.2893885519	0.1311759490
## 332	0.025597036	0.1401176589	0.2666840318	0.1891613882
## 333	0.318540898	0.3892998738	0.0844206742	0.0170090622
## 334	0.186289543	0.4309564751	0.2666840318	0.3082248233
## 335	0.356936452	0.5019620455	0.0026342261	0.0064428266
## 336	0.066125677	0.0007573928	0.0610889574	0.2592593413
## 337	3.294907409	0.8939127940	0.0472906303	0.0198439058
## 338	0.485632663	0.6273105457	0.4419227865	0.5287241200
## 339	0.692542041	0.0783901497	0.3068246198	0.2644136026
## 340	0.274457113	0.9279954677	0.6966900812	0.0092776703
## 341	0.426617273	0.0800942834	0.1280735637	0.1450924544
## 342	0.606507557	0.7064580882	0.0944558212	0.5051176034
## 343	0.877409526	0.2959512173	0.3616416104	0.1043737905
## 344	1.084318903	0.1490170237	0.3031868790	0.1229291310
## 345	1.281273878	0.2773950949	0.0998497128	0.2249835040
## 346	1.176041617	0.4135364419	0.1973160781	0.5401665800

## 347	0.202643205	0.4400451881	0.1175366594	0.0711288054
## 348	0.191266744	0.2912175126	0.1343455306	0.0708710923
## 349	0.877409526	2.0508302206	1.3536158923	1.0195128770
## 350	0.699652329	0.3381758632	0.1688413484	0.0615934220
## 351	0.073235965	0.2577028834	0.0451581615	0.0216478973
## 352	0.286544602	0.1863186167	0.2151284640	0.1680289170
## 353	1.479650910	0.4366369208	0.0292273657	0.1564318292
## 354	1.609769179	0.2470993849	0.0114149797	0.2721449945
## 355	1.144756351	0.2906494681	0.1442552383	0.1355570711
## 356	0.573089204	0.3086375459	0.0160562352	0.0791179103
## 357	1.360909102	0.3243534455	0.3996497297	1.0697669243
## 358	2.140196655	0.8416526942	0.0558205052	0.1412267585
## 359	0.447948137	0.6068609415	0.8460883323	0.6654151285
## 360	0.071102879	0.6369673033	0.1774966627	0.1121051824
## 361	0.412396698	0.9741964255	0.9652557030	1.0751788986
## 362	0.106654318	0.0823664616	0.9214773742	0.9172007911
## 363	0.426617273	0.7072154809	0.2126196773	0.0316987067
## 364	0.828348539	1.4151883546	1.3075796554	1.5266921849
## 365	0.661967803	1.2885144170	0.7808598767	0.3587365836
## 366	0.861055864	0.5576304127	0.5437795286	0.1744717436
## 367	0.963444009	0.7674282046	0.8420742735	0.5288272052
## 368	0.312852667	0.9060310780	0.5450339220	0.1092703387
## 369	0.156426334	0.4459149819	0.0068991636	0.1816877094
## 370	0.696808213	0.6485175427	1.2474942127	1.0906416824
## 371	2.865446020	2.8695717840	1.1295812353	0.4875931151
## 372	2.025721020	0.8696762259	0.5149284810	0.7344822294
## 373	0.903006562	1.9682744108	2.3262725163	2.7065025871
## 374	0.028441152	0.3663887431	0.6565494931	0.7798397285
## 375	0.846124259	1.4399929672	2.5207034896	1.9514033127
## 376	3.021872354	2.9225892766	3.4552265549	2.9616385195
## 377	0.106654318	0.2243776024	0.1411192548	0.2154481206
## 378	0.809861791	1.6407020461	0.7444824688	0.3435315129
## 379	0.191977773	0.5292281845	0.8097109244	0.4643989394
## 380	0.113764606	0.3360930331	0.2113652839	0.5234152309
## 381	1.463297248	1.3640643439	1.5084080350	1.7001330763
## 382	0.362624682	1.5365605429	0.7068506675	0.2907003350
## 383	0.042661727	0.1297035085	0.5651042160	0.8218469578
## 384	1.160398984	0.9026228106	0.8738104259	0.7252045592
## 385	0.099544030	0.0369228966	0.3919979301	0.0505117603
## 386	0.563134801	0.5708847858	0.5224548412	0.0010308523
## 387	1.692248518	1.4426438418	1.3705502029	1.4898392169
## 388	0.376845258	2.0629485046	0.5864289034	0.5180032565
## 389	0.518339987	0.0899403891	0.3882347500	0.4089906309
## 390	0.291521804	2.5401059375	2.2898951084	2.5312577043
## 391	0.250993163	1.1427163125	0.9709004732	0.8682353091
## 392	0.227529213	0.4231931994	0.0708732258	0.0095353833
## 393	0.775021380	1.8357306794	0.7708247297	0.1554009770
## 394	1.343133383	0.4061518625	0.3882347500	0.7453061781
## 395	0.247438019	0.2224841205	0.4183401910	0.6824241907
## 396	0.981219729	0.4515954276	0.4735334995	0.1249908355
## 397	0.595131097	0.0331359328	0.3029360004	0.0162359230
## 398	0.803462532	0.0463903060	0.1586807621	0.2404462877
## 399	0.594420068	0.8848240809	0.4333929115	0.0420072293
## 400	2.673468247	0.8359722485	0.6993243073	0.2507548103

## 401	1.093562278	1.2495086904	0.8460883323	0.8651427523
## 402	1.424190665	0.9859360132	0.7355762758	0.7733969019
## 403	0.113764606	0.3209451781	0.0633468655	0.6414478137
## 404	0.194110859	1.7069739118	1.5297327224	0.2791032472
## 405	0.625705334	0.3114777687	1.1609410697	1.3560861373
## 406	0.703918501	0.2527798305	0.0144255238	0.1396804801
## 407	0.689697925	0.5065064020	0.0068991636	0.3365732602
## 408	0.554602456	0.4875715832	0.0294782443	0.2311686175
## 409	1.151866638	2.7502824258	1.8659101472	1.5674108489
## 410	0.312852667	0.5481630033	0.0921979132	0.2997202922
## 411	0.191977773	1.2960883446	0.7796054833	0.0064428266
## 412	0.227529213	1.0310008818	0.1110138138	0.0399455248
## 413	0.362624682	0.0596446791	0.6499012082	0.5210958133
## 414	1.457609018	0.1997623380	0.5889376902	0.7625729533
## 415	0.624283277	0.0918338710	0.2038389236	0.3613137143
## 416	0.511940728	1.1181010481	1.7028390083	2.6163030151
## 417	0.868166152	0.0956208348	0.6821391180	0.2888963436
## 418	0.966999153	0.1751470736	0.3606380957	0.3319344251
## 419	0.270190940	0.3607082975	0.4860774333	0.5579487813
## 420	1.187418078	0.6087544233	0.7236595388	0.6811356254
## 421	0.833325741	1.3154018597	1.1637007352	1.3375307967
## 422	0.220418925	0.1069817260	0.2389619382	0.0943229810
## 423	0.547492168	0.6863871803	0.5776481498	0.3767764980
## 424	0.748002286	0.9109541308	0.6731074857	0.5128489953
## 425	0.955622693	0.6905528404	0.9514573759	1.1723367234
## 426	0.846124259	0.4705302463	0.4973669737	0.5855240790
## 427	0.561712743	0.6676417097	0.4522088121	0.4589869651
## 428	1.564263336	0.8844453846	0.4497000254	0.2324571828
## 429	0.354803366	0.3531343700	0.7134989524	0.6919595740
## 430	0.831903683	0.5140803295	0.1574263687	0.3257493116
## 431	0.442970936	0.8399485605	1.0715028220	0.8862752235
## 432	1.372285563	0.8852027773	0.5312355948	1.5622565876
## 433	0.014220576	0.6562808184	0.3493485553	0.5347546056
## 434	0.592286981	1.5344777128	1.5977208433	1.4764381377
## 435	1.144756351	1.0347878456	0.6478941788	0.0278330108
## 436	0.179179255	1.3862180819	1.5617197534	1.3176868909
## 437	0.846124259	2.8563174109	1.2211519518	1.6318391146
## 438	0.817683108	0.0785794979	0.2765937395	0.1301450968
## 439	0.348404107	0.9590485705	0.2239092177	0.1762757351
## 440	1.820233700	0.7128959266	0.0809083728	0.1389073409
## 441	1.266342273	0.3379865150	0.2377075448	0.2767838296
## 442	0.910116850	0.6030739777	0.8573778727	0.5133644214
## 443	0.789241956	0.3133712506	0.7770966966	1.0210591554
## 444	0.890208044	0.2376319755	0.5989728372	0.2937928918
## 445	1.045212320	0.0085206684	0.0445309649	0.0360798288
## 446	0.156426334	1.2430708520	0.2301811845	0.0644282657
## 447	0.526161304	0.0842599435	0.6705986989	0.8715855789
## 448	1.107782853	1.3150231633	1.5358792499	1.4924163476
## 449	0.284411516	0.9950247262	1.1333444155	0.2865769260
## 450	0.618595047	3.3902793001	2.0854289880	1.3251605697
## 451	1.478939881	2.3715860505	2.1017361019	0.8638541870
## 452	0.497720152	0.1902949286	0.0595836854	0.1394227671
## 453	1.244300381	0.3266256237	1.1333444155	0.8767398402
## 454	1.784682261	1.1521837219	0.4333929115	0.1868419706



## 455	0.035551439	0.4440215001	0.6717276530	0.0664899702
## 456	0.341293819	2.1481551890	0.6917979470	0.6576837367
## 457	1.206615855	0.1978688561	0.5011301538	0.4783154448
## 458	0.853234547	0.3644952613	2.1167888224	1.8869750470
## 459	1.254965813	0.5689913039	0.7380850626	0.8571536474
## 460	0.305742379	1.5573888435	0.2138740707	0.5597527727
## 461	0.351248222	0.8028363157	0.7619185367	0.5414551453
## 462	0.538248793	0.0331359328	0.4998757604	0.5582064944
## 463	0.106654318	0.0255620053	0.1285753211	0.2069435896
## 464	0.106654318	0.5349086301	1.5033904614	1.1524928175
## 465	1.265631245	0.1069817260	0.1611895488	0.5417128583
## 466	0.291521804	1.1938403232	1.1722306101	1.6447247678
## 467	0.056882303	1.4816495685	0.9991243242	1.5674108489
## 468	0.170646909	0.7867417197	0.7168858145	1.1834183851
## 469	0.276590199	0.5614173764	0.0432765715	0.2242103648
## 470	0.028441152	1.0783379287	0.9062992143	0.1458655936
## 471	1.085029932	0.2622472399	0.4020330771	0.2677638724
## 472	0.597264183	0.2755016130	0.0859259463	0.1175171567
## 473	0.021330864	0.2262710843	0.4597351724	0.5582064944
## 474	0.754401545	0.4724237282	0.0508029317	0.0742213621
## 475	0.184867485	1.4456734128	1.3001787345	0.2064281634
## 476	0.756534632	0.0198815597	0.0119167371	0.3922392818
## 477	0.099544030	0.5349086301	0.3104623606	0.0708710923
## 478	0.135095470	0.2130167111	0.6633232174	0.6365512655
## 479	0.135095470	0.0085206684	0.5851745100	0.4643989394
## 480	0.505541469	0.6788132528	0.5475427087	0.9643622816
## 481	0.433727561	0.0236685235	0.2076021038	0.6726310943
## 482	0.811994877	0.0198815597	0.0608380787	0.0141742185
## 483	0.246015961	0.5121868476	0.2239092177	0.0430380815
## 484	0.945668290	0.8113569841	0.7770966966	0.2193138166
## 485	0.334183531	0.0766860160	0.9966155374	1.4102058805
## 486	1.030991744	0.0350294147	0.0319870311	0.0010308523
## 487	0.784975783	0.1486383273	0.5688673961	0.6540757538
## 488	0.846835288	0.2224841205	0.0570748986	0.0920035635
## 489	1.016771168	0.0766860160	0.3581293089	0.1667403517
## 490	0.099544030	0.0747925341	0.5901920835	0.7770048848
## 491	0.714583933	0.8781968944	0.9594854935	1.1063621793
## 492	0.265213738	0.3152647325	0.6598109159	0.1739563175
## 493	1.066543184	0.2944364318	0.3092079672	0.1033429382
## 494	0.538248793	0.4421280182	0.4848230399	0.3164716413
## 495	1.326068692	0.9253445931	0.7643018842	0.6716002421
## 496	1.293361367	0.6087544233	0.6519082376	0.8411754375
## 497	0.661256774	0.6466240609	0.4283753380	0.4927473764
## 498	0.092433743	0.2565667943	0.1687159091	0.0095353833
## 499	0.551758340	0.6225768410	0.3882347500	0.9509612023
## 500	0.127985182	0.4459149819	0.2000757435	0.2257566431
## 501	0.582332578	1.2070946964	0.8548690859	0.5803698178
## 502	0.520473074	0.8944808385	0.8166100879	1.0666743676
## 503	0.158559420	0.0179880778	0.2314355779	0.0863338761
## 504	0.014220576	0.2452059030	0.5111653008	0.2669907332
## 505	0.725249365	0.5443760395	0.4910950068	0.2950814571
## 506	0.300765178	0.0293489691	0.4384104850	0.6190267772
## 507	0.582332578	0.7488720822	0.1800054495	0.2667330202
## 508	0.550336283	0.4686367645	0.0169343106	0.0806641887

## 509	0.760800804	0.3644952613	0.6693443056	0.2172521121
## 510	0.995440305	0.6163283508	0.2214004309	0.0760253536
## 511	0.476389289	0.2357384936	0.9313870819	0.8535456645
## 512	0.223974069	0.6541979884	0.1599351555	1.0365219392
## 513	0.490609865	0.7128959266	0.1825142362	0.3126059454
## 514	0.827637511	1.1652487469	1.2395915344	1.3643329553
## 515	0.711028789	0.1164491354	0.4835686465	0.4522864255
## 516	2.225520110	1.8186893425	1.1722306101	0.9772479347
## 517	0.684009695	1.0173678123	1.2355774756	1.4285035080
## 518	0.327073243	0.1429578817	0.0696188324	0.2120978508
## 519	0.071102879	0.0123076322	0.0282238510	0.1430307499
## 520	0.922204340	1.3918985275	0.8925008872	0.7177308803
## 521	0.120874894	0.4345540907	0.2339443647	0.0481923428
## 522	0.290099746	0.0482837879	0.1210489608	0.0471614905
## 523	0.228951270	0.4042583807	0.6353502451	0.5661955993
## 524	0.085323455	0.0558577154	0.5375075617	1.0478613140
## 525	0.085323455	0.0104141503	0.4296297314	0.4077020656
## 526	0.533982621	0.3417734787	0.1837686296	0.0046388351
## 527	0.440837849	1.2582187070	2.6611955477	2.1292253261
## 528	0.028441152	0.1240230629	0.1009786668	0.0298947153
## 529	1.166087214	1.8035414875	0.8975184607	1.3870117048
## 530	0.905139649	0.1732535917	0.5312355948	0.6118108115
## 531	1.279851820	0.3663887431	0.4622439592	0.5131067083
## 532	0.337027646	0.3910040075	0.4810598598	0.1747294567
## 533	0.381111431	0.2811820587	0.0733820125	0.7530375700
## 534	0.995440305	0.6769197709	0.1963125634	0.4816657147
## 535	0.332761473	0.3455604425	0.7208998733	0.7187617326
## 536	0.298632091	1.0669770375	1.0104138646	0.9824021960
## 537	1.571373624	1.9701678926	1.7567779235	0.9772479347
## 538	2.161527519	2.7351345708	3.4502089814	2.4745608305
## 539	1.379395851	1.5725366985	0.2201460375	0.5826892353
## 540	0.149316046	0.0653251247	0.4308841247	0.2231795125
## 541	1.109204911	2.7389215345	2.5094139492	1.6936902497
## 542	1.670917654	0.4383410544	0.6504029656	0.6035639934
## 543	0.359780567	0.5235477389	0.8625208855	0.8700393005
## 544	0.682587638	1.4002298478	0.3393134083	0.7246891330
## 545	0.291521804	0.5973935321	0.2979184269	0.0590162914
## 546	1.936131393	1.1593789531	1.4407962320	1.6290042709
## 547	1.432011981	1.2432602002	1.4847000001	1.3671677990
## 548	1.052322608	1.3225970908	0.2615410190	0.4257419800
## 549	0.547492168	1.7278022124	2.0829202013	1.5751422408
## 550	0.696808213	0.4686367645	0.0106623437	0.0378838203
## 551	0.970554297	1.1754735490	1.1836455898	1.0009575365
## 552	0.618595047	0.3644952613	0.3706732427	0.8880792149
## 553	0.339871761	0.3285191056	0.3731820294	0.0373683941
## 554	0.469279001	0.9003506323	0.2276723978	0.4553789822
## 555	1.241456266	1.0169891159	0.8084565310	0.4151757444
## 556	0.526161304	0.5216542570	0.5776481498	1.0726017680
## 557	0.895896274	0.3057973231	0.3242606878	0.5082101601
## 558	1.350954699	1.6340748595	1.3107156389	1.5176722277
## 559	1.292650339	1.2332247462	0.9836952857	0.7813860069
## 560	0.276590199	0.4402345363	0.3506029487	0.0613357090
## 561	0.049772015	0.5027194382	1.2939067676	0.7375747862
## 562	1.029569687	1.1230241010	1.0267209785	0.8344748978

```
## 563      1.052322608      1.0442552550      1.3189946351 1.6524561597
## 564      1.877116003      4.0340631382      2.8104683595 1.9101692226
## 565      1.166087214      2.0307593127      0.9527117693 0.0219056104
## 566      1.030991744      1.4456734128      1.6263210123 1.8019297362
## 567      0.282278429      0.4269801632      0.2439795117 0.7808705808
## 568      0.826926482      0.5140803295      1.2242879352 1.3826305828
## 569      0.149316046      0.3626017794      0.5249636280 1.0107506329
```

```
#install.packages("car")
library(car)
```

```
## Loading required package: carData
```

```
#LeveneTest() produces a two-sided test
# Levene test is used to verify Homoscedasticity. It tests if the variance of two samples are #
#equal. Levene's test is an inferential statistic used to assess the equality of variances for a
#variable calculated for two or more groups.[1] Some common statistical procedures assume that #
variances of the populations from which different samples are drawn are equal. Levene's test #as
sesses this assumption.
leveneTest(radius_mean ~ diagnosis, data=cancer)
```

```
## Levene's Test for Homogeneity of Variance (center = median)
##           Df F value    Pr(>F)
## group    1  90.477 < 2.2e-16 ***
##           567
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
leveneTest(texture_mean ~ diagnosis, data=cancer)
```

```
## Levene's Test for Homogeneity of Variance (center = median)
##           Df F value Pr(>F)
## group    1   0.684 0.4086
##           567
```

```
leveneTest(perimeter_mean ~ diagnosis, data=cancer)
```

```
## Levene's Test for Homogeneity of Variance (center = median)
##           Df F value    Pr(>F)
## group    1  91.237 < 2.2e-16 ***
##           567
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
leveneTest(area_mean ~ diagnosis, data=cancer)
```

```
## Levene's Test for Homogeneity of Variance (center = median)
##           Df F value    Pr(>F)
## group    1  170.21 < 2.2e-16 ***
##           567
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
leveneTest(smoothness_mean ~ diagnosis, data=cancer)
```

```
## Levene's Test for Homogeneity of Variance (center = median)
##           Df F value Pr(>F)
## group    1  0.8377 0.3604
##           567
```

```
leveneTest(compactness_mean~ diagnosis, data=cancer)
```

```
## Levene's Test for Homogeneity of Variance (center = median)
##           Df F value    Pr(>F)
## group    1  39.892 5.428e-10 ***
##           567
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
leveneTest(concavity_mean~ diagnosis, data=cancer)
```

```
## Levene's Test for Homogeneity of Variance (center = median)
##           Df F value    Pr(>F)
## group    1  70.484 3.723e-16 ***
##           567
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
leveneTest(points_mean ~ diagnosis, data=cancer)
```

```
## Levene's Test for Homogeneity of Variance (center = median)
##           Df F value    Pr(>F)
## group    1  94.906 < 2.2e-16 ***
##           567
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
leveneTest(symmetry_mean ~ diagnosis, data=cancer)
```

```
## Levene's Test for Homogeneity of Variance (center = median)
##           Df F value Pr(>F)
## group    1    2.036 0.1542
##           567
```

```
leveneTest(dimension_mean ~ diagnosis, data=cancer)
```

```
## Levene's Test for Homogeneity of Variance (center = median)
##           Df F value Pr(>F)
## group    1    6.113 0.01371 *
##           567
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
#PCA Analysis
#PCA
```

```
dim(cancer)
```

```
## [1] 569 32
```

```
attach(cancer)
head(cancer)
```

```
##      id diagnosis radius_mean texture_mean perimeter_mean area_mean
## 1 87139402      B      12.32      12.39      78.85      464.1
## 2 8910251      B      10.60      18.95      69.28      346.4
## 3 905520      B      11.04      16.83      70.92      373.2
## 4 868871      B      11.28      13.39      73.00      384.8
## 5 9012568      B      15.19      13.21      97.65      711.8
## 6 906539      B      11.57      19.04      74.20      409.7
##      smoothness_mean compactness_mean concavity_mean points_mean
## 1      0.10280      0.06981      0.03987      0.03700
## 2      0.09688      0.11470      0.06387      0.02642
## 3      0.10770      0.07804      0.03046      0.02480
## 4      0.11640      0.11360      0.04635      0.04796
## 5      0.07963      0.06934      0.03393      0.02657
## 6      0.08546      0.07722      0.05485      0.01428
##      symmetry_mean dimension_mean radius_se texture_se perimeter_se area_se
## 1      0.1959      0.05955      0.2360      0.6656      1.670      17.43
## 2      0.1922      0.06491      0.4505      1.1970      3.430      27.10
## 3      0.1714      0.06340      0.1967      1.3870      1.342      13.54
## 4      0.1771      0.06072      0.3384      1.3430      1.851      26.33
## 5      0.1721      0.05544      0.1783      0.4125      1.338      17.72
## 6      0.2031      0.06267      0.2864      1.4400      2.206      20.30
##      smoothness_se compactness_se concavity_se points_se symmetry_se
## 1      0.008045      0.011800      0.01683      0.012410      0.01924
## 2      0.007470      0.035810      0.03354      0.013650      0.03504
## 3      0.005158      0.009355      0.01056      0.007483      0.01718
## 4      0.011270      0.034980      0.02187      0.019650      0.01580
## 5      0.005012      0.014850      0.01551      0.009155      0.01647
## 6      0.007278      0.020470      0.04447      0.008799      0.01868
##      dimension_se radius_worst texture_worst perimeter_worst area_worst
## 1      0.002248      13.50      15.64      86.97      549.1
## 2      0.003318      11.88      22.94      78.28      424.8
## 3      0.002198      12.41      26.44      79.93      471.4
## 4      0.003442      11.92      15.77      76.53      434.0
## 5      0.001767      16.20      15.73      104.50      819.1
## 6      0.003339      13.07      26.98      86.43      520.5
##      smoothness_worst compactness_worst concavity_worst points_worst
## 1      0.1385      0.1266      0.12420      0.09391
## 2      0.1213      0.2515      0.19160      0.07926
## 3      0.1369      0.1482      0.10670      0.07431
## 4      0.1367      0.1822      0.08669      0.08611
## 5      0.1126      0.1737      0.13620      0.08178
## 6      0.1249      0.1937      0.25600      0.06664
##      symmetry_worst dimension_worst
## 1      0.2827      0.06771
## 2      0.2940      0.07587
## 3      0.2998      0.07881
## 4      0.2102      0.06784
## 5      0.2487      0.06766
## 6      0.3035      0.08284
```

```
#Get the Correlations between the measurements
cor(cancer[-2])
```

```
##          id radius_mean texture_mean perimeter_mean
## id          1.000000000 0.074626470 0.099769891 0.073159412
## radius_mean 0.0746264697 1.000000000 0.323781891 0.997855281
## texture_mean 0.0997698912 0.323781891 1.000000000 0.329533059
## perimeter_mean 0.0731594119 0.997855281 0.329533059 1.000000000
## area_mean    0.0968928233 0.987357170 0.321085696 0.986506804
## smoothness_mean -0.0129681975 0.170581187 -0.023388516 0.207278164
## compactness_mean 0.0000957011 0.506123578 0.236702222 0.556936211
## concavity_mean 0.0500799532 0.676763550 0.302417828 0.716135650
## points_mean    0.0441580956 0.822528522 0.293464051 0.850977041
## symmetry_mean  -0.0221140609 0.147741242 0.071400980 0.183027212
## dimension_mean -0.0525114476 -0.311630826 -0.076437183 -0.261476908
## radius_se      0.1430475814 0.679090388 0.275868676 0.691765014
## texture_se     -0.0075261904 -0.097317443 0.386357623 -0.086761078
## perimeter_se   0.1373310660 0.674171616 0.281673115 0.693134890
## area_se        0.1777419152 0.735863663 0.259844987 0.744982694
## smoothness_se  0.0967805739 -0.222600125 0.006613777 -0.202694026
## compactness_se 0.0339609721 0.205999980 0.191974611 0.250743681
## concavity_se   0.0552393174 0.194203623 0.143293077 0.228082345
## points_se      0.0787680711 0.376168956 0.163851025 0.407216916
## symmetry_se    -0.0173062948 -0.104320881 0.009127168 -0.081629327
## dimension_se   0.0257253243 -0.042641269 0.054457520 -0.005523391
## radius_worst   0.0824053373 0.969538973 0.352572947 0.969476363
## texture_worst  0.0647195454 0.297007644 0.912044589 0.303038372
## perimeter_worst 0.0799858731 0.965136514 0.358039575 0.970386887
## area_worst     0.1071865233 0.941082460 0.343545947 0.941549808
## smoothness_worst 0.0103380343 0.119616140 0.077503359 0.150549404
## compactness_worst -0.0029680998 0.413462823 0.277829592 0.455774228
## concavity_worst 0.0232027439 0.526911462 0.301025224 0.563879263
## points_worst   0.0351735794 0.744214198 0.295315843 0.771240789
## symmetry_worst -0.0442242529 0.163953335 0.105007910 0.189115040
## dimension_worst -0.0298656360 0.007065886 0.119205351 0.051018530
##          area_mean smoothness_mean compactness_mean
## id          0.096892823 -0.01296820 0.0000957011
## radius_mean 0.987357170 0.17058119 0.5061235775
## texture_mean 0.321085696 -0.02338852 0.2367022221
## perimeter_mean 0.986506804 0.20727816 0.5569362109
## area_mean    1.000000000 0.17702838 0.4985016822
## smoothness_mean 0.177028377 1.000000000 0.6591232152
## compactness_mean 0.498501682 0.65912322 1.0000000000
## concavity_mean 0.685982829 0.52198377 0.8831206702
## points_mean  0.823268869 0.55369517 0.8311350431
## symmetry_mean 0.151293079 0.55777479 0.6026410484
## dimension_mean -0.283109812 0.58479200 0.5653686634
## radius_se     0.732562227 0.30146710 0.4974734461
## texture_se    -0.066280214 0.06840645 0.0462048307
## perimeter_se  0.726628328 0.29609193 0.5489052646
## area_se       0.800085921 0.24655243 0.4556528520
## smoothness_se -0.166776667 0.33237544 0.1352992677
## compactness_se 0.212582551 0.31894330 0.7387217897
## concavity_se  0.207660060 0.24839568 0.5705168715
## points_se     0.372320282 0.38067569 0.6422618510
## symmetry_se   -0.072496588 0.20077438 0.2299765908
```

```
## dimension_se      -0.019886963      0.28360670      0.5073181269
## radius_worst      0.962746086      0.21312014      0.5353153982
## texture_worst     0.287488627      0.03607180      0.2481328333
## perimeter_worst   0.959119574      0.23885263      0.5902104277
## area_worst        0.959213326      0.20671836      0.5096038056
## smoothness_worst  0.123522939      0.80532420      0.5655411664
## compactness_worst 0.390410309      0.47246844      0.8658090398
## concavity_worst   0.512605920      0.43492571      0.8162752498
## points_worst      0.722016626      0.50305335      0.8155732236
## symmetry_worst    0.143569914      0.39430948      0.5102234299
## dimension_worst   0.003737597      0.49931637      0.6873823228
##
## concavity_mean    0.05007995      0.04415810      -0.02211406      -0.0525114476
## id                0.05007995      0.04415810      -0.02211406      -0.0525114476
## radius_mean       0.67676355      0.82252852      0.14774124      -0.3116308263
## texture_mean      0.30241783      0.29346405      0.07140098      -0.0764371834
## perimeter_mean    0.71613565      0.85097704      0.18302721      -0.2614769081
## area_mean         0.68598283      0.82326887      0.15129308      -0.2831098117
## smoothness_mean   0.52198377      0.55369517      0.55777479      0.5847920019
## compactness_mean  0.88312067      0.83113504      0.60264105      0.5653686634
## concavity_mean    1.00000000      0.92139103      0.50066662      0.3367833594
## points_mean       0.92139103      1.00000000      0.46249739      0.1669173832
## symmetry_mean     0.50066662      0.46249739      1.00000000      0.4799213301
## dimension_mean    0.33678336      0.16691738      0.47992133      1.0000000000
## radius_se         0.63192482      0.69804983      0.30337926      0.0001109951
## texture_se        0.07621835      0.02147958      0.12805293      0.1641739659
## perimeter_se      0.66039079      0.71064987      0.31389276      0.0398299316
## area_se           0.61742681      0.69029854      0.22397022      -0.0901702475
## smoothness_se     0.09856375      0.02765331      0.18732117      0.4019644254
## compactness_se    0.67027882      0.49042425      0.42165915      0.5598366906
## concavity_se      0.69127021      0.43916707      0.34262702      0.4466303217
## points_se         0.68325992      0.61563413      0.39329787      0.3411980444
## symmetry_se       0.17800921      0.09535079      0.44913654      0.3450073971
## dimension_se      0.44930075      0.25758375      0.33178615      0.6881315775
## radius_worst      0.68823641      0.83031763      0.18572775      -0.2536914949
## texture_worst     0.29987889      0.29275171      0.09065069      -0.0512692020
## perimeter_worst   0.72956492      0.85592313      0.21916856      -0.2051512113
## area_worst        0.67598723      0.80962962      0.17719338      -0.2318544512
## smoothness_worst  0.44882204      0.45275305      0.42667503      0.5049420754
## compactness_worst 0.75496802      0.66745368      0.47320001      0.4587981567
## concavity_worst   0.88410264      0.75239950      0.43372101      0.3462338763
## points_worst      0.86132303      0.91015531      0.43029661      0.1753254492
## symmetry_worst    0.40946413      0.37574415      0.69982580      0.3340186839
## dimension_worst   0.51492989      0.36866113      0.43841350      0.7672967792
##
## radius_se         0.1430475814      -0.00752619      0.13733107      0.17774192
## id                0.1430475814      -0.00752619      0.13733107      0.17774192
## radius_mean       0.6790903880      -0.09731744      0.67417162      0.73586366
## texture_mean      0.2758686762      0.38635762      0.28167311      0.25984499
## perimeter_mean    0.6917650135      -0.08676108      0.69313489      0.74498269
## area_mean         0.7325622270      -0.06628021      0.72662833      0.80008592
## smoothness_mean   0.3014670983      0.06840645      0.29609193      0.24655243
## compactness_mean  0.4974734461      0.04620483      0.54890526      0.45565285
## concavity_mean    0.6319248221      0.07621835      0.66039079      0.61742681
## points_mean       0.6980498336      0.02147958      0.71064987      0.69029854
## symmetry_mean     0.3033792632      0.12805293      0.31389276      0.22397022
```



```
## dimension_mean      0.0001109951  0.16417397  0.03982993 -0.09017025
## radius_se           1.0000000000  0.21324734  0.97279368  0.95183011
## texture_se          0.2132473373  1.00000000  0.22317073  0.11156725
## perimeter_se        0.9727936770  0.22317073  1.00000000  0.93765541
## area_se             0.9518301121  0.11156725  0.93765541  1.00000000
## smoothness_se       0.1645142198  0.39724285  0.15107533  0.07515034
## compactness_se      0.3560645755  0.23169970  0.41632237  0.28484006
## concavity_se        0.3323575376  0.19499846  0.36248158  0.27089473
## points_se           0.5133464414  0.23028340  0.55626408  0.41572957
## symmetry_se         0.2405673625  0.41162068  0.26648709  0.13410898
## dimension_se        0.2277535327  0.27972275  0.24414277  0.12707090
## radius_worst        0.7150651951 -0.11169031  0.69720059  0.75737319
## texture_worst       0.1947985568  0.40900277  0.20037085  0.19649665
## perimeter_worst     0.7196838037 -0.10224192  0.72103131  0.76121264
## area_worst          0.7515484761 -0.08319499  0.73071297  0.81140796
## smoothness_worst    0.1419185529 -0.07365766  0.13005439  0.12538943
## compactness_worst   0.2871031656 -0.09243935  0.34191945  0.28325654
## concavity_worst     0.3805846346 -0.06895622  0.41889882  0.38510014
## points_worst        0.5310623278 -0.11963752  0.55489723  0.53816631
## symmetry_worst      0.0945428304 -0.12821476  0.10993043  0.07412629
## dimension_worst     0.0495594325 -0.04565457  0.08543257  0.01753930
##
## smoothness_se compactness_se concavity_se points_se
## id                0.096780574    0.03396097  0.05523932 0.07876807
## radius_mean       -0.222600125    0.20599998  0.19420362 0.37616896
## texture_mean       0.006613777    0.19197461  0.14329308 0.16385103
## perimeter_mean    -0.202694026    0.25074368  0.22808235 0.40721692
## area_mean         -0.166776667    0.21258255  0.20766006 0.37232028
## smoothness_mean   0.332375443    0.31894330  0.24839568 0.38067569
## compactness_mean  0.135299268    0.73872179  0.57051687 0.64226185
## concavity_mean    0.098563746    0.67027882  0.69127021 0.68325992
## points_mean       0.027653308    0.49042425  0.43916707 0.61563413
## symmetry_mean     0.187321165    0.42165915  0.34262702 0.39329787
## dimension_mean    0.401964425    0.55983669  0.44663032 0.34119804
## radius_se         0.164514220    0.35606458  0.33235754 0.51334644
## texture_se        0.397242853    0.23169970  0.19499846 0.23028340
## perimeter_se      0.151075331    0.41632237  0.36248158 0.55626408
## area_se           0.075150338    0.28484006  0.27089473 0.41572957
## smoothness_se     1.000000000    0.33669608  0.26868476 0.32842950
## compactness_se    0.336696081    1.00000000  0.80126834 0.74408267
## concavity_se      0.268684760    0.80126834  1.00000000 0.77180399
## points_se         0.328429499    0.74408267  0.77180399 1.00000000
## symmetry_se       0.413506125    0.39471283  0.30942858 0.31278022
## dimension_se      0.427374207    0.80326882  0.72737218 0.61104414
## radius_worst     -0.230690710    0.20460717  0.18690352 0.35812667
## texture_worst     -0.074742965    0.14300258  0.10024098 0.08674121
## perimeter_worst   -0.217303755    0.26051584  0.22668043 0.39499925
## area_worst        -0.182195478    0.19937133  0.18835265 0.34227116
## smoothness_worst  0.314457456    0.22739423  0.16848132 0.21535060
## compactness_worst -0.055558139    0.67878035  0.48485780 0.45288838
## concavity_worst   -0.058298387    0.63914670  0.66256413 0.54959238
## points_worst      -0.102006796    0.48320833  0.44047226 0.60244961
## symmetry_worst    -0.107342098    0.27787843  0.19778782 0.14311567
## dimension_worst   0.101480315    0.59097276  0.43932927 0.31065455
##
## symmetry_se dimension_se radius_worst texture_worst
```

## id	-0.017306295	0.025725324	0.08240534	0.064719545
## radius_mean	-0.104320881	-0.042641269	0.96953897	0.297007644
## texture_mean	0.009127168	0.054457520	0.35257295	0.912044589
## perimeter_mean	-0.081629327	-0.005523391	0.96947636	0.303038372
## area_mean	-0.072496588	-0.019886963	0.96274609	0.287488627
## smoothness_mean	0.200774376	0.283606699	0.21312014	0.036071799
## compactness_mean	0.229976591	0.507318127	0.53531540	0.248132833
## concavity_mean	0.178009208	0.449300749	0.68823641	0.299878889
## points_mean	0.095350787	0.257583746	0.83031763	0.292751713
## symmetry_mean	0.449136542	0.331786146	0.18572775	0.090650688
## dimension_mean	0.345007397	0.688131577	-0.25369149	-0.051269202
## radius_se	0.240567362	0.227753533	0.71506520	0.194798557
## texture_se	0.411620680	0.279722748	-0.11169031	0.409002766
## perimeter_se	0.266487092	0.244142773	0.69720059	0.200370854
## area_se	0.134108980	0.127070903	0.75737319	0.196496649
## smoothness_se	0.413506125	0.427374207	-0.23069071	-0.074742965
## compactness_se	0.394712835	0.803268818	0.20460717	0.143002583
## concavity_se	0.309428578	0.727372184	0.18690352	0.100240984
## points_se	0.312780223	0.611044139	0.35812667	0.086741210
## symmetry_se	1.000000000	0.369078083	-0.12812077	-0.077473420
## dimension_se	0.369078083	1.000000000	-0.03748762	-0.003195029
## radius_worst	-0.128120769	-0.037487618	1.00000000	0.359920754
## texture_worst	-0.077473420	-0.003195029	0.35992075	1.000000000
## perimeter_worst	-0.103753044	-0.001000398	0.99370792	0.365098245
## area_worst	-0.110342743	-0.022736147	0.98401456	0.345842283
## smoothness_worst	-0.012661800	0.170568316	0.21657443	0.225429415
## compactness_worst	0.060254879	0.390158842	0.47582004	0.360832339
## concavity_worst	0.037119049	0.379974661	0.57397471	0.368365607
## points_worst	-0.030413396	0.215204013	0.78742385	0.359754610
## symmetry_worst	0.389402485	0.111093956	0.24352920	0.233027461
## dimension_worst	0.078079476	0.591328066	0.09349198	0.219122425
##	perimeter_worst	area_worst	smoothness_worst	
## id	0.079985873	0.10718652	0.01033803	
## radius_mean	0.965136514	0.94108246	0.11961614	
## texture_mean	0.358039575	0.34354595	0.07750336	
## perimeter_mean	0.970386887	0.94154981	0.15054940	
## area_mean	0.959119574	0.95921333	0.12352294	
## smoothness_mean	0.238852626	0.20671836	0.80532420	
## compactness_mean	0.590210428	0.50960381	0.56554117	
## concavity_mean	0.729564917	0.67598723	0.44882204	
## points_mean	0.855923128	0.80962962	0.45275305	
## symmetry_mean	0.219168559	0.17719338	0.42667503	
## dimension_mean	-0.205151211	-0.23185445	0.50494208	
## radius_se	0.719683804	0.75154848	0.14191855	
## texture_se	-0.102241922	-0.08319499	-0.07365766	
## perimeter_se	0.721031310	0.73071297	0.13005439	
## area_se	0.761212636	0.81140796	0.12538943	
## smoothness_se	-0.217303755	-0.18219548	0.31445746	
## compactness_se	0.260515840	0.19937133	0.22739423	
## concavity_se	0.226680426	0.18835265	0.16848132	
## points_se	0.394999252	0.34227116	0.21535060	
## symmetry_se	-0.103753044	-0.11034274	-0.01266180	
## dimension_se	-0.001000398	-0.02273615	0.17056832	
## radius_worst	0.993707916	0.98401456	0.21657443	

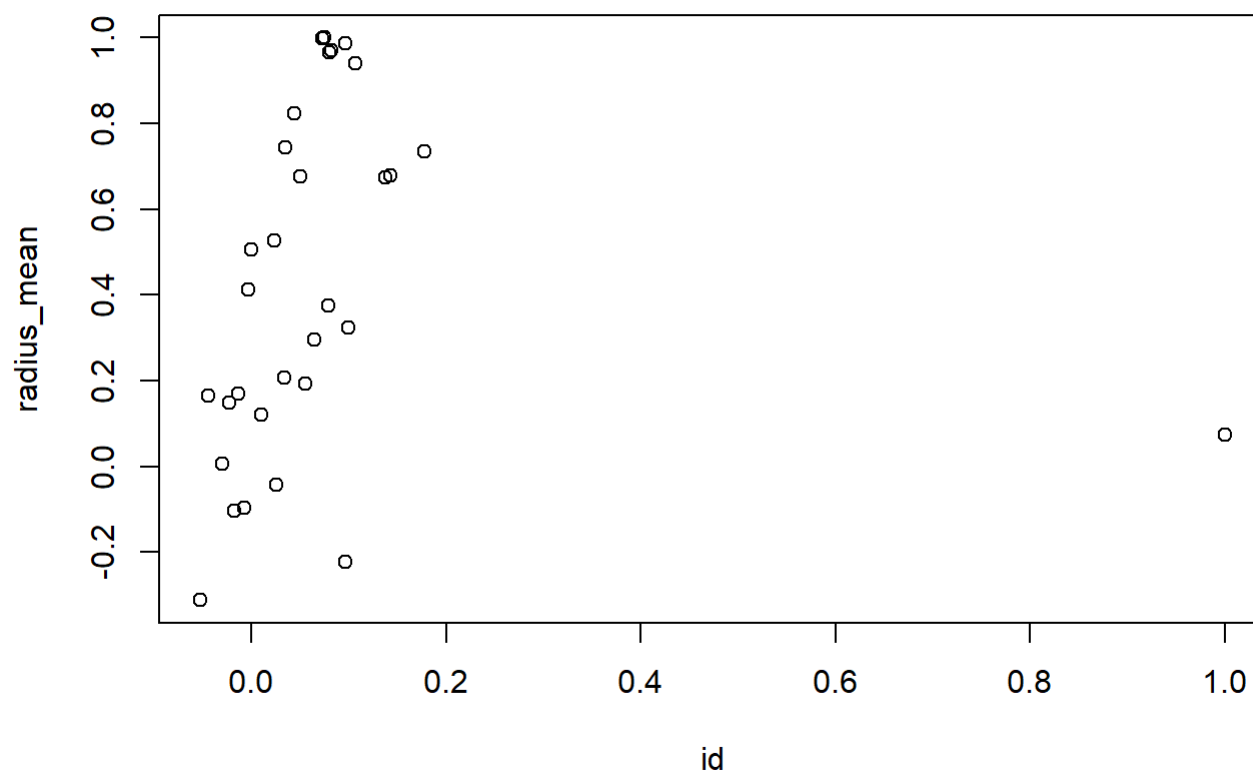
```

## texture_worst      0.365098245  0.34584228      0.22542941
## perimeter_worst    1.000000000  0.97757809      0.23677460
## area_worst         0.977578091  1.000000000      0.20914533
## smoothness_worst   0.236774604  0.20914533      1.00000000
## compactness_worst  0.529407690  0.43829628      0.56818652
## concavity_worst    0.618344080  0.54333053      0.51852329
## points_worst       0.816322102  0.74741880      0.54769090
## symmetry_worst     0.269492769  0.20914551      0.49383833
## dimension_worst    0.138956862  0.07964703      0.61762419
## compactness_worst  0.529407690  0.43829628      0.56818652
## id                 -0.00296810      0.02320274      0.03517358
## radius_mean        0.41346282      0.52691146      0.74421420
## texture_mean       0.27782959      0.30102522      0.29531584
## perimeter_mean     0.45577423      0.56387926      0.77124079
## area_mean          0.39041031      0.51260592      0.72201663
## smoothness_mean    0.47246844      0.43492571      0.50305335
## compactness_mean   0.86580904      0.81627525      0.81557322
## concavity_mean     0.75496802      0.88410264      0.86132303
## points_mean        0.66745368      0.75239950      0.91015531
## symmetry_mean      0.47320001      0.43372101      0.43029661
## dimension_mean     0.45879816      0.34623388      0.17532545
## radius_se          0.28710317      0.38058463      0.53106233
## texture_se         -0.09243935      -0.06895622     -0.11963752
## perimeter_se       0.34191945      0.41889882      0.55489723
## area_se            0.28325654      0.38510014      0.53816631
## smoothness_se      -0.05555814      -0.05829839     -0.10200680
## compactness_se     0.67878035      0.63914670      0.48320833
## concavity_se       0.48485780      0.66256413      0.44047226
## points_se          0.45288838      0.54959238      0.60244961
## symmetry_se         0.06025488      0.03711905     -0.03041340
## dimension_se       0.39015884      0.37997466      0.21520401
## radius_worst       0.47582004      0.57397471      0.78742385
## texture_worst      0.36083234      0.36836561      0.35975461
## perimeter_worst    0.52940769      0.61834408      0.81632210
## area_worst         0.43829628      0.54333053      0.74741880
## smoothness_worst   0.56818652      0.51852329      0.54769090
## compactness_worst  1.00000000      0.89226090      0.80108036
## concavity_worst    0.89226090      1.00000000      0.85543386
## points_worst       0.80108036      0.85543386      1.00000000
## symmetry_worst     0.61444050      0.53251973      0.50252849
## dimension_worst    0.81045486      0.68651092      0.51111415
## symmetry_worst     0.61444050      0.53251973      0.50252849
## dimension_worst    0.81045486      0.68651092      0.51111415
## id                 -0.04422425      -0.029865636
## radius_mean        0.16395333      0.007065886
## texture_mean       0.10500791      0.119205351
## perimeter_mean     0.18911504      0.051018530
## area_mean          0.14356991      0.003737597
## smoothness_mean    0.39430948      0.499316369
## compactness_mean   0.51022343      0.687382323
## concavity_mean     0.40946413      0.514929891
## points_mean        0.37574415      0.368661134
## symmetry_mean      0.69982580      0.438413498
## dimension_mean     0.33401868      0.767296779
## radius_se          0.09454283      0.049559432

```

```
## texture_se      -0.12821476   -0.045654569
## perimeter_se     0.10993043    0.085432572
## area_se          0.07412629    0.017539295
## smoothness_se    -0.10734210    0.101480315
## compactness_se    0.27787843    0.590972763
## concavity_se      0.19778782    0.439329269
## points_se         0.14311567    0.310654551
## symmetry_se       0.38940248    0.078079476
## dimension_se      0.11109396    0.591328066
## radius_worst      0.24352920    0.093491979
## texture_worst     0.23302746    0.219122425
## perimeter_worst   0.26949277    0.138956862
## area_worst        0.20914551    0.079647034
## smoothness_worst  0.49383833    0.617624192
## compactness_worst 0.61444050    0.810454856
## concavity_worst   0.53251973    0.686510921
## points_worst      0.50252849    0.511114146
## symmetry_worst    1.00000000    0.537848206
## dimension_worst    0.53784821    1.000000000
```

```
c <- (cor(cancer[-2]))
plot(c)
```



```
# Using prcomp to compute the principal components (eigenvalues and eigenvectors). With scale=TRUE, variable means are set to zero, and variances set to one  
cancer_pca <- prcomp(cancer[,-2],scale=TRUE)  
cancer_pca
```

```
## Standard deviations (1, .., p=31):
## [1] 3.64527878 2.38679814 1.68386313 1.40760690 1.28406203 1.11115827
## [7] 0.98907696 0.81960537 0.67881693 0.63492763 0.59089337 0.54211662
## [13] 0.51102537 0.49125372 0.39619900 0.30680373 0.28250655 0.24299439
## [19] 0.22932770 0.22163467 0.17626907 0.17303527 0.16562163 0.15572098
## [25] 0.13431069 0.12441756 0.09039745 0.08305482 0.03986650 0.02735646
## [31] 0.01153431
##
## Rotation (n x k) = (31 x 31):
##
##          PC1          PC2          PC3          PC4
## id      -0.02291216  0.034068491  0.096938436 -0.026598045
## radius_mean -0.21891302  0.233271401 -0.011393786  0.042187950
## texture_mean -0.10384388  0.060044199  0.066892342 -0.602954308
## perimeter_mean -0.22753491  0.214589002 -0.012124791  0.042752797
## area_mean -0.22104577  0.230668816  0.026293150  0.054114724
## smoothness_mean -0.14241471 -0.186422211 -0.103182400  0.158098177
## compactness_mean -0.23906730 -0.152454726 -0.074768623  0.031818117
## concavity_mean -0.25828025 -0.060541625  0.001758736  0.019497124
## points_mean -0.26073811  0.034167392 -0.027579607  0.065785353
## symmetry_mean -0.13797774 -0.190684979 -0.040962032  0.067502543
## dimension_mean -0.06414779 -0.366531055 -0.020817875  0.047957856
## radius_se -0.20611747  0.105935702  0.266917221  0.099114446
## texture_se -0.01741339 -0.089547789  0.371439885 -0.356497230
## perimeter_se -0.21144652  0.089807043  0.264925682  0.090293055
## area_se -0.20307642  0.152771289  0.215790250  0.108568705
## smoothness_se -0.01467821 -0.203189876  0.311787845  0.044368664
## compactness_se -0.17028840 -0.232503362  0.154557465 -0.026425360
## concavity_se -0.15354367 -0.196846081  0.176560052  0.002248291
## points_se -0.18340675 -0.129965181  0.223850479  0.075252232
## symmetry_se -0.04241552 -0.183558627  0.285265066  0.046936126
## dimension_se -0.10249607 -0.279584139  0.211893354  0.016212450
## radius_worst -0.22800935  0.219296044 -0.049406340  0.015659705
## texture_worst -0.10451545  0.045501223 -0.039828934 -0.633119655
## perimeter_worst -0.23663734  0.199295985 -0.050431945  0.014068572
## area_worst -0.22493214  0.218985461 -0.013188891  0.025970672
## smoothness_worst -0.12782441 -0.172562959 -0.255328751  0.014523359
## compactness_worst -0.20988456 -0.144253637 -0.234513609 -0.092562168
## concavity_worst -0.22860218 -0.098526524 -0.172024941 -0.074807188
## points_worst -0.25074620  0.007534367 -0.170480673  0.005305980
## symmetry_worst -0.12267993 -0.142619436 -0.270515902 -0.037129466
## dimension_worst -0.13156024 -0.275702077 -0.229474476 -0.078971489
##
##          PC5          PC6          PC7          PC8
## id      0.011327587 -0.316733438  0.9071156324 -0.096362415
## radius_mean -0.038129861  0.029588521 -0.0422987777 -0.116427419
## texture_mean  0.049091450 -0.031394323  0.0149935618  0.001875482
## perimeter_mean -0.037715592  0.028394008 -0.0435888242 -0.106272097
## area_mean -0.010562229  0.006113155 -0.0289256668 -0.047414568
## smoothness_mean  0.365750055 -0.262508993 -0.1403403617 -0.123541189
## compactness_mean -0.011786637 -0.004903894 -0.0453031106  0.043145968
## concavity_mean -0.086512506 -0.002356338 -0.0325530646 -0.102436021
## points_mean  0.043667412 -0.034509273 -0.0814216298 -0.136923237
## symmetry_mean  0.305378893  0.335082168  0.1182592361 -0.098874531
## dimension_mean  0.044767906 -0.112784169 -0.0410588768  0.306499872
```

## radius_se	0.154254367	-0.023261199	0.0167882718	0.307415709
## texture_se	0.190001500	0.022856912	-0.1902676469	-0.052632477
## perimeter_se	0.120703357	0.003820151	0.0195081762	0.311265679
## area_se	0.127765023	-0.051958835	0.0565606078	0.334287959
## smoothness_se	0.232745603	-0.330867850	-0.0678348099	-0.260833914
## compactness_se	-0.280298048	0.066788120	0.0222220211	0.021001944
## concavity_se	-0.354164595	0.049699104	0.0336810725	-0.219193299
## points_se	-0.195758558	-0.023197526	-0.0378517870	-0.370217167
## symmetry_se	0.251331178	0.477530515	0.1184032606	-0.084854768
## dimension_se	-0.263395188	-0.048462373	-0.0157602244	0.194418818
## radius_worst	0.004280034	0.004521737	-0.0166458140	-0.007508307
## texture_worst	0.092551860	-0.045174516	-0.0094601240	0.006617640
## perimeter_worst	-0.007599144	0.012921166	-0.0145260986	0.002162488
## area_worst	0.027413595	-0.024033338	-0.0007372602	0.066173186
## smoothness_worst	0.325860028	-0.365048687	-0.0670682168	-0.116496117
## compactness_worst	-0.121503371	0.034042714	0.0507556727	0.136509363
## concavity_worst	-0.188280510	0.017962040	0.0352007117	-0.067085744
## points_worst	-0.043123573	-0.029549100	-0.0207238959	-0.166500918
## symmetry_worst	0.244245936	0.451404312	0.2340143294	-0.041439633
## dimension_worst	-0.093699078	-0.092479698	0.0347167538	0.372034479
##	PC9	PC10	PC11	PC12
## id	0.149115642	-0.16926751	0.058188997	-0.006721252
## radius_mean	-0.046270835	-0.22402704	-0.079466081	-0.042213788
## texture_mean	-0.088727168	0.11945674	-0.253258091	0.304032359
## perimeter_mean	-0.036230738	-0.22634517	-0.069865929	-0.017573055
## area_mean	-0.080649856	-0.18600385	-0.062795372	-0.110760120
## smoothness_mean	0.278996404	-0.06133822	0.084661549	0.135321954
## compactness_mean	0.099214048	-0.19518602	0.005172841	0.307036205
## concavity_mean	0.075750464	0.03395563	0.134664686	-0.124553100
## points_mean	0.116569072	-0.14261678	0.006124860	0.071564686
## symmetry_mean	0.315150303	0.13561452	-0.574417320	-0.161058144
## dimension_mean	0.130639482	-0.15848117	-0.066456112	0.037318709
## radius_se	0.026200456	0.26504403	0.025847282	0.027030250
## texture_se	0.372989606	-0.31521084	0.323158815	-0.348396233
## perimeter_se	0.052860114	0.23789288	0.094867442	0.168501485
## area_se	-0.030627892	0.24966405	0.071991560	-0.050731496
## smoothness_se	-0.580789293	-0.01015980	-0.179568831	-0.081753374
## compactness_se	-0.148593714	-0.11518343	-0.038615749	0.206959272
## concavity_se	0.034715098	0.36592141	0.113536362	-0.348342358
## points_se	0.189022962	0.21518752	-0.094066850	0.342855186
## symmetry_se	-0.292785738	-0.22049558	0.328314881	0.185998712
## dimension_se	-0.060203202	-0.22637997	-0.353844543	-0.250428852
## radius_worst	-0.070224590	-0.09981025	-0.073013014	-0.105030701
## texture_worst	-0.008571809	0.10669296	-0.038561250	-0.012490348
## perimeter_worst	-0.058854223	-0.09821693	-0.045750979	-0.051125158
## area_worst	-0.097034650	-0.06179787	-0.068822329	-0.184460981
## smoothness_worst	-0.173257498	0.16912753	0.109278029	-0.142996001
## compactness_worst	-0.111218083	-0.06445290	0.175401648	0.196805544
## concavity_worst	-0.035467377	0.19661986	0.295581609	-0.184959562
## points_worst	0.052322473	0.05121611	0.075496752	0.117518361
## symmetry_worst	-0.188266324	0.10308901	0.019223451	-0.157210098
## dimension_worst	-0.087222442	-0.11291399	-0.007071634	-0.118625115
##	PC13	PC14	PC15	PC16
## id	-0.004841084	-0.006500099	0.006885943	-0.002753492

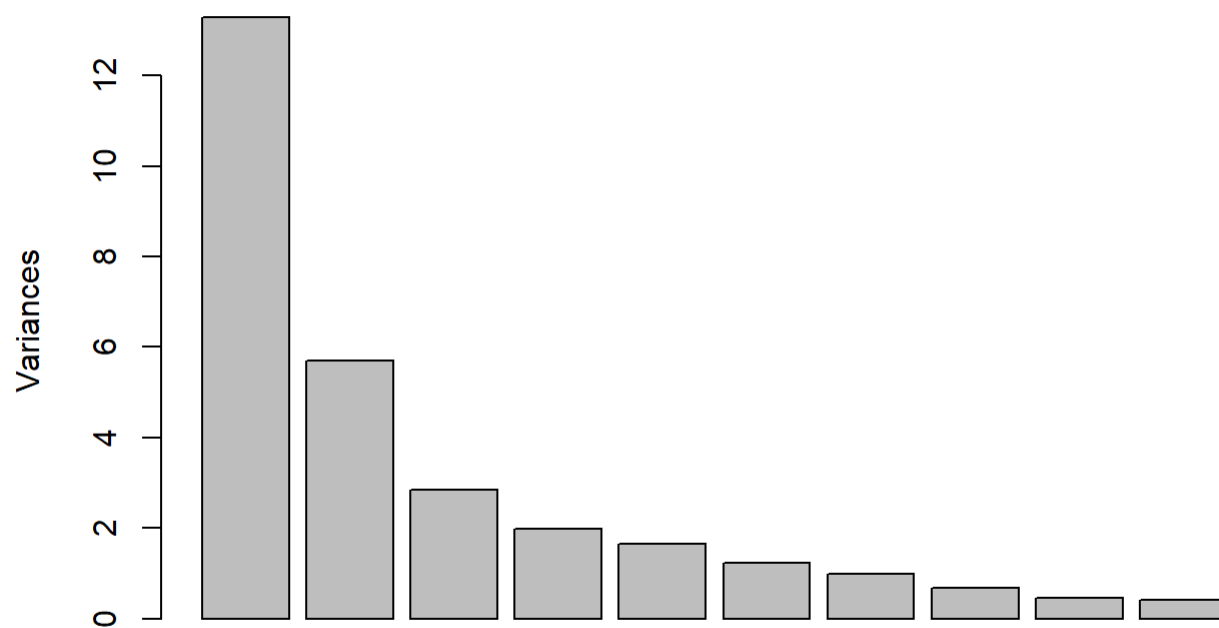
## radius_mean	0.050603927	-0.012496988	-0.059054553	0.050789156
## texture_mean	0.256273666	-0.201876125	0.020701124	0.108089530
## perimeter_mean	0.038470392	-0.044684430	-0.048019221	0.039590476
## area_mean	0.065047550	-0.067879244	-0.010152279	-0.014636050
## smoothness_mean	0.315872261	-0.046461624	-0.444044654	0.117493291
## compactness_mean	-0.104264618	-0.230005458	-0.007661166	-0.230759682
## concavity_mean	0.065723393	-0.387349680	0.189733740	0.128386008
## points_mean	0.042253113	-0.132637847	0.245219266	0.217299938
## symmetry_mean	-0.288054252	-0.189570545	-0.030903840	0.073950596
## dimension_mean	0.236120382	-0.106390748	0.377436108	-0.518333769
## radius_se	-0.015625578	0.069635807	-0.011959877	0.111103952
## texture_se	-0.308499115	0.165408488	0.012614192	-0.033389049
## perimeter_se	-0.100597125	0.038865462	0.044358477	0.008991734
## area_se	-0.017226446	-0.055687709	-0.083203050	0.045171638
## smoothness_se	-0.293287983	-0.149148603	0.200139961	-0.018414232
## compactness_se	-0.263398426	-0.010320713	-0.491903153	-0.167886977
## concavity_se	0.251864823	-0.157777595	-0.135322845	-0.250292522
## points_se	-0.006430584	0.494527095	0.199547389	-0.062548716
## symmetry_se	0.319874237	-0.010836031	0.047340593	0.113219397
## dimension_se	0.275943072	0.240767973	-0.145958050	0.353782637
## radius_worst	0.039582217	0.138036550	-0.023526025	-0.166213790
## texture_worst	0.080142089	0.080737140	-0.053897961	-0.100862417
## perimeter_worst	-0.009084762	0.097004376	-0.012559001	-0.182407021
## area_worst	0.047986766	0.101235629	0.006646192	-0.315142865
## smoothness_worst	0.056931408	0.206026671	-0.163389545	-0.045226715
## compactness_worst	-0.371991007	-0.013117334	-0.165941776	0.049613607
## concavity_worst	-0.086870368	-0.218055908	0.066854662	0.204743734
## points_worst	-0.068367254	0.254345228	0.276401728	0.169597618
## symmetry_worst	0.043937722	0.256766084	-0.005448734	-0.139913723
## dimension_worst	-0.035134642	0.172524501	0.212520491	0.255448214
##	PC17	PC18	PC19	PC20
## id	-0.007779983	-0.019707372	0.005442248	0.020454908
## radius_mean	0.150008977	0.209908003	-0.156773206	0.211821385
## texture_mean	0.159152972	-0.034161758	0.040048687	0.029931705
## perimeter_mean	0.113792993	0.201233658	-0.168413120	0.227079273
## area_mean	0.130173978	0.251460456	-0.269145594	-0.045499625
## smoothness_mean	0.203117911	0.168171613	0.354463321	-0.160358262
## compactness_mean	-0.170379447	-0.016302860	-0.014259132	0.292092522
## concavity_mean	-0.270010606	-0.005071590	0.027973937	0.007197446
## points_mean	-0.381111880	0.028741889	0.087065594	-0.153991624
## symmetry_mean	0.165691481	-0.194702559	-0.169168737	-0.058503329
## dimension_mean	0.039119713	0.046298986	-0.086779501	-0.062879947
## radius_se	-0.055118880	-0.124562479	0.231233991	0.181436577
## texture_se	0.032768777	0.041652813	0.009177450	0.038681291
## perimeter_se	-0.023929011	-0.009084130	0.014508488	0.364045783
## area_se	-0.045538238	0.313148246	-0.296273515	-0.433949999
## smoothness_se	0.058326686	0.145306166	0.228819703	-0.013932678
## compactness_se	-0.190065826	-0.015610691	-0.094108380	-0.250216687
## concavity_se	0.126034946	0.092345618	-0.005794297	0.119490304
## points_se	0.197671940	0.106747906	-0.046944796	-0.015851066
## symmetry_se	0.158541381	-0.279918359	-0.180195394	-0.084242460
## dimension_se	-0.267180143	-0.122002438	0.059970839	0.097082660
## radius_worst	0.083459877	-0.235215809	0.218781792	0.027741137
## texture_worst	-0.185972310	0.065992656	-0.057250572	-0.080880841



## perimeter_worst	0.056649279	-0.228493742	0.189279122	0.105666112
## area_worst	0.090325036	-0.286471546	0.158722686	-0.393681440
## smoothness_worst	-0.142781922	-0.276751162	-0.504565504	0.228506719
## compactness_worst	0.153347954	-0.003683424	0.073627229	0.025544372
## concavity_worst	0.216302398	-0.190307542	0.107894455	-0.035839305
## points_worst	-0.178353485	-0.085180057	-0.067182996	-0.261323873
## symmetry_worst	-0.260033510	0.436706158	0.269313654	0.111738683
## dimension_worst	0.404957673	0.162920272	-0.026674889	-0.022516600
##	PC21	PC22	PC23	PC24
## id	0.009870917	0.006195707	0.003190337	-0.010289027
## radius_mean	0.046009507	0.070394387	-0.073021974	-0.098704322
## texture_mean	0.264801220	-0.436269565	-0.095890704	0.001311285
## perimeter_mean	0.015122205	0.070963404	-0.074821704	-0.040500943
## area_mean	0.087345298	0.021672998	-0.097428804	0.009396470
## smoothness_mean	-0.023842011	0.117945821	-0.063741313	-0.020088204
## compactness_mean	-0.476395571	-0.213187888	0.094254664	0.058295270
## concavity_mean	0.037771062	-0.001270114	0.188862925	0.321062737
## points_mean	0.231546040	0.017493297	0.313280824	-0.057974684
## symmetry_mean	-0.030776761	0.085067786	0.018331111	-0.052004767
## dimension_mean	0.172565576	0.085104005	-0.286892578	-0.084701081
## radius_se	0.090564458	-0.085660592	0.147793165	-0.263799753
## texture_se	0.083589382	-0.212168357	-0.048761201	-0.001150858
## perimeter_se	0.169586632	0.317246026	-0.153859020	0.081384223
## area_se	-0.270679518	-0.207916141	-0.068745790	0.110258620
## smoothness_se	-0.095370809	0.066602974	-0.051852247	-0.057154068
## compactness_se	0.451033960	0.159332265	0.048970757	0.003993806
## concavity_se	-0.070203251	-0.071023842	0.200850815	-0.388573085
## points_se	-0.064848884	-0.035557778	0.074494143	0.354040783
## symmetry_se	-0.112133933	0.092193625	0.084324570	-0.043455477
## dimension_se	-0.214213177	-0.069171668	-0.245408452	0.089594196
## radius_worst	0.006481267	-0.007068180	0.096292694	-0.057768458
## texture_worst	-0.330244412	0.578095532	0.111968438	-0.009473435
## perimeter_worst	-0.010544107	0.094457678	-0.014952244	0.058698441
## area_worst	-0.053510824	-0.149328216	0.096798702	0.193293235
## smoothness_worst	0.140127867	-0.156936236	0.069660581	0.091134610
## compactness_worst	-0.220884131	-0.191897773	-0.033373706	-0.145389941
## concavity_worst	0.047166544	0.139729448	-0.456817799	0.290302924
## points_worst	-0.039740929	-0.006870640	-0.305694162	-0.563297713
## symmetry_worst	0.125617213	-0.155827542	-0.096426675	0.122996111
## dimension_worst	0.095366679	0.092769737	0.470358007	0.002775112
##	PC25	PC26	PC27	PC28
## id	-0.004233388	-0.00132610	-0.002571324	-0.001623875
## radius_mean	-0.183664583	0.01859418	0.128713229	0.131697326
## texture_mean	0.099441545	-0.08442059	0.024821224	0.017622634
## perimeter_mean	-0.117262178	-0.02743488	0.124670225	0.115650274
## area_mean	0.070557041	0.21057100	-0.361014547	-0.467489167
## smoothness_mean	0.068940049	-0.02876100	0.037372832	-0.069482805
## compactness_mean	-0.102198309	-0.39651346	-0.262695425	-0.098624638
## concavity_mean	0.045550527	0.09717977	0.550227716	-0.363040016
## points_mean	0.082349955	0.18630114	-0.389316679	0.453345398
## symmetry_mean	0.018841491	0.02451053	0.015910368	0.015157593
## dimension_mean	-0.134601525	0.20670502	0.096796804	0.101343150
## radius_se	-0.561133900	0.17339784	-0.050411953	-0.213735821
## texture_se	0.023938591	-0.05709165	0.010893175	0.009925699

```
## perimeter_se      0.516048248 -0.07217201 -0.103485879 -0.041989200
## area_se          -0.018546693 -0.13093723  0.155929011  0.314758068
## smoothness_se     0.016193934 -0.03100551  0.008066566  0.009312365
## compactness_se    -0.122457873 -0.17364984  0.049404535 -0.046651501
## concavity_se      0.186159613 -0.01600952 -0.091931364  0.083824645
## points_se         -0.107166573  0.12999049  0.018674110  0.011675700
## symmetry_se       0.002613811  0.01936313  0.016991197  0.019891112
## dimension_se      0.076177800  0.08458109 -0.035156906  0.012141785
## radius_worst      -0.158114412 -0.07144112  0.195812320  0.178796461
## texture_worst     -0.118609952  0.11802219 -0.036347107 -0.021473842
## perimeter_worst   0.236463109 -0.11790535  0.243266456  0.241658719
## area_worst        0.146339946  0.03921251 -0.229813188 -0.237323945
## smoothness_worst  -0.011224935  0.04787154 -0.012860335  0.040730207
## compactness_worst 0.185437121  0.62471727  0.100772153  0.071087434
## concavity_worst   -0.286701322 -0.11586768 -0.267236886  0.142148446
## points_worst      0.105286798 -0.26352782  0.133749940 -0.230794105
## symmetry_worst    -0.013193455 -0.04505357 -0.027824916 -0.022695808
## dimension_worst   0.037882167 -0.28015574 -0.004500884 -0.060081371
##                  PC29      PC30      PC31
## id                -1.891724e-05 -0.0006852263 -7.122581e-05
## radius_mean       2.111968e-01 -0.2114371011 -7.024325e-01
## texture_mean      -6.362507e-05  0.0106165839 -2.644366e-04
## perimeter_mean     8.434280e-02 -0.3838889617  6.898676e-01
## area_mean         -2.725167e-01  0.4227208085  3.297173e-02
## smoothness_mean    1.480038e-03  0.0034638648  4.850746e-03
## compactness_mean   -5.466656e-03  0.0409079834 -4.468229e-02
## concavity_mean     4.554138e-02  0.0101122808 -2.512860e-02
## points_mean       -8.885707e-03  0.0041142627  1.067984e-03
## symmetry_mean      1.432581e-03  0.0075571475  1.279594e-03
## dimension_mean     -6.312291e-03 -0.0073311823  4.751885e-03
## radius_se         -1.922290e-01 -0.1186768422  8.679321e-03
## texture_se        -5.624974e-03  0.0086942153  1.063104e-03
## perimeter_se      2.631905e-01  0.0060612569 -1.373310e-02
## area_se           -4.205668e-02  0.0863645419 -1.054698e-03
## smoothness_se     9.795835e-03 -0.0016737982  1.618711e-03
## compactness_se    -1.539757e-02 -0.0032295613 -1.923037e-03
## concavity_se      5.819985e-03 -0.0161202167  8.921294e-03
## points_se        -2.900497e-02  0.0241014722  2.178643e-03
## symmetry_se       -7.637856e-03  0.0051771158 -3.338380e-04
## dimension_se      1.975791e-02  0.0083971145 -1.792802e-03
## radius_worst      4.126296e-01  0.6356796555  1.356846e-01
## texture_worst     -3.896988e-04 -0.0172219636 -1.020237e-03
## perimeter_worst   -7.286790e-01 -0.0228830657 -7.974244e-02
## area_worst        2.389679e-01 -0.4448733182 -3.976788e-02
## smoothness_worst  -1.535941e-03 -0.0074142082 -4.586820e-03
## compactness_worst 4.869512e-02  0.0001075081  1.285262e-02
## concavity_worst   -1.764174e-02  0.0126547542 -4.031809e-04
## points_worst      2.247340e-02 -0.0353341030  2.276561e-03
## symmetry_worst    4.922100e-03 -0.0133523613 -3.910451e-04
## dimension_worst   -2.356283e-02 -0.0115053741 -1.897779e-03
```

```
plot(cancer_pca)
```

**cancer\_pca**

```
summary(cancer_pca)
```

```
## Importance of components:
##
```

	PC1	PC2	PC3	PC4	PC5	PC6
## Standard deviation	3.6453	2.3868	1.68386	1.40761	1.28406	1.11116
## Proportion of Variance	0.4286	0.1838	0.09146	0.06391	0.05319	0.03983
## Cumulative Proportion	0.4286	0.6124	0.70388	0.76779	0.82098	0.86081

```
##
```

	PC7	PC8	PC9	PC10	PC11	PC12
## Standard deviation	0.98908	0.81961	0.67882	0.6349	0.59089	0.54212
## Proportion of Variance	0.03156	0.02167	0.01486	0.0130	0.01126	0.00948
## Cumulative Proportion	0.89237	0.91404	0.92890	0.9419	0.95317	0.96265

```
##
```

	PC13	PC14	PC15	PC16	PC17	PC18
## Standard deviation	0.51103	0.49125	0.39620	0.30680	0.28251	0.2430
## Proportion of Variance	0.00842	0.00778	0.00506	0.00304	0.00257	0.0019
## Cumulative Proportion	0.97107	0.97886	0.98392	0.98696	0.98953	0.9914

```
##
```

	PC19	PC20	PC21	PC22	PC23	PC24
## Standard deviation	0.2293	0.22163	0.1763	0.17304	0.16562	0.15572
## Proportion of Variance	0.0017	0.00158	0.0010	0.00097	0.00088	0.00078
## Cumulative Proportion	0.9931	0.99472	0.9957	0.99669	0.99757	0.99835

```
##
```

	PC25	PC26	PC27	PC28	PC29	PC30
## Standard deviation	0.13431	0.1244	0.09040	0.08305	0.03987	0.02736
## Proportion of Variance	0.00058	0.0005	0.00026	0.00022	0.00005	0.00002
## Cumulative Proportion	0.99893	0.9994	0.99970	0.99992	0.99997	1.00000

```
##
```

	PC31
## Standard deviation	0.01153
## Proportion of Variance	0.00000
## Cumulative Proportion	1.00000

```
#View(cancer_pca)
head(cancer_pca$x)
```

```
##          PC1          PC2          PC3          PC4          PC5          PC6
## [1,] 2.501946 -0.09694805 -0.4489597 2.3341176 0.69771548 -0.2430058
## [2,] 1.467439 -1.68630059 1.1542039 0.3362109 0.45962538 1.2308248
## [3,] 2.929028 -0.38319924 -0.8955891 -0.1164828 0.98441377 -0.2587872
## [4,] 1.995342 -1.33046592 1.1172876 2.0502761 0.25303846 -1.5539634
## [5,] 2.500252 2.01035097 -0.7584035 1.9862169 -1.13537096 0.5940361
## [6,] 2.018308 -0.78242095 0.1125197 -0.6532280 0.01841577 0.6914453
##          PC7          PC8          PC9          PC10          PC11          PC12
## [1,] 0.5092015 -1.11423307 0.2840243 0.32463197 -0.3245353 0.04981306
## [2,] 0.2937434 0.10000461 -0.0668399 0.42612180 0.4564029 1.19357566
## [3,] -0.3303385 0.03599041 0.8734350 0.02222192 0.4208602 -0.06687286
## [4,] -0.9692185 -1.31852134 0.6254396 0.05666470 -0.0691646 0.97082409
## [5,] 0.1198201 -0.48279704 -0.2727816 -0.29439485 -0.3577533 0.03266208
## [6,] 0.1454026 0.06214539 0.2342454 0.73681239 -0.3671239 -0.77029743
##          PC13          PC14          PC15          PC16          PC17
## [1,] -0.19760220 0.1134403 -0.059302558 0.16637723 -0.04286656
## [2,] 0.01807424 -0.2824292 -0.204858888 -0.07067959 0.03088787
## [3,] 0.37435458 0.2585457 -0.330274216 -0.13000189 -0.24616091
## [4,] -0.90968379 0.2179117 -0.665825669 0.10213387 -0.10289446
## [5,] -0.35547138 -0.1480140 -0.005540503 -0.06495881 0.22273309
## [6,] -0.49542291 -0.2992431 0.049952835 -0.20161083 0.14920422
##          PC18          PC19          PC20          PC21          PC22
## [1,] -0.104542766 -0.03484189 -0.09691187 -0.02846306 -0.00673628
## [2,] -0.405534243 -0.02886103 -0.05262226 -0.05987170 0.05868642
## [3,] 0.327711259 0.15937793 -0.13804895 -0.13489743 0.10080029
## [4,] 0.197085181 0.36251771 -0.40018239 -0.10302093 -0.28821708
## [5,] -0.129129156 -0.35877054 0.08515543 -0.08500541 -0.06332008
## [6,] -0.002229379 -0.08178568 0.18970936 -0.06872875 0.09669594
##          PC23          PC24          PC25          PC26          PC27
## [1,] -0.038971937 0.062212075 0.088438866 0.04872948 -0.007000724
## [2,] 0.070978613 -0.030822339 -0.016741580 0.04173030 -0.059332996
## [3,] 0.053909008 0.085484364 0.038277664 -0.04151896 -0.035546410
## [4,] 0.182045907 0.222848059 -0.115720065 -0.03676948 -0.148171674
## [5,] 0.043591030 0.008165322 0.002738052 0.05983731 0.046167735
## [6,] -0.001458054 -0.031338348 0.042784223 -0.08646068 -0.030944690
##          PC28          PC29          PC30          PC31
## [1,] 0.05356131 0.015184882 0.015985406 0.001396101
## [2,] -0.18696553 0.027011311 -0.000803330 0.008096490
## [3,] -0.07653067 -0.014640388 0.010307894 0.009074601
## [4,] -0.01711665 -0.047828494 0.023862995 0.000265075
## [5,] 0.03835364 0.032450800 -0.002312178 -0.002563269
## [6,] 0.00955434 -0.004403431 0.003869919 -0.002931194
```

```
# sample scores stored in cancer_pca$x
# singular values (square roots of eigenvalues) stored in cancer_pca$sdev
# loadings (eigenvectors) are stored in cancer_pca$rotation
# variable means stored in cancer_pca$center
# variable standard deviations stored in cancer_pca$scale
# A table containing eigenvalues and %'s accounted, follows
# Eigenvalues are sdev^2
(eigen_cancer <- cancer_pca$sdev^2) ## brackets for print
```

```
## [1] 1.328806e+01 5.696805e+00 2.835395e+00 1.981357e+00 1.648815e+00
## [6] 1.234673e+00 9.782732e-01 6.717530e-01 4.607924e-01 4.031331e-01
## [11] 3.491550e-01 2.938904e-01 2.611469e-01 2.413302e-01 1.569736e-01
## [16] 9.412853e-02 7.980995e-02 5.904627e-02 5.259119e-02 4.912193e-02
## [21] 3.107078e-02 2.994121e-02 2.743052e-02 2.424902e-02 1.803936e-02
## [26] 1.547973e-02 8.171699e-03 6.898103e-03 1.589338e-03 7.483761e-04
## [31] 1.330402e-04
```

```
names(eigen_cancer) <- paste("PC",1:31,sep="")
eigen_cancer
```

```
##          PC1          PC2          PC3          PC4          PC5
## 1.328806e+01 5.696805e+00 2.835395e+00 1.981357e+00 1.648815e+00
##          PC6          PC7          PC8          PC9         PC10
## 1.234673e+00 9.782732e-01 6.717530e-01 4.607924e-01 4.031331e-01
##          PC11         PC12         PC13         PC14         PC15
## 3.491550e-01 2.938904e-01 2.611469e-01 2.413302e-01 1.569736e-01
##          PC16         PC17         PC18         PC19         PC20
## 9.412853e-02 7.980995e-02 5.904627e-02 5.259119e-02 4.912193e-02
##          PC21         PC22         PC23         PC24         PC25
## 3.107078e-02 2.994121e-02 2.743052e-02 2.424902e-02 1.803936e-02
##          PC26         PC27         PC28         PC29         PC30
## 1.547973e-02 8.171699e-03 6.898103e-03 1.589338e-03 7.483761e-04
##          PC31
## 1.330402e-04
```

```
sumlambdas <- sum(eigen_cancer)
sumlambdas
```

```
## [1] 31
```

```
propvar <- eigen_cancer/sumlambdas
propvar
```

```
##          PC1          PC2          PC3          PC4          PC5
## 4.286470e-01 1.837679e-01 9.146436e-02 6.391475e-02 5.318759e-02
##          PC6          PC7          PC8          PC9         PC10
## 3.982815e-02 3.155720e-02 2.166945e-02 1.486427e-02 1.300429e-02
##          PC11         PC12         PC13         PC14         PC15
## 1.126306e-02 9.480337e-03 8.424094e-03 7.784846e-03 5.063666e-03
##          PC16         PC17         PC18         PC19         PC20
## 3.036404e-03 2.574514e-03 1.904718e-03 1.696490e-03 1.584578e-03
##          PC21         PC22         PC23         PC24         PC25
## 1.002283e-03 9.658453e-04 8.848556e-04 7.822265e-04 5.819149e-04
##          PC26         PC27         PC28         PC29         PC30
## 4.993461e-04 2.636032e-04 2.225194e-04 5.126895e-05 2.414116e-05
##          PC31
## 4.291620e-06
```

```
summary(eigen_cancer)
```

```
##      Min.   1st Qu.   Median     Mean   3rd Qu.     Max.
## 0.000133 0.025840 0.094129 1.000000 0.566273 13.288057
```

```
summary(cancer_pca)
```

```
## Importance of components:
```

```
##      PC1      PC2      PC3      PC4      PC5      PC6
## Standard deviation 3.6453 2.3868 1.68386 1.40761 1.28406 1.11116
## Proportion of Variance 0.4286 0.1838 0.09146 0.06391 0.05319 0.03983
## Cumulative Proportion 0.4286 0.6124 0.70388 0.76779 0.82098 0.86081
##      PC7      PC8      PC9     PC10     PC11     PC12
## Standard deviation 0.98908 0.81961 0.67882 0.6349 0.59089 0.54212
## Proportion of Variance 0.03156 0.02167 0.01486 0.0130 0.01126 0.00948
## Cumulative Proportion 0.89237 0.91404 0.92890 0.9419 0.95317 0.96265
##      PC13     PC14     PC15     PC16     PC17     PC18
## Standard deviation 0.51103 0.49125 0.39620 0.30680 0.28251 0.2430
## Proportion of Variance 0.00842 0.00778 0.00506 0.00304 0.00257 0.0019
## Cumulative Proportion 0.97107 0.97886 0.98392 0.98696 0.98953 0.9914
##      PC19     PC20     PC21     PC22     PC23     PC24
## Standard deviation 0.2293 0.22163 0.1763 0.17304 0.16562 0.15572
## Proportion of Variance 0.0017 0.00158 0.0010 0.00097 0.00088 0.00078
## Cumulative Proportion 0.9931 0.99472 0.9957 0.99669 0.99757 0.99835
##      PC25     PC26     PC27     PC28     PC29     PC30
## Standard deviation 0.13431 0.1244 0.09040 0.08305 0.03987 0.02736
## Proportion of Variance 0.00058 0.0005 0.00026 0.00022 0.00005 0.00002
## Cumulative Proportion 0.99893 0.9994 0.99970 0.99992 0.99997 1.00000
##      PC31
## Standard deviation 0.01153
## Proportion of Variance 0.00000
## Cumulative Proportion 1.00000
```

```
cumvar_cancer <- cumsum(propvar)
```

```
cumvar_cancer
```

```
##      PC1      PC2      PC3      PC4      PC5      PC6      PC7
## 0.4286470 0.6124149 0.7038793 0.7677940 0.8209816 0.8608098 0.8923670
##      PC8      PC9      PC10     PC11     PC12     PC13     PC14
## 0.9140364 0.9289007 0.9419050 0.9531681 0.9626484 0.9710725 0.9788573
##      PC15     PC16     PC17     PC18     PC19     PC20     PC21
## 0.9839210 0.9869574 0.9895319 0.9914366 0.9931331 0.9947177 0.9957200
##      PC22     PC23     PC24     PC25     PC26     PC27     PC28
## 0.9966858 0.9975707 0.9983529 0.9989348 0.9994342 0.9996978 0.9999203
##      PC29     PC30     PC31
## 0.9999716 0.9999957 1.0000000
```

```
matlambdas <- rbind(eigen_cancer,propvar,cumvar_cancer)
rownames(matlambdas) <- c("Eigenvalues","Prop. variance","Cum. prop. variance")
round(matlambdas,4)
```

```
##          PC1    PC2    PC3    PC4    PC5    PC6    PC7
## Eigenvalues 13.2881 5.6968 2.8354 1.9814 1.6488 1.2347 0.9783
## Prop. variance 0.4286 0.1838 0.0915 0.0639 0.0532 0.0398 0.0316
## Cum. prop. variance 0.4286 0.6124 0.7039 0.7678 0.8210 0.8608 0.8924
##          PC8    PC9   PC10   PC11   PC12   PC13   PC14
## Eigenvalues 0.6718 0.4608 0.4031 0.3492 0.2939 0.2611 0.2413
## Prop. variance 0.0217 0.0149 0.0130 0.0113 0.0095 0.0084 0.0078
## Cum. prop. variance 0.9140 0.9289 0.9419 0.9532 0.9626 0.9711 0.9789
##          PC15   PC16   PC17   PC18   PC19   PC20   PC21
## Eigenvalues 0.1570 0.0941 0.0798 0.0590 0.0526 0.0491 0.0311
## Prop. variance 0.0051 0.0030 0.0026 0.0019 0.0017 0.0016 0.0010
## Cum. prop. variance 0.9839 0.9870 0.9895 0.9914 0.9931 0.9947 0.9957
##          PC22   PC23   PC24   PC25   PC26   PC27   PC28
## Eigenvalues 0.0299 0.0274 0.0242 0.0180 0.0155 0.0082 0.0069
## Prop. variance 0.0010 0.0009 0.0008 0.0006 0.0005 0.0003 0.0002
## Cum. prop. variance 0.9967 0.9976 0.9984 0.9989 0.9994 0.9997 0.9999
##          PC29   PC30   PC31
## Eigenvalues 0.0016 7e-04 1e-04
## Prop. variance 0.0001 0e+00 0e+00
## Cum. prop. variance 1.0000 1e+00 1e+00
```

```
summary(cancer_pca)
```



```
## Importance of components:
##
##          PC1    PC2    PC3    PC4    PC5    PC6
## Standard deviation  3.6453 2.3868 1.68386 1.40761 1.28406 1.11116
## Proportion of Variance 0.4286 0.1838 0.09146 0.06391 0.05319 0.03983
## Cumulative Proportion 0.4286 0.6124 0.70388 0.76779 0.82098 0.86081
##
##          PC7    PC8    PC9    PC10    PC11    PC12
## Standard deviation  0.98908 0.81961 0.67882 0.6349 0.59089 0.54212
## Proportion of Variance 0.03156 0.02167 0.01486 0.0130 0.01126 0.00948
## Cumulative Proportion 0.89237 0.91404 0.92890 0.9419 0.95317 0.96265
##
##          PC13    PC14    PC15    PC16    PC17    PC18
## Standard deviation  0.51103 0.49125 0.39620 0.30680 0.28251 0.2430
## Proportion of Variance 0.00842 0.00778 0.00506 0.00304 0.00257 0.0019
## Cumulative Proportion 0.97107 0.97886 0.98392 0.98696 0.98953 0.9914
##
##          PC19    PC20    PC21    PC22    PC23    PC24
## Standard deviation  0.2293 0.22163 0.1763 0.17304 0.16562 0.15572
## Proportion of Variance 0.0017 0.00158 0.0010 0.00097 0.00088 0.00078
## Cumulative Proportion 0.9931 0.99472 0.9957 0.99669 0.99757 0.99835
##
##          PC25    PC26    PC27    PC28    PC29    PC30
## Standard deviation  0.13431 0.1244 0.09040 0.08305 0.03987 0.02736
## Proportion of Variance 0.00058 0.0005 0.00026 0.00022 0.00005 0.00002
## Cumulative Proportion 0.99893 0.9994 0.99970 0.99992 0.99997 1.00000
##
##          PC31
## Standard deviation  0.01153
## Proportion of Variance 0.00000
## Cumulative Proportion 1.00000
```

```
cancer_pca$rotation
```

##	PC1	PC2	PC3	PC4
## id	-0.02291216	0.034068491	0.096938436	-0.026598045
## radius_mean	-0.21891302	0.233271401	-0.011393786	0.042187950
## texture_mean	-0.10384388	0.060044199	0.066892342	-0.602954308
## perimeter_mean	-0.22753491	0.214589002	-0.012124791	0.042752797
## area_mean	-0.22104577	0.230668816	0.026293150	0.054114724
## smoothness_mean	-0.14241471	-0.186422211	-0.103182400	0.158098177
## compactness_mean	-0.23906730	-0.152454726	-0.074768623	0.031818117
## concavity_mean	-0.25828025	-0.060541625	0.001758736	0.019497124
## points_mean	-0.26073811	0.034167392	-0.027579607	0.065785353
## symmetry_mean	-0.13797774	-0.190684979	-0.040962032	0.067502543
## dimension_mean	-0.06414779	-0.366531055	-0.020817875	0.047957856
## radius_se	-0.20611747	0.105935702	0.266917221	0.099114446
## texture_se	-0.01741339	-0.089547789	0.371439885	-0.356497230
## perimeter_se	-0.21144652	0.089807043	0.264925682	0.090293055
## area_se	-0.20307642	0.152771289	0.215790250	0.108568705
## smoothness_se	-0.01467821	-0.203189876	0.311787845	0.044368664
## compactness_se	-0.17028840	-0.232503362	0.154557465	-0.026425360
## concavity_se	-0.15354367	-0.196846081	0.176560052	0.002248291
## points_se	-0.18340675	-0.129965181	0.223850479	0.075252232
## symmetry_se	-0.04241552	-0.183558627	0.285265066	0.046936126
## dimension_se	-0.10249607	-0.279584139	0.211893354	0.016212450
## radius_worst	-0.22800935	0.219296044	-0.049406340	0.015659705
## texture_worst	-0.10451545	0.045501223	-0.039828934	-0.633119655
## perimeter_worst	-0.23663734	0.199295985	-0.050431945	0.014068572
## area_worst	-0.22493214	0.218985461	-0.013188891	0.025970672
## smoothness_worst	-0.12782441	-0.172562959	-0.255328751	0.014523359
## compactness_worst	-0.20988456	-0.144253637	-0.234513609	-0.092562168
## concavity_worst	-0.22860218	-0.098526524	-0.172024941	-0.074807188
## points_worst	-0.25074620	0.007534367	-0.170480673	0.005305980
## symmetry_worst	-0.12267993	-0.142619436	-0.270515902	-0.037129466
## dimension_worst	-0.13156024	-0.275702077	-0.229474476	-0.078971489
##	PC5	PC6	PC7	PC8
## id	0.011327587	-0.316733438	0.9071156324	-0.096362415
## radius_mean	-0.038129861	0.029588521	-0.0422987777	-0.116427419
## texture_mean	0.049091450	-0.031394323	0.0149935618	0.001875482
## perimeter_mean	-0.037715592	0.028394008	-0.0435888242	-0.106272097
## area_mean	-0.010562229	0.006113155	-0.0289256668	-0.047414568
## smoothness_mean	0.365750055	-0.262508993	-0.1403403617	-0.123541189
## compactness_mean	-0.011786637	-0.004903894	-0.0453031106	0.043145968
## concavity_mean	-0.086512506	-0.002356338	-0.0325530646	-0.102436021
## points_mean	0.043667412	-0.034509273	-0.0814216298	-0.136923237
## symmetry_mean	0.305378893	0.335082168	0.1182592361	-0.098874531
## dimension_mean	0.044767906	-0.112784169	-0.0410588768	0.306499872
## radius_se	0.154254367	-0.023261199	0.0167882718	0.307415709
## texture_se	0.190001500	0.022856912	-0.1902676469	-0.052632477
## perimeter_se	0.120703357	0.003820151	0.0195081762	0.311265679
## area_se	0.127765023	-0.051958835	0.0565606078	0.334287959
## smoothness_se	0.232745603	-0.330867850	-0.0678348099	-0.260833914
## compactness_se	-0.280298048	0.066788120	0.0222220211	0.021001944
## concavity_se	-0.354164595	0.049699104	0.0336810725	-0.219193299
## points_se	-0.195758558	-0.023197526	-0.0378517870	-0.370217167
## symmetry_se	0.251331178	0.477530515	0.1184032606	-0.084854768

## dimension_se	-0.263395188	-0.048462373	-0.0157602244	0.194418818
## radius_worst	0.004280034	0.004521737	-0.0166458140	-0.007508307
## texture_worst	0.092551860	-0.045174516	-0.0094601240	0.006617640
## perimeter_worst	-0.007599144	0.012921166	-0.0145260986	0.002162488
## area_worst	0.027413595	-0.024033338	-0.0007372602	0.066173186
## smoothness_worst	0.325860028	-0.365048687	-0.0670682168	-0.116496117
## compactness_worst	-0.121503371	0.034042714	0.0507556727	0.136509363
## concavity_worst	-0.188280510	0.017962040	0.0352007117	-0.067085744
## points_worst	-0.043123573	-0.029549100	-0.0207238959	-0.166500918
## symmetry_worst	0.244245936	0.451404312	0.2340143294	-0.041439633
## dimension_worst	-0.093699078	-0.092479698	0.0347167538	0.372034479
##	PC9	PC10	PC11	PC12
## id	0.149115642	-0.16926751	0.058188997	-0.006721252
## radius_mean	-0.046270835	-0.22402704	-0.079466081	-0.042213788
## texture_mean	-0.088727168	0.11945674	-0.253258091	0.304032359
## perimeter_mean	-0.036230738	-0.22634517	-0.069865929	-0.017573055
## area_mean	-0.080649856	-0.18600385	-0.062795372	-0.110760120
## smoothness_mean	0.278996404	-0.06133822	0.084661549	0.135321954
## compactness_mean	0.099214048	-0.19518602	0.005172841	0.307036205
## concavity_mean	0.075750464	0.03395563	0.134664686	-0.124553100
## points_mean	0.116569072	-0.14261678	0.006124860	0.071564686
## symmetry_mean	0.315150303	0.13561452	-0.574417320	-0.161058144
## dimension_mean	0.130639482	-0.15848117	-0.066456112	0.037318709
## radius_se	0.026200456	0.26504403	0.025847282	0.027030250
## texture_se	0.372989606	-0.31521084	0.323158815	-0.348396233
## perimeter_se	0.052860114	0.23789288	0.094867442	0.168501485
## area_se	-0.030627892	0.24966405	0.071991560	-0.050731496
## smoothness_se	-0.580789293	-0.01015980	-0.179568831	-0.081753374
## compactness_se	-0.148593714	-0.11518343	-0.038615749	0.206959272
## concavity_se	0.034715098	0.36592141	0.113536362	-0.348342358
## points_se	0.189022962	0.21518752	-0.094066850	0.342855186
## symmetry_se	-0.292785738	-0.22049558	0.328314881	0.185998712
## dimension_se	-0.060203202	-0.22637997	-0.353844543	-0.250428852
## radius_worst	-0.070224590	-0.09981025	-0.073013014	-0.105030701
## texture_worst	-0.008571809	0.10669296	-0.038561250	-0.012490348
## perimeter_worst	-0.058854223	-0.09821693	-0.045750979	-0.051125158
## area_worst	-0.097034650	-0.06179787	-0.068822329	-0.184460981
## smoothness_worst	-0.173257498	0.16912753	0.109278029	-0.142996001
## compactness_worst	-0.111218083	-0.06445290	0.175401648	0.196805544
## concavity_worst	-0.035467377	0.19661986	0.295581609	-0.184959562
## points_worst	0.052322473	0.05121611	0.075496752	0.117518361
## symmetry_worst	-0.188266324	0.10308901	0.019223451	-0.157210098
## dimension_worst	-0.087222442	-0.11291399	-0.007071634	-0.118625115
##	PC13	PC14	PC15	PC16
## id	-0.004841084	-0.006500099	0.006885943	-0.002753492
## radius_mean	0.050603927	-0.012496988	-0.059054553	0.050789156
## texture_mean	0.256273666	-0.201876125	0.020701124	0.108089530
## perimeter_mean	0.038470392	-0.044684430	-0.048019221	0.039590476
## area_mean	0.065047550	-0.067879244	-0.010152279	-0.014636050
## smoothness_mean	0.315872261	-0.046461624	-0.444044654	0.117493291
## compactness_mean	-0.104264618	-0.230005458	-0.007661166	-0.230759682
## concavity_mean	0.065723393	-0.387349680	0.189733740	0.128386008
## points_mean	0.042253113	-0.132637847	0.245219266	0.217299938
## symmetry_mean	-0.288054252	-0.189570545	-0.030903840	0.073950596

## dimension_mean	0.236120382	-0.106390748	0.377436108	-0.518333769
## radius_se	-0.015625578	0.069635807	-0.011959877	0.111103952
## texture_se	-0.308499115	0.165408488	0.012614192	-0.033389049
## perimeter_se	-0.100597125	0.038865462	0.044358477	0.008991734
## area_se	-0.017226446	-0.055687709	-0.083203050	0.045171638
## smoothness_se	-0.293287983	-0.149148603	0.200139961	-0.018414232
## compactness_se	-0.263398426	-0.010320713	-0.491903153	-0.167886977
## concavity_se	0.251864823	-0.157777595	-0.135322845	-0.250292522
## points_se	-0.006430584	0.494527095	0.199547389	-0.062548716
## symmetry_se	0.319874237	-0.010836031	0.047340593	0.113219397
## dimension_se	0.275943072	0.240767973	-0.145958050	0.353782637
## radius_worst	0.039582217	0.138036550	-0.023526025	-0.166213790
## texture_worst	0.080142089	0.080737140	-0.053897961	-0.100862417
## perimeter_worst	-0.009084762	0.097004376	-0.012559001	-0.182407021
## area_worst	0.047986766	0.101235629	0.006646192	-0.315142865
## smoothness_worst	0.056931408	0.206026671	-0.163389545	-0.045226715
## compactness_worst	-0.371991007	-0.013117334	-0.165941776	0.049613607
## concavity_worst	-0.086870368	-0.218055908	0.066854662	0.204743734
## points_worst	-0.068367254	0.254345228	0.276401728	0.169597618
## symmetry_worst	0.043937722	0.256766084	-0.005448734	-0.139913723
## dimension_worst	-0.035134642	0.172524501	0.212520491	0.255448214
##	PC17	PC18	PC19	PC20
## id	-0.007779983	-0.019707372	0.005442248	0.020454908
## radius_mean	0.150008977	0.209908003	-0.156773206	0.211821385
## texture_mean	0.159152972	-0.034161758	0.040048687	0.029931705
## perimeter_mean	0.113792993	0.201233658	-0.168413120	0.227079273
## area_mean	0.130173978	0.251460456	-0.269145594	-0.045499625
## smoothness_mean	0.203117911	0.168171613	0.354463321	-0.160358262
## compactness_mean	-0.170379447	-0.016302860	-0.014259132	0.292092522
## concavity_mean	-0.270010606	-0.005071590	0.027973937	0.007197446
## points_mean	-0.381111880	0.028741889	0.087065594	-0.153991624
## symmetry_mean	0.165691481	-0.194702559	-0.169168737	-0.058503329
## dimension_mean	0.039119713	0.046298986	-0.086779501	-0.062879947
## radius_se	-0.055118880	-0.124562479	0.231233991	0.181436577
## texture_se	0.032768777	0.041652813	0.009177450	0.038681291
## perimeter_se	-0.023929011	-0.009084130	0.014508488	0.364045783
## area_se	-0.045538238	0.313148246	-0.296273515	-0.433949999
## smoothness_se	0.058326686	0.145306166	0.228819703	-0.013932678
## compactness_se	-0.190065826	-0.015610691	-0.094108380	-0.250216687
## concavity_se	0.126034946	0.092345618	-0.005794297	0.119490304
## points_se	0.197671940	0.106747906	-0.046944796	-0.015851066
## symmetry_se	0.158541381	-0.279918359	-0.180195394	-0.084242460
## dimension_se	-0.267180143	-0.122002438	0.059970839	0.097082660
## radius_worst	0.083459877	-0.235215809	0.218781792	0.027741137
## texture_worst	-0.185972310	0.065992656	-0.057250572	-0.080880841
## perimeter_worst	0.056649279	-0.228493742	0.189279122	0.105666112
## area_worst	0.090325036	-0.286471546	0.158722686	-0.393681440
## smoothness_worst	-0.142781922	-0.276751162	-0.504565504	0.228506719
## compactness_worst	0.153347954	-0.003683424	0.073627229	0.025544372
## concavity_worst	0.216302398	-0.190307542	0.107894455	-0.035839305
## points_worst	-0.178353485	-0.085180057	-0.067182996	-0.261323873
## symmetry_worst	-0.260033510	0.436706158	0.269313654	0.111738683
## dimension_worst	0.404957673	0.162920272	-0.026674889	-0.022516600
##	PC21	PC22	PC23	PC24

## id	0.009870917	0.006195707	0.003190337	-0.010289027
## radius_mean	0.046009507	0.070394387	-0.073021974	-0.098704322
## texture_mean	0.264801220	-0.436269565	-0.095890704	0.001311285
## perimeter_mean	0.015122205	0.070963404	-0.074821704	-0.040500943
## area_mean	0.087345298	0.021672998	-0.097428804	0.009396470
## smoothness_mean	-0.023842011	0.117945821	-0.063741313	-0.020088204
## compactness_mean	-0.476395571	-0.213187888	0.094254664	0.058295270
## concavity_mean	0.037771062	-0.001270114	0.188862925	0.321062737
## points_mean	0.231546040	0.017493297	0.313280824	-0.057974684
## symmetry_mean	-0.030776761	0.085067786	0.018331111	-0.052004767
## dimension_mean	0.172565576	0.085104005	-0.286892578	-0.084701081
## radius_se	0.090564458	-0.085660592	0.147793165	-0.263799753
## texture_se	0.083589382	-0.212168357	-0.048761201	-0.001150858
## perimeter_se	0.169586632	0.317246026	-0.153859020	0.081384223
## area_se	-0.270679518	-0.207916141	-0.068745790	0.110258620
## smoothness_se	-0.095370809	0.066602974	-0.051852247	-0.057154068
## compactness_se	0.451033960	0.159332265	0.048970757	0.003993806
## concavity_se	-0.070203251	-0.071023842	0.200850815	-0.388573085
## points_se	-0.064848884	-0.035557778	0.074494143	0.354040783
## symmetry_se	-0.112133933	0.092193625	0.084324570	-0.043455477
## dimension_se	-0.214213177	-0.069171668	-0.245408452	0.089594196
## radius_worst	0.006481267	-0.007068180	0.096292694	-0.057768458
## texture_worst	-0.330244412	0.578095532	0.111968438	-0.009473435
## perimeter_worst	-0.010544107	0.094457678	-0.014952244	0.058698441
## area_worst	-0.053510824	-0.149328216	0.096798702	0.193293235
## smoothness_worst	0.140127867	-0.156936236	0.069660581	0.091134610
## compactness_worst	-0.220884131	-0.191897773	-0.033373706	-0.145389941
## concavity_worst	0.047166544	0.139729448	-0.456817799	0.290302924
## points_worst	-0.039740929	-0.006870640	-0.305694162	-0.563297713
## symmetry_worst	0.125617213	-0.155827542	-0.096426675	0.122996111
## dimension_worst	0.095366679	0.092769737	0.470358007	0.002775112
##	PC25	PC26	PC27	PC28
## id	-0.004233388	-0.00132610	-0.002571324	-0.001623875
## radius_mean	-0.183664583	0.01859418	0.128713229	0.131697326
## texture_mean	0.099441545	-0.08442059	0.024821224	0.017622634
## perimeter_mean	-0.117262178	-0.02743488	0.124670225	0.115650274
## area_mean	0.070557041	0.21057100	-0.361014547	-0.467489167
## smoothness_mean	0.068940049	-0.02876100	0.037372832	-0.069482805
## compactness_mean	-0.102198309	-0.39651346	-0.262695425	-0.098624638
## concavity_mean	0.045550527	0.09717977	0.550227716	-0.363040016
## points_mean	0.082349955	0.18630114	-0.389316679	0.453345398
## symmetry_mean	0.018841491	0.02451053	0.015910368	0.015157593
## dimension_mean	-0.134601525	0.20670502	0.096796804	0.101343150
## radius_se	-0.561133900	0.17339784	-0.050411953	-0.213735821
## texture_se	0.023938591	-0.05709165	0.010893175	0.009925699
## perimeter_se	0.516048248	-0.07217201	-0.103485879	-0.041989200
## area_se	-0.018546693	-0.13093723	0.155929011	0.314758068
## smoothness_se	0.016193934	-0.03100551	0.008066566	0.009312365
## compactness_se	-0.122457873	-0.17364984	0.049404535	-0.046651501
## concavity_se	0.186159613	-0.01600952	-0.091931364	0.083824645
## points_se	-0.107166573	0.12999049	0.018674110	0.011675700
## symmetry_se	0.002613811	0.01936313	0.016991197	0.019891112
## dimension_se	0.076177800	0.08458109	-0.035156906	0.012141785
## radius_worst	-0.158114412	-0.07144112	0.195812320	0.178796461

```
## texture_worst      -0.118609952  0.11802219 -0.036347107 -0.021473842
## perimeter_worst    0.236463109 -0.11790535  0.243266456  0.241658719
## area_worst         0.146339946  0.03921251 -0.229813188 -0.237323945
## smoothness_worst   -0.011224935  0.04787154 -0.012860335  0.040730207
## compactness_worst  0.185437121  0.62471727  0.100772153  0.071087434
## concavity_worst    -0.286701322 -0.11586768 -0.267236886  0.142148446
## points_worst       0.105286798 -0.26352782  0.133749940 -0.230794105
## symmetry_worst     -0.013193455 -0.04505357 -0.027824916 -0.022695808
## dimension_worst    0.037882167 -0.28015574 -0.004500884 -0.060081371
##                    PC29          PC30          PC31
## id                 -1.891724e-05 -0.0006852263 -7.122581e-05
## radius_mean        2.111968e-01 -0.2114371011 -7.024325e-01
## texture_mean       -6.362507e-05  0.0106165839 -2.644366e-04
## perimeter_mean      8.434280e-02 -0.3838889617  6.898676e-01
## area_mean          -2.725167e-01  0.4227208085  3.297173e-02
## smoothness_mean     1.480038e-03  0.0034638648  4.850746e-03
## compactness_mean    -5.466656e-03  0.0409079834 -4.468229e-02
## concavity_mean      4.554138e-02  0.0101122808 -2.512860e-02
## points_mean        -8.885707e-03  0.0041142627  1.067984e-03
## symmetry_mean       1.432581e-03  0.0075571475  1.279594e-03
## dimension_mean     -6.312291e-03 -0.0073311823  4.751885e-03
## radius_se          -1.922290e-01 -0.1186768422  8.679321e-03
## texture_se         -5.624974e-03  0.0086942153  1.063104e-03
## perimeter_se        2.631905e-01  0.0060612569 -1.373310e-02
## area_se            -4.205668e-02  0.0863645419 -1.054698e-03
## smoothness_se      9.795835e-03 -0.0016737982  1.618711e-03
## compactness_se     -1.539757e-02 -0.0032295613 -1.923037e-03
## concavity_se       5.819985e-03 -0.0161202167  8.921294e-03
## points_se          -2.900497e-02  0.0241014722  2.178643e-03
## symmetry_se        -7.637856e-03  0.0051771158 -3.338380e-04
## dimension_se       1.975791e-02  0.0083971145 -1.792802e-03
## radius_worst       4.126296e-01  0.6356796555  1.356846e-01
## texture_worst      -3.896988e-04 -0.0172219636 -1.020237e-03
## perimeter_worst    -7.286790e-01 -0.0228830657 -7.974244e-02
## area_worst         2.389679e-01 -0.4448733182 -3.976788e-02
## smoothness_worst   -1.535941e-03 -0.0074142082 -4.586820e-03
## compactness_worst  4.869512e-02  0.0001075081  1.285262e-02
## concavity_worst    -1.764174e-02  0.0126547542 -4.031809e-04
## points_worst       2.247340e-02 -0.0353341030  2.276561e-03
## symmetry_worst     4.922100e-03 -0.0133523613 -3.910451e-04
## dimension_worst    -2.356283e-02 -0.0115053741 -1.897779e-03
```

```
print(cancer_pca)
```

```
## Standard deviations (1, .., p=31):
## [1] 3.64527878 2.38679814 1.68386313 1.40760690 1.28406203 1.11115827
## [7] 0.98907696 0.81960537 0.67881693 0.63492763 0.59089337 0.54211662
## [13] 0.51102537 0.49125372 0.39619900 0.30680373 0.28250655 0.24299439
## [19] 0.22932770 0.22163467 0.17626907 0.17303527 0.16562163 0.15572098
## [25] 0.13431069 0.12441756 0.09039745 0.08305482 0.03986650 0.02735646
## [31] 0.01153431
##
## Rotation (n x k) = (31 x 31):
##
##          PC1          PC2          PC3          PC4
## id        -0.02291216  0.034068491  0.096938436 -0.026598045
## radius_mean -0.21891302  0.233271401 -0.011393786  0.042187950
## texture_mean -0.10384388  0.060044199  0.066892342 -0.602954308
## perimeter_mean -0.22753491  0.214589002 -0.012124791  0.042752797
## area_mean    -0.22104577  0.230668816  0.026293150  0.054114724
## smoothness_mean -0.14241471 -0.186422211 -0.103182400  0.158098177
## compactness_mean -0.23906730 -0.152454726 -0.074768623  0.031818117
## concavity_mean -0.25828025 -0.060541625  0.001758736  0.019497124
## points_mean  -0.26073811  0.034167392 -0.027579607  0.065785353
## symmetry_mean -0.13797774 -0.190684979 -0.040962032  0.067502543
## dimension_mean -0.06414779 -0.366531055 -0.020817875  0.047957856
## radius_se     -0.20611747  0.105935702  0.266917221  0.099114446
## texture_se     -0.01741339 -0.089547789  0.371439885 -0.356497230
## perimeter_se   -0.21144652  0.089807043  0.264925682  0.090293055
## area_se        -0.20307642  0.152771289  0.215790250  0.108568705
## smoothness_se  -0.01467821 -0.203189876  0.311787845  0.044368664
## compactness_se -0.17028840 -0.232503362  0.154557465 -0.026425360
## concavity_se   -0.15354367 -0.196846081  0.176560052  0.002248291
## points_se      -0.18340675 -0.129965181  0.223850479  0.075252232
## symmetry_se     -0.04241552 -0.183558627  0.285265066  0.046936126
## dimension_se    -0.10249607 -0.279584139  0.211893354  0.016212450
## radius_worst   -0.22800935  0.219296044 -0.049406340  0.015659705
## texture_worst   -0.10451545  0.045501223 -0.039828934 -0.633119655
## perimeter_worst -0.23663734  0.199295985 -0.050431945  0.014068572
## area_worst     -0.22493214  0.218985461 -0.013188891  0.025970672
## smoothness_worst -0.12782441 -0.172562959 -0.255328751  0.014523359
## compactness_worst -0.20988456 -0.144253637 -0.234513609 -0.092562168
## concavity_worst -0.22860218 -0.098526524 -0.172024941 -0.074807188
## points_worst    -0.25074620  0.007534367 -0.170480673  0.005305980
## symmetry_worst  -0.12267993 -0.142619436 -0.270515902 -0.037129466
## dimension_worst -0.13156024 -0.275702077 -0.229474476 -0.078971489
##
##          PC5          PC6          PC7          PC8
## id        0.011327587 -0.316733438  0.9071156324 -0.096362415
## radius_mean -0.038129861  0.029588521 -0.0422987777 -0.116427419
## texture_mean  0.049091450 -0.031394323  0.0149935618  0.001875482
## perimeter_mean -0.037715592  0.028394008 -0.0435888242 -0.106272097
## area_mean    -0.010562229  0.006113155 -0.0289256668 -0.047414568
## smoothness_mean  0.365750055 -0.262508993 -0.1403403617 -0.123541189
## compactness_mean -0.011786637 -0.004903894 -0.0453031106  0.043145968
## concavity_mean -0.086512506 -0.002356338 -0.0325530646 -0.102436021
## points_mean   0.043667412 -0.034509273 -0.0814216298 -0.136923237
## symmetry_mean  0.305378893  0.335082168  0.1182592361 -0.098874531
## dimension_mean  0.044767906 -0.112784169 -0.0410588768  0.306499872
```

## radius_se	0.154254367	-0.023261199	0.0167882718	0.307415709
## texture_se	0.190001500	0.022856912	-0.1902676469	-0.052632477
## perimeter_se	0.120703357	0.003820151	0.0195081762	0.311265679
## area_se	0.127765023	-0.051958835	0.0565606078	0.334287959
## smoothness_se	0.232745603	-0.330867850	-0.0678348099	-0.260833914
## compactness_se	-0.280298048	0.066788120	0.0222220211	0.021001944
## concavity_se	-0.354164595	0.049699104	0.0336810725	-0.219193299
## points_se	-0.195758558	-0.023197526	-0.0378517870	-0.370217167
## symmetry_se	0.251331178	0.477530515	0.1184032606	-0.084854768
## dimension_se	-0.263395188	-0.048462373	-0.0157602244	0.194418818
## radius_worst	0.004280034	0.004521737	-0.0166458140	-0.007508307
## texture_worst	0.092551860	-0.045174516	-0.0094601240	0.006617640
## perimeter_worst	-0.007599144	0.012921166	-0.0145260986	0.002162488
## area_worst	0.027413595	-0.024033338	-0.0007372602	0.066173186
## smoothness_worst	0.325860028	-0.365048687	-0.0670682168	-0.116496117
## compactness_worst	-0.121503371	0.034042714	0.0507556727	0.136509363
## concavity_worst	-0.188280510	0.017962040	0.0352007117	-0.067085744
## points_worst	-0.043123573	-0.029549100	-0.0207238959	-0.166500918
## symmetry_worst	0.244245936	0.451404312	0.2340143294	-0.041439633
## dimension_worst	-0.093699078	-0.092479698	0.0347167538	0.372034479
##	PC9	PC10	PC11	PC12
## id	0.149115642	-0.16926751	0.058188997	-0.006721252
## radius_mean	-0.046270835	-0.22402704	-0.079466081	-0.042213788
## texture_mean	-0.088727168	0.11945674	-0.253258091	0.304032359
## perimeter_mean	-0.036230738	-0.22634517	-0.069865929	-0.017573055
## area_mean	-0.080649856	-0.18600385	-0.062795372	-0.110760120
## smoothness_mean	0.278996404	-0.06133822	0.084661549	0.135321954
## compactness_mean	0.099214048	-0.19518602	0.005172841	0.307036205
## concavity_mean	0.075750464	0.03395563	0.134664686	-0.124553100
## points_mean	0.116569072	-0.14261678	0.006124860	0.071564686
## symmetry_mean	0.315150303	0.13561452	-0.574417320	-0.161058144
## dimension_mean	0.130639482	-0.15848117	-0.066456112	0.037318709
## radius_se	0.026200456	0.26504403	0.025847282	0.027030250
## texture_se	0.372989606	-0.31521084	0.323158815	-0.348396233
## perimeter_se	0.052860114	0.23789288	0.094867442	0.168501485
## area_se	-0.030627892	0.24966405	0.071991560	-0.050731496
## smoothness_se	-0.580789293	-0.01015980	-0.179568831	-0.081753374
## compactness_se	-0.148593714	-0.11518343	-0.038615749	0.206959272
## concavity_se	0.034715098	0.36592141	0.113536362	-0.348342358
## points_se	0.189022962	0.21518752	-0.094066850	0.342855186
## symmetry_se	-0.292785738	-0.22049558	0.328314881	0.185998712
## dimension_se	-0.060203202	-0.22637997	-0.353844543	-0.250428852
## radius_worst	-0.070224590	-0.09981025	-0.073013014	-0.105030701
## texture_worst	-0.008571809	0.10669296	-0.038561250	-0.012490348
## perimeter_worst	-0.058854223	-0.09821693	-0.045750979	-0.051125158
## area_worst	-0.097034650	-0.06179787	-0.068822329	-0.184460981
## smoothness_worst	-0.173257498	0.16912753	0.109278029	-0.142996001
## compactness_worst	-0.111218083	-0.06445290	0.175401648	0.196805544
## concavity_worst	-0.035467377	0.19661986	0.295581609	-0.184959562
## points_worst	0.052322473	0.05121611	0.075496752	0.117518361
## symmetry_worst	-0.188266324	0.10308901	0.019223451	-0.157210098
## dimension_worst	-0.087222442	-0.11291399	-0.007071634	-0.118625115
##	PC13	PC14	PC15	PC16
## id	-0.004841084	-0.006500099	0.006885943	-0.002753492



## radius_mean	0.050603927	-0.012496988	-0.059054553	0.050789156
## texture_mean	0.256273666	-0.201876125	0.020701124	0.108089530
## perimeter_mean	0.038470392	-0.044684430	-0.048019221	0.039590476
## area_mean	0.065047550	-0.067879244	-0.010152279	-0.014636050
## smoothness_mean	0.315872261	-0.046461624	-0.444044654	0.117493291
## compactness_mean	-0.104264618	-0.230005458	-0.007661166	-0.230759682
## concavity_mean	0.065723393	-0.387349680	0.189733740	0.128386008
## points_mean	0.042253113	-0.132637847	0.245219266	0.217299938
## symmetry_mean	-0.288054252	-0.189570545	-0.030903840	0.073950596
## dimension_mean	0.236120382	-0.106390748	0.377436108	-0.518333769
## radius_se	-0.015625578	0.069635807	-0.011959877	0.111103952
## texture_se	-0.308499115	0.165408488	0.012614192	-0.033389049
## perimeter_se	-0.100597125	0.038865462	0.044358477	0.008991734
## area_se	-0.017226446	-0.055687709	-0.083203050	0.045171638
## smoothness_se	-0.293287983	-0.149148603	0.200139961	-0.018414232
## compactness_se	-0.263398426	-0.010320713	-0.491903153	-0.167886977
## concavity_se	0.251864823	-0.157777595	-0.135322845	-0.250292522
## points_se	-0.006430584	0.494527095	0.199547389	-0.062548716
## symmetry_se	0.319874237	-0.010836031	0.047340593	0.113219397
## dimension_se	0.275943072	0.240767973	-0.145958050	0.353782637
## radius_worst	0.039582217	0.138036550	-0.023526025	-0.166213790
## texture_worst	0.080142089	0.080737140	-0.053897961	-0.100862417
## perimeter_worst	-0.009084762	0.097004376	-0.012559001	-0.182407021
## area_worst	0.047986766	0.101235629	0.006646192	-0.315142865
## smoothness_worst	0.056931408	0.206026671	-0.163389545	-0.045226715
## compactness_worst	-0.371991007	-0.013117334	-0.165941776	0.049613607
## concavity_worst	-0.086870368	-0.218055908	0.066854662	0.204743734
## points_worst	-0.068367254	0.254345228	0.276401728	0.169597618
## symmetry_worst	0.043937722	0.256766084	-0.005448734	-0.139913723
## dimension_worst	-0.035134642	0.172524501	0.212520491	0.255448214
##	PC17	PC18	PC19	PC20
## id	-0.007779983	-0.019707372	0.005442248	0.020454908
## radius_mean	0.150008977	0.209908003	-0.156773206	0.211821385
## texture_mean	0.159152972	-0.034161758	0.040048687	0.029931705
## perimeter_mean	0.113792993	0.201233658	-0.168413120	0.227079273
## area_mean	0.130173978	0.251460456	-0.269145594	-0.045499625
## smoothness_mean	0.203117911	0.168171613	0.354463321	-0.160358262
## compactness_mean	-0.170379447	-0.016302860	-0.014259132	0.292092522
## concavity_mean	-0.270010606	-0.005071590	0.027973937	0.007197446
## points_mean	-0.381111880	0.028741889	0.087065594	-0.153991624
## symmetry_mean	0.165691481	-0.194702559	-0.169168737	-0.058503329
## dimension_mean	0.039119713	0.046298986	-0.086779501	-0.062879947
## radius_se	-0.055118880	-0.124562479	0.231233991	0.181436577
## texture_se	0.032768777	0.041652813	0.009177450	0.038681291
## perimeter_se	-0.023929011	-0.009084130	0.014508488	0.364045783
## area_se	-0.045538238	0.313148246	-0.296273515	-0.433949999
## smoothness_se	0.058326686	0.145306166	0.228819703	-0.013932678
## compactness_se	-0.190065826	-0.015610691	-0.094108380	-0.250216687
## concavity_se	0.126034946	0.092345618	-0.005794297	0.119490304
## points_se	0.197671940	0.106747906	-0.046944796	-0.015851066
## symmetry_se	0.158541381	-0.279918359	-0.180195394	-0.084242460
## dimension_se	-0.267180143	-0.122002438	0.059970839	0.097082660
## radius_worst	0.083459877	-0.235215809	0.218781792	0.027741137
## texture_worst	-0.185972310	0.065992656	-0.057250572	-0.080880841

## perimeter_worst	0.056649279	-0.228493742	0.189279122	0.105666112
## area_worst	0.090325036	-0.286471546	0.158722686	-0.393681440
## smoothness_worst	-0.142781922	-0.276751162	-0.504565504	0.228506719
## compactness_worst	0.153347954	-0.003683424	0.073627229	0.025544372
## concavity_worst	0.216302398	-0.190307542	0.107894455	-0.035839305
## points_worst	-0.178353485	-0.085180057	-0.067182996	-0.261323873
## symmetry_worst	-0.260033510	0.436706158	0.269313654	0.111738683
## dimension_worst	0.404957673	0.162920272	-0.026674889	-0.022516600
##	PC21	PC22	PC23	PC24
## id	0.009870917	0.006195707	0.003190337	-0.010289027
## radius_mean	0.046009507	0.070394387	-0.073021974	-0.098704322
## texture_mean	0.264801220	-0.436269565	-0.095890704	0.001311285
## perimeter_mean	0.015122205	0.070963404	-0.074821704	-0.040500943
## area_mean	0.087345298	0.021672998	-0.097428804	0.009396470
## smoothness_mean	-0.023842011	0.117945821	-0.063741313	-0.020088204
## compactness_mean	-0.476395571	-0.213187888	0.094254664	0.058295270
## concavity_mean	0.037771062	-0.001270114	0.188862925	0.321062737
## points_mean	0.231546040	0.017493297	0.313280824	-0.057974684
## symmetry_mean	-0.030776761	0.085067786	0.018331111	-0.052004767
## dimension_mean	0.172565576	0.085104005	-0.286892578	-0.084701081
## radius_se	0.090564458	-0.085660592	0.147793165	-0.263799753
## texture_se	0.083589382	-0.212168357	-0.048761201	-0.001150858
## perimeter_se	0.169586632	0.317246026	-0.153859020	0.081384223
## area_se	-0.270679518	-0.207916141	-0.068745790	0.110258620
## smoothness_se	-0.095370809	0.066602974	-0.051852247	-0.057154068
## compactness_se	0.451033960	0.159332265	0.048970757	0.003993806
## concavity_se	-0.070203251	-0.071023842	0.200850815	-0.388573085
## points_se	-0.064848884	-0.035557778	0.074494143	0.354040783
## symmetry_se	-0.112133933	0.092193625	0.084324570	-0.043455477
## dimension_se	-0.214213177	-0.069171668	-0.245408452	0.089594196
## radius_worst	0.006481267	-0.007068180	0.096292694	-0.057768458
## texture_worst	-0.330244412	0.578095532	0.111968438	-0.009473435
## perimeter_worst	-0.010544107	0.094457678	-0.014952244	0.058698441
## area_worst	-0.053510824	-0.149328216	0.096798702	0.193293235
## smoothness_worst	0.140127867	-0.156936236	0.069660581	0.091134610
## compactness_worst	-0.220884131	-0.191897773	-0.033373706	-0.145389941
## concavity_worst	0.047166544	0.139729448	-0.456817799	0.290302924
## points_worst	-0.039740929	-0.006870640	-0.305694162	-0.563297713
## symmetry_worst	0.125617213	-0.155827542	-0.096426675	0.122996111
## dimension_worst	0.095366679	0.092769737	0.470358007	0.002775112
##	PC25	PC26	PC27	PC28
## id	-0.004233388	-0.00132610	-0.002571324	-0.001623875
## radius_mean	-0.183664583	0.01859418	0.128713229	0.131697326
## texture_mean	0.099441545	-0.08442059	0.024821224	0.017622634
## perimeter_mean	-0.117262178	-0.02743488	0.124670225	0.115650274
## area_mean	0.070557041	0.21057100	-0.361014547	-0.467489167
## smoothness_mean	0.068940049	-0.02876100	0.037372832	-0.069482805
## compactness_mean	-0.102198309	-0.39651346	-0.262695425	-0.098624638
## concavity_mean	0.045550527	0.09717977	0.550227716	-0.363040016
## points_mean	0.082349955	0.18630114	-0.389316679	0.453345398
## symmetry_mean	0.018841491	0.02451053	0.015910368	0.015157593
## dimension_mean	-0.134601525	0.20670502	0.096796804	0.101343150
## radius_se	-0.561133900	0.17339784	-0.050411953	-0.213735821
## texture_se	0.023938591	-0.05709165	0.010893175	0.009925699

```
## perimeter_se      0.516048248 -0.07217201 -0.103485879 -0.041989200
## area_se           -0.018546693 -0.13093723  0.155929011  0.314758068
## smoothness_se     0.016193934 -0.03100551  0.008066566  0.009312365
## compactness_se    -0.122457873 -0.17364984  0.049404535 -0.046651501
## concavity_se      0.186159613 -0.01600952 -0.091931364  0.083824645
## points_se         -0.107166573  0.12999049  0.018674110  0.011675700
## symmetry_se       0.002613811  0.01936313  0.016991197  0.019891112
## dimension_se      0.076177800  0.08458109 -0.035156906  0.012141785
## radius_worst      -0.158114412 -0.07144112  0.195812320  0.178796461
## texture_worst     -0.118609952  0.11802219 -0.036347107 -0.021473842
## perimeter_worst   0.236463109 -0.11790535  0.243266456  0.241658719
## area_worst        0.146339946  0.03921251 -0.229813188 -0.237323945
## smoothness_worst  -0.011224935  0.04787154 -0.012860335  0.040730207
## compactness_worst 0.185437121  0.62471727  0.100772153  0.071087434
## concavity_worst   -0.286701322 -0.11586768 -0.267236886  0.142148446
## points_worst      0.105286798 -0.26352782  0.133749940 -0.230794105
## symmetry_worst    -0.013193455 -0.04505357 -0.027824916 -0.022695808
## dimension_worst   0.037882167 -0.28015574 -0.004500884 -0.060081371
##                  PC29      PC30      PC31
## id                -1.891724e-05 -0.0006852263 -7.122581e-05
## radius_mean       2.111968e-01 -0.2114371011 -7.024325e-01
## texture_mean      -6.362507e-05  0.0106165839 -2.644366e-04
## perimeter_mean    8.434280e-02 -0.3838889617  6.898676e-01
## area_mean         -2.725167e-01  0.4227208085  3.297173e-02
## smoothness_mean   1.480038e-03  0.0034638648  4.850746e-03
## compactness_mean  -5.466656e-03  0.0409079834 -4.468229e-02
## concavity_mean    4.554138e-02  0.0101122808 -2.512860e-02
## points_mean       -8.885707e-03  0.0041142627  1.067984e-03
## symmetry_mean     1.432581e-03  0.0075571475  1.279594e-03
## dimension_mean    -6.312291e-03 -0.0073311823  4.751885e-03
## radius_se         -1.922290e-01 -0.1186768422  8.679321e-03
## texture_se        -5.624974e-03  0.0086942153  1.063104e-03
## perimeter_se      2.631905e-01  0.0060612569 -1.373310e-02
## area_se           -4.205668e-02  0.0863645419 -1.054698e-03
## smoothness_se     9.795835e-03 -0.0016737982  1.618711e-03
## compactness_se    -1.539757e-02 -0.0032295613 -1.923037e-03
## concavity_se      5.819985e-03 -0.0161202167  8.921294e-03
## points_se         -2.900497e-02  0.0241014722  2.178643e-03
## symmetry_se       -7.637856e-03  0.0051771158 -3.338380e-04
## dimension_se      1.975791e-02  0.0083971145 -1.792802e-03
## radius_worst      4.126296e-01  0.6356796555  1.356846e-01
## texture_worst     -3.896988e-04 -0.0172219636 -1.020237e-03
## perimeter_worst   -7.286790e-01 -0.0228830657 -7.974244e-02
## area_worst        2.389679e-01 -0.4448733182 -3.976788e-02
## smoothness_worst  -1.535941e-03 -0.0074142082 -4.586820e-03
## compactness_worst 4.869512e-02  0.0001075081  1.285262e-02
## concavity_worst   -1.764174e-02  0.0126547542 -4.031809e-04
## points_worst      2.247340e-02 -0.0353341030  2.276561e-03
## symmetry_worst    4.922100e-03 -0.0133523613 -3.910451e-04
## dimension_worst   -2.356283e-02 -0.0115053741 -1.897779e-03
```

```
# Sample scores stored in cancer_pca$x
cancer_pca$x
```

##		PC1	PC2	PC3	PC4	PC5
##	[1,]	2.50194550	-0.096948052	-0.4489597008	2.334117555	0.697715477
##	[2,]	1.46743888	-1.686300588	1.1542038774	0.336210935	0.459625382
##	[3,]	2.92902790	-0.383199241	-0.8955890691	-0.116482776	0.984413772
##	[4,]	1.99534236	-1.330465924	1.1172875551	2.050276131	0.253038461
##	[5,]	2.50025164	2.010350968	-0.7584034865	1.986216853	-1.135370958
##	[6,]	2.01830827	-0.782420945	0.1125197163	-0.653227961	0.018415769
##	[7,]	1.09348444	-1.293936715	1.4189069050	-3.356740242	-0.951965047
##	[8,]	-4.54183732	-3.099372405	-2.2612175075	-2.200950296	3.459973177
##	[9,]	2.69412302	-1.421092569	0.9516155379	0.007476733	1.250335936
##	[10,]	2.08173487	-1.812218651	-1.1720406658	1.137014305	0.414757427
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##	[12,]	2.42030088	-0.010337119	-0.8066693631	-0.070644793	0.075814497
##	[13,]	0.42109190	-0.121776139	-0.5410059634	-0.365041743	-1.511092195
##	[14,]	3.72127373	1.784296564	1.2485358731	0.129289545	0.520260616
##	[15,]	-2.50683608	2.519115720	0.7679362671	-0.814023090	0.426551810
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##	[17,]	0.71352261	1.556166034	-0.7062636839	1.691564007	-0.340941385
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##	[19,]	-7.18617681	-0.044244030	2.0258549210	0.087485348	0.664035557
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##	[31,]	4.02708469	2.536551854	0.3201023892	1.521284235	-0.668651573
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## [8,] -1.081225510 -0.4658149824 3.804442e-02 0.2385509971 0.541705535
## [9,] 0.972459383 0.0819567466 1.751165e-01 0.6908540096 0.288307896
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##	[35,]	0.113336816	-0.1466828996	-1.537758e-01	0.2944745573	0.283773673
##	[36,]	0.911780229	0.5368713244	2.472982e-01	-0.8199302475	-0.261170401
##	[37,]	-0.145344472	-0.4292595370	3.156379e-01	-0.0735878263	0.415127020
##	[38,]	-0.353164991	-0.1050608983	1.375170e+00	-0.6835159477	-1.112481503
##	[39,]	0.723122865	-0.1826208659	-3.182262e-01	0.2516837803	0.043807476
##	[40,]	-0.415366317	-0.4097246157	1.162924e-01	0.7129563632	-0.796713323
##	[41,]	-0.349746811	-0.5153796187	-7.868544e-01	-0.4233846133	-0.406537211
##	[42,]	0.437175823	-0.2827684007	-1.055016e-02	0.5515347428	-0.077923707
##	[43,]	2.559415577	1.9484628103	1.286858e+00	-1.2715190317	-1.170346504
##	[44,]	-0.315518485	-0.1701827591	1.254641e+00	0.1896129904	-0.988357108
##	[45,]	1.274601480	0.4150196773	5.198808e-01	-0.0382748425	-0.079150152
##	[46,]	1.332601472	-0.0878076702	6.289778e-03	-0.2399777549	-0.059747751
##	[47,]	0.038151689	0.5680425674	1.774667e-01	0.0759580917	-0.308469517
##	[48,]	0.378240285	-0.5731740129	-2.068647e-02	-0.7579397801	-1.508260219
##	[49,]	-0.846498664	0.0601963202	-1.069404e+00	1.1489867269	0.168132472
##	[50,]	1.075898588	0.1532310034	5.948280e-02	-0.1413657992	0.209916555
##	[51,]	0.531354820	0.1438185386	-2.550616e-02	0.4288271014	-0.153506324
##	[52,]	0.687755054	0.9059044038	-1.176474e-01	0.1508802562	-0.031423916
##	[53,]	0.187173381	0.0086699045	6.930719e-01	0.3400918790	0.419273108
##	[54,]	-1.006835348	-1.0556025893	1.924850e-01	0.5774347910	-0.420909087
##	[55,]	-0.077461298	-0.9337311465	-2.575898e+00	0.1304511617	-0.508831025
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## [3,] 0.4208601858 -0.066872858 0.374354577 0.2585457288 -0.3302742156
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## [4,] 0.102133866 -1.028945e-01 1.970852e-01 3.625177e-01
## [5,] -0.064958814 2.227331e-01 -1.291292e-01 -3.587705e-01
## [6,] -0.201610826 1.492042e-01 -2.229379e-03 -8.178568e-02
## [7,] -0.135598898 -2.788628e-01 2.228275e-01 6.739350e-02
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## [86,] 0.068145730 -1.181127e-01 3.362285e-02 -1.718386e-02
## [87,] 0.065452361 -4.570033e-01 2.140008e-01 -2.361075e-02
## [88,] 0.048064377 -9.019228e-02 2.890748e-01 1.325708e-01
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## [90,] -0.326875791 1.149838e-01 1.785231e-01 -2.978624e-01
## [91,] 0.060583474 2.220166e-01 6.920324e-02 8.083662e-02
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## [93,] -0.231554944 -1.741035e-01 1.493086e-01 3.840592e-02
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## [95,] -0.179002899 -3.227320e-02 1.807734e-01 -4.037691e-01
## [96,] 0.201266790 -3.899332e-03 -1.476732e-01 -9.979733e-02
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## [99,] -0.051107570 1.105994e-01 3.119691e-02 -7.838595e-02
## [100,] -0.431077436 -2.933891e-01 -6.654234e-02 -3.935464e-01
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## [121,] -0.304304754 2.149320e-01 2.884342e-02 -5.140805e-02
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## [134,] 0.654516751 -1.417697e-01 3.629542e-01 1.913907e-01
## [135,] 0.222896409 4.414003e-01 1.946630e-01 -1.851684e-01
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## [214,] 0.184460047 -1.632661e-01 -5.617051e-02 2.764911e-02
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## [303,] 0.180537808 -5.342720e-01 9.477698e-02 6.453277e-02
## [304,] 0.128912922 -9.933371e-02 -1.291633e-02 4.294687e-02
## [305,] 0.063938637 3.934769e-02 3.304929e-01 1.277689e-01
## [306,] -0.051287635 3.399593e-01 1.027305e-01 1.320912e-01
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## [323,] 0.074555342 1.521523e-01 1.974972e-01 1.578988e-01
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## [335,] 0.353592798 2.726356e-01 -4.802383e-01 4.161758e-01
## [336,] 0.083575303 1.224253e-01 -1.616156e-01 -2.049451e-02
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## [340,] -0.039894089 1.188198e-01 -2.491210e-01 -3.775895e-01
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## [486,] 0.160793835 -6.273395e-02 -3.355876e-01 -2.163270e-01
## [487,] 0.135816514 -4.255877e-02 1.036395e-02 6.282936e-03
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## [515,] 0.316351789 -2.068107e-01 2.599902e-01 2.412226e-01
## [516,] 0.390824367 1.253419e-01 -2.881450e-01 -4.275129e-01
## [517,] 0.008774552 6.497785e-01 -1.805544e-02 -3.135482e-01
## [518,] 0.481976874 -3.293015e-01 1.711032e-01 9.873633e-02
## [519,] 0.502187780 -4.608419e-01 5.547023e-05 2.223657e-02
## [520,] -0.432294179 -8.054027e-02 7.225780e-01 2.246223e-01
## [521,] -0.261258845 1.638865e-01 2.379180e-03 3.269736e-02
## [522,] 0.098417670 -4.291707e-02 -1.177568e-01 4.538950e-02
## [523,] 0.142600797 2.410581e-01 -4.090518e-02 -5.325102e-02
## [524,] 0.220356808 -9.133137e-01 -2.917686e-01 1.782965e-01
## [525,] -0.467287857 6.369633e-02 -8.119408e-02 -5.406241e-02
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## [527,] 0.383074437 1.825142e-01 1.203009e-01 3.562098e-03
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## [531,] 0.159935357 -2.649021e-01 9.446633e-02 1.975404e-02
## [532,] -0.887234564 -1.093859e-01 -8.923846e-02 -5.598322e-01
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## [534,] 0.278991401 -1.532250e-01 1.523534e-01 -1.017746e-01
## [535,] 0.137951400 -2.011831e-01 1.580920e-01 1.431658e-01
## [536,] 0.100880058 -9.777967e-03 -6.844052e-02 -5.737702e-02
## [537,] 0.348951641 4.366443e-02 -7.993361e-02 1.460571e-01
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## [540,] -0.099776102 -2.279189e-01 -1.003754e-01 -3.246732e-01
## [541,] 0.341929890 1.289705e-02 3.247747e-02 1.198331e-01
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## [544,] -0.113251800 -7.198274e-01 7.052837e-01 5.161733e-01
## [545,] -0.904924324 1.028031e-01 -4.337089e-01 -6.636632e-01
## [546,] 0.371659563 1.356213e-01 2.697584e-01 -1.378859e-01
## [547,] -1.228240716 -1.553035e-02 3.728226e-01 5.489113e-01
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## [549,] 0.311450665 1.719494e-01 9.135246e-02 1.576022e-02
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## [552,] 0.015117030 -7.605966e-02 -3.111501e-01 -3.266208e-02
## [553,] 1.201454129 1.122160e+00 7.516535e-01 2.335447e-01
## [554,] -0.338023153 -2.372481e-01 1.713651e-01 1.671014e-01
## [555,] 0.091626652 -9.066874e-02 1.931629e-02 -2.231490e-01
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## [557,] 0.081554527 -2.661295e-02 -1.739581e-01 1.196125e-01
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## [564,] -0.083489849 7.184560e-03 7.199413e-02 -1.846356e-01
## [565,] 0.058856156 -4.695702e-01 -4.501508e-01 -3.471412e-01
## [566,] -0.214182122 5.780081e-02 -4.559676e-02 1.528344e-01
## [567,] -0.092989166 4.923031e-01 1.781862e-01 3.839729e-03
## [568,] 0.445170663 -4.445366e-02 1.158968e-02 1.025494e-01
## [569,] 0.231756423 -3.548587e-05 2.473740e-01 -2.592611e-01
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## [2,] -5.262226e-02 -5.987170e-02 5.868642e-02 0.0709786126
## [3,] -1.380489e-01 -1.348974e-01 1.008003e-01 0.0539090082
## [4,] -4.001824e-01 -1.030209e-01 -2.882171e-01 0.1820459068
## [5,] 8.515543e-02 -8.500541e-02 -6.332008e-02 0.0435910301
## [6,] 1.897094e-01 -6.872875e-02 9.669594e-02 -0.0014580538
## [7,] -2.937883e-02 -1.475160e-01 -1.731877e-02 -0.0108743761
## [8,] 3.024854e-01 -3.099751e-02 9.995874e-02 -0.0072754677
## [9,] -3.919811e-02 -5.436148e-02 -7.930105e-02 0.1166388585
## [10,] -2.211534e-01 1.244503e-01 2.906959e-03 -0.0958436133
## [11,] 1.932840e-03 -1.077269e-01 3.219922e-01 -0.0207780502
## [12,] -1.206356e-01 5.042482e-02 1.573921e-01 -0.0222931936
## [13,] 1.515462e-01 -6.981790e-02 -1.931869e-01 -0.2024735878
## [14,] 2.401749e-01 -5.455272e-02 -4.795192e-02 -0.0424807415
## [15,] 1.270436e-01 1.373108e-01 -3.501457e-02 -0.0602123244
## [16,] 5.353835e-02 -5.469285e-02 -1.008057e-01 -0.0522950385
## [17,] -6.569926e-02 -1.493094e-01 1.716667e-02 0.0597777408
## [18,] 1.634152e-01 -3.505539e-02 -1.464825e-01 -0.0039775402
## [19,] 2.239174e-01 5.765831e-01 1.983251e-01 -0.1213930293
## [20,] 4.683065e-02 6.678614e-02 6.078671e-03 0.1437547933
## [21,] -2.227016e-01 5.752789e-02 -2.271678e-02 -0.0993528734
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## [24,] -4.532253e-02 -2.759078e-01 -3.047715e-01 0.2331576854
## [25,] -1.764213e-01 6.727165e-03 -2.542099e-01 -0.2043585353
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## [37,] -4.197287e-02 2.687950e-02 -5.888385e-02 -0.0859464734
## [38,] 1.940495e-02 1.230285e-01 3.737305e-01 -0.1400014645
## [39,] -1.021625e-01 -8.007357e-02 1.273240e-01 0.0428784496
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## [378,] 1.991103e-01 -2.350927e-01 3.376714e-03 0.2606942086
## [379,] 9.663166e-03 2.715912e-02 5.953128e-02 0.0415754206
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## [9,] -6.923093e-02  0.0497355910  7.027952e-03 -2.066589e-02
## [10,] -7.627162e-02  0.0756044146 -6.937821e-02 -1.796520e-02

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## [23,] -2.100676e-02 0.0507842783 7.119412e-02 7.321933e-02
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## [429,] -1.183870e-02 0.0591542277 -8.545826e-02 -1.445889e-02
## [430,] -2.692379e-02 -0.1055179597 -1.099104e-01 1.992519e-01
## [431,] 8.691772e-04 -0.0574132517 8.451702e-02 2.607840e-02
## [432,] 1.397180e-01 -0.1310604768 9.170827e-03 -1.871603e-02
## [433,] 1.209591e-01 -0.0628898238 -3.834892e-02 -4.391401e-04
## [434,] -2.241647e-01 -0.2419488047 1.396335e-01 9.669322e-02
## [435,] -1.286488e-01 0.1624365763 4.323049e-02 -8.205219e-02
## [436,] 1.873269e-02 -0.0066669107 1.599728e-02 4.405736e-02
## [437,] 9.503451e-02 0.0214902131 9.145336e-02 -3.547183e-02
## [438,] -6.253372e-03 0.0487343202 -1.571545e-02 4.862845e-03
## [439,] 1.912589e-01 0.0172224883 1.326282e-01 -3.924789e-02
## [440,] -9.648211e-02 0.2117602947 -1.630683e-01 -1.622188e-01
## [441,] 3.089602e-02 0.1539698064 -9.960881e-02 -5.105426e-02
## [442,] -8.302184e-02 -0.0594967318 -2.950936e-02 6.846010e-02
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## [443,] -1.035719e-01 0.0819963480 1.272476e-02 5.046052e-02
## [444,] -2.034225e-01 0.0658304726 -1.800201e-01 -4.066865e-02
## [445,] -4.475455e-01 0.0054434998 7.174669e-02 2.617499e-01
## [446,] 1.405553e-01 -0.0334086266 2.325081e-01 4.841507e-03
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## [448,] 4.611815e-03 -0.0788407781 6.322836e-02 1.032260e-01
## [449,] -3.601887e-02 -0.0573340116 -7.582419e-03 -1.218375e-01
## [450,] -1.002000e-01 -0.1226957652 -1.584766e-01 1.572300e-01
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## [452,] 5.172263e-02 -0.0871761614 4.225859e-02 7.337567e-02
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## [455,] -1.799177e-01 -0.0016646490 4.231067e-02 7.546628e-02
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## [457,] -1.979259e-01 0.1160597436 8.385132e-02 -2.150728e-02
## [458,] 3.666498e-01 0.1524422051 -1.663435e-01 1.099647e-02
## [459,] -3.955544e-02 0.1190279431 1.075443e-01 -3.092045e-02
## [460,] 1.298928e-01 -0.0371670878 4.611871e-02 5.713996e-02
## [461,] 7.930548e-01 0.1402836255 -1.614714e-01 1.052863e-01
## [462,] -1.290251e-01 -0.4311805275 1.344044e-01 1.090829e-01
## [463,] 4.442582e-03 0.0075465253 1.164051e-01 -6.201375e-03
## [464,] -4.093132e-02 -0.0776514959 -3.353055e-02 7.165821e-02
## [465,] -1.546333e-01 -0.0417734128 -1.548813e-01 6.762029e-02
## [466,] 5.911299e-02 0.2551770663 -1.358596e-01 1.191482e-02
## [467,] 9.359916e-02 0.0552225589 -3.703590e-02 1.230366e-01
## [468,] 1.738515e-02 -0.1872099333 -2.538879e-01 -1.563844e-01
## [469,] -1.021408e-01 -0.2574541464 1.557655e-02 -2.697562e-02
## [470,] -5.556010e-02 -0.0477941887 4.038964e-02 4.707636e-02
## [471,] 1.819430e-01 -0.1199167447 3.420727e-01 -6.881584e-02
## [472,] 1.106353e-01 0.0086903590 -3.979714e-02 1.921079e-02
## [473,] 1.156047e-01 0.0204351424 1.382429e-01 8.694220e-02
## [474,] 1.636058e-01 0.0222534819 2.541725e-01 2.616667e-02
## [475,] -1.937208e-02 0.0701987815 -6.269821e-02 -7.223097e-02
## [476,] -6.653984e-02 -0.0486359495 -7.940201e-02 -1.033892e-01
## [477,] 1.768399e-01 0.0977800935 1.559091e-02 5.383030e-02
## [478,] -4.245996e-01 -0.0672201583 2.300266e-01 -2.195817e-01
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## [482,] -1.585424e-01 0.0595731478 -9.892174e-02 2.573106e-02
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## [487,] -7.262895e-02 0.0633645767 1.057460e-02 -9.000800e-02
## [488,] 3.678154e-01 0.1684645347 8.086259e-02 3.288541e-01
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## [497,] 1.048737e-01 0.1528752904 -6.342054e-02 -1.833533e-01
## [498,] -1.171891e-01 0.0997071331 4.310451e-02 1.582027e-02
## [499,] -1.374692e-01 0.4482243112 -4.149636e-02 -1.706264e-01
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## [504,] 1.187616e-01 0.3390310112 -1.469435e-01 1.272002e-01
## [505,] -1.305941e-01 -0.0190997798 -8.314814e-02 -9.512168e-02
## [506,] 4.252903e-02 0.1052195938 -7.206779e-02 1.789455e-02
## [507,] 7.363093e-02 -0.0534314442 1.542172e-02 9.869219e-02
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## [516,] 9.718294e-02 -0.0625470816 -1.250628e-01 4.320560e-02
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## [524,] 4.133987e-02 0.0769616513 -1.674004e-02 -3.455608e-01
## [525,] 2.132852e-02 0.1293533038 1.443414e-01 -1.058926e-01
## [526,] 1.082281e-01 -0.0554256167 1.150705e-02 1.414669e-02
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## [529,] 6.769813e-02 0.0727191862 3.068598e-03 1.199855e-02
## [530,] 6.739083e-02 0.0041266367 8.730283e-02 -5.361779e-02
## [531,] 7.868145e-03 0.2968409960 -1.825913e-01 -8.669503e-03
## [532,] -7.365698e-02 -0.0686595039 -4.031680e-02 -1.795131e-01
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## [535,] 1.672791e-01 -0.2420968173 2.023490e-01 1.712906e-01
## [536,] 8.981023e-02 0.0390470236 1.815452e-02 -1.373045e-01
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## [538,] 1.528724e-01 -0.0283542060 2.922468e-02 7.240449e-02
## [539,] -1.287491e-01 -0.0130779406 -5.363785e-02 5.423246e-02
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## [550,] 3.106254e-01 -0.0397824677 -8.452481e-02 -1.321395e-01
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## [551,] 2.880785e-02 -0.3229053430 -5.034114e-02 5.198966e-02
## [552,] 1.862327e-01 0.0091764901 1.155223e-01 -2.036344e-02
## [553,] 1.610391e-01 -0.2165080713 1.340842e-01 -3.117433e-01
## [554,] -8.908605e-02 -0.0992356834 1.111339e-01 -4.261994e-02
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## [558,] -4.948369e-02 -0.0404242572 -8.089476e-02 1.257485e-01
## [559,] 2.388324e-01 -0.0163322580 1.589775e-01 1.293104e-01
## [560,] 1.056405e-01 -0.0941123909 -1.187242e-01 -1.240848e-02
## [561,] 1.501436e-01 0.2591147688 8.061660e-02 3.499011e-02
## [562,] -8.585410e-03 0.0490767347 9.132027e-02 9.699353e-03
## [563,] -2.150749e-02 0.0144744386 5.381310e-02 5.054066e-02
## [564,] -1.804557e-01 0.0371323703 -1.428941e-02 3.987237e-02
## [565,] -1.408557e-01 -0.0604580327 8.702071e-02 6.652750e-02
## [566,] 5.013426e-02 -0.0593985862 -1.388494e-01 4.717433e-02
## [567,] -7.467431e-02 -0.1043972794 -1.157432e-01 -5.627953e-02
## [568,] 3.274830e-04 0.1276164883 -1.587248e-02 -6.099950e-02
## [569,] -1.465535e-01 -0.0395651763 2.851123e-02 -1.446121e-01
##
##          PC28          PC29          PC30          PC31
## [1,] 0.0535613058 0.0151848822 1.598541e-02 1.396101e-03
## [2,] -0.1869655269 0.0270113107 -8.033300e-04 8.096490e-03
## [3,] -0.0765306661 -0.0146403879 1.030789e-02 9.074601e-03
## [4,] -0.0171166487 -0.0478284944 2.386299e-02 2.650750e-04
## [5,] 0.0383536434 0.0324507997 -2.312178e-03 -2.563269e-03
## [6,] 0.0095543400 -0.0044034309 3.869919e-03 -2.931194e-03
## [7,] 0.0378787886 0.0203768196 4.010932e-04 -1.269166e-02
## [8,] 0.1590301296 0.0211851026 2.063600e-02 -1.136547e-03
## [9,] -0.0586366278 -0.0157101706 1.578442e-02 8.784686e-03
## [10,] 0.0208900863 -0.0229256417 -3.656928e-02 3.436465e-03
## [11,] -0.1836996047 -0.0702399725 -1.960853e-02 1.499158e-02
## [12,] 0.0313667590 0.0214758148 -5.815388e-03 2.101407e-03
## [13,] -0.0115189160 -0.0236487859 -1.336927e-02 -9.541018e-04
## [14,] -0.0001342391 0.0262774321 -4.354456e-03 -6.766971e-03
## [15,] 0.0526092277 -0.0106431857 1.382817e-02 -1.138219e-02
## [16,] -0.0395565231 -0.0113053550 -3.940202e-03 6.933750e-03
## [17,] 0.0118991338 -0.0219583607 1.264325e-02 4.760172e-03
## [18,] 0.0091836992 0.0184535080 3.004816e-03 -8.284949e-03
## [19,] 0.2263597091 0.0319045180 -5.109774e-02 1.888498e-02
## [20,] 0.0030067774 -0.0211027308 -1.938230e-02 9.852988e-04
## [21,] -0.0198932675 -0.0136803305 -8.551012e-03 -1.325546e-03
## [22,] 0.0187612193 -0.0216819855 2.411236e-02 -8.858584e-03
## [23,] -0.0246700231 -0.0128612569 -4.467560e-03 3.629728e-03
## [24,] 0.0901569755 -0.0098411879 2.301966e-02 -2.374885e-02
## [25,] 0.0109952266 -0.0379124107 4.791318e-03 8.663743e-03
## [26,] 0.0315139751 -0.0401102951 4.734871e-02 9.919702e-03
## [27,] -0.0247139379 0.0219728384 1.146276e-02 1.347780e-03
## [28,] 0.2407008095 -0.1852027901 1.514934e-02 -9.338919e-04
## [29,] 0.0814109162 -0.0090939596 2.163938e-02 -1.755034e-03
## [30,] 0.0125186331 0.0273630567 -1.261799e-03 -1.246042e-03
## [31,] -0.0685101420 0.0017889958 1.805305e-03 -1.806891e-03
## [32,] 0.0452194197 0.0061246303 -1.474198e-02 7.480681e-03
## [33,] -0.0715863646 -0.0595115348 -1.294207e-02 3.415065e-02
## [34,] -0.0590833361 0.0130416480 7.452318e-03 9.309105e-03

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## [35,] -0.0252578940 0.0047644298 1.129211e-02 -7.572504e-04
## [36,] -0.0136113786 -0.0323834364 -5.070655e-02 3.761900e-03
## [37,] 0.0145404352 -0.0403402638 4.594615e-02 4.646818e-05
## [38,] 0.0620363491 0.0259186233 -1.038252e-02 1.782104e-02
## [39,] 0.0551020192 0.0091668531 1.530145e-02 1.309894e-02
## [40,] -0.0360424650 0.0146077001 1.910994e-02 2.733524e-03
## [41,] -0.0507089905 -0.0501071660 -7.727756e-03 -1.182598e-02
## [42,] -0.0446278063 0.0911078308 -1.362661e-03 1.313363e-02
## [43,] -0.1841875377 0.0424279229 6.857974e-02 -1.998307e-02
## [44,] 0.0855229177 -0.0160270811 -2.834893e-02 1.060561e-02
## [45,] 0.0328784540 -0.0146923196 -7.281896e-03 -5.593681e-03
## [46,] 0.0511279444 -0.0069384905 -1.819427e-03 -7.746198e-03
## [47,] 0.0547823196 -0.0023206355 -8.758586e-03 3.372264e-03
## [48,] -0.2137482100 -0.0381373067 -2.763514e-02 4.146805e-03
## [49,] 0.0329035277 0.0020957473 -3.598031e-03 5.861108e-04
## [50,] 0.0129741769 0.0087123575 -7.947914e-03 -1.263665e-02
## [51,] 0.0815819893 0.0152921924 -6.954635e-03 -2.622044e-03
## [52,] 0.0297321325 -0.0331236455 -1.219745e-02 -1.497444e-02
## [53,] -0.0402841172 0.0107722059 -1.137519e-02 3.710160e-03
## [54,] 0.0411842454 -0.0065017458 2.731969e-03 -7.122045e-03
## [55,] -0.3121274609 -0.1007394701 1.109937e-03 3.822175e-02
## [56,] 0.1271426338 0.0718062109 7.998705e-02 -8.613806e-03
## [57,] -0.0655979733 -0.0067404314 -1.509246e-02 1.220346e-02
## [58,] -0.0723397173 0.0078063902 -4.017460e-03 6.460942e-03
## [59,] 0.0259482166 -0.1009891889 -4.066243e-02 2.482287e-04
## [60,] -0.1472098173 0.0646962815 6.432846e-02 3.686692e-03
## [61,] 0.0247950621 -0.0709616241 1.160058e-02 -1.588803e-02
## [62,] -0.0428475099 -0.0022463043 5.168838e-03 -7.379388e-03
## [63,] 0.0773552872 -0.0035421174 1.873981e-02 2.154060e-02
## [64,] -0.0695511185 0.0115904549 2.266887e-02 1.568908e-02
## [65,] 0.0225291261 0.0010160584 1.636328e-02 -1.872231e-02
## [66,] 0.0155835137 0.0132711018 -4.069241e-03 3.713134e-03
## [67,] 0.0063615856 -0.0200441666 -7.372887e-03 -4.932517e-03
## [68,] 0.0090042996 0.0268352584 1.231880e-02 -1.881063e-03
## [69,] 0.0008812426 -0.0057755937 -1.340533e-03 -5.150721e-03
## [70,] 0.0355147201 0.0043148745 -4.507685e-03 1.070424e-03
## [71,] -0.1283744567 -0.0742747228 -2.933480e-02 -2.136442e-03
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## [73,] -0.2556893106 0.0202584002 4.385842e-02 -3.848263e-02
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## [76,] 0.0058851872 -0.0156305323 -1.011894e-02 -6.699865e-03
## [77,] -0.0431265122 0.0255737824 -3.463985e-03 -4.223548e-03
## [78,] 0.0099252444 0.0360829529 -1.616924e-02 -3.198251e-03
## [79,] -0.0029162883 0.0269282854 -1.470512e-02 1.065629e-02
## [80,] 0.0456480058 0.0399893607 3.123969e-03 3.045911e-03
## [81,] 0.0471852749 0.0094077473 -3.761305e-03 -5.470391e-03
## [82,] -0.0243818933 0.0177535238 1.031865e-02 -8.368126e-03
## [83,] 0.0582247814 0.0209370866 -2.321229e-02 -5.350306e-03
## [84,] 0.0117268178 0.0200736766 -2.732546e-02 -7.409999e-03
## [85,] -0.0262027019 -0.0252608854 1.722162e-02 1.680226e-03
## [86,] 0.0148952545 0.0195915284 -1.846289e-02 -2.144185e-03
## [87,] -0.0438845496 0.0303948560 -1.552890e-02 7.282629e-03
## [88,] 0.0202943160 -0.0054566694 -1.198632e-02 9.897334e-03
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## [90,] -0.0044985114 -0.0065792676 -4.183763e-02 -7.891306e-03
## [91,] 0.0426828314 -0.0027990550 -2.218937e-02 3.590840e-03
## [92,] -0.0204368923 -0.0016042409 -3.686851e-03 1.111394e-02
## [93,] 0.0472780084 -0.0007851106 1.288449e-02 -2.010287e-03
## [94,] 0.0074520198 0.0193216886 2.805047e-03 -6.017928e-03
## [95,] 0.0469707091 0.0453389373 -1.796985e-02 -3.943639e-02
## [96,] 0.0132492143 0.0562672060 3.596085e-03 1.949601e-02
## [97,] 0.0402028224 -0.0080441089 1.461712e-03 1.048939e-02
## [98,] 0.0025384196 -0.0130582355 -1.408453e-02 3.403444e-03
## [99,] -0.0327142984 -0.0275644972 1.513022e-03 -7.353861e-04
## [100,] -0.2069422358 -0.0652489816 2.144969e-02 -6.508857e-03
## [101,] -0.1105311481 -0.0013877012 1.828318e-02 -9.785484e-03
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## [108,] -0.0547154320 -0.0165025183 1.460897e-02 2.125402e-03
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## [110,] -0.0774286268 -0.0086110360 -2.290418e-04 1.782624e-03
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## [203,] -0.0607609902 0.0155759941 -2.345218e-02 9.257839e-03
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## [302,] -0.0017966621 0.0053344794 9.336710e-04 2.709003e-03
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## [514,] 0.0443660379 -0.0127577223 1.385273e-02 5.862815e-04
## [515,] 0.0244686942 0.0136171599 -3.015268e-02 3.004115e-02
## [516,] -0.0464406428 -0.0461814081 7.006575e-03 -2.118240e-02
## [517,] -0.1804905504 0.0326011719 5.896892e-03 -1.843209e-03
## [518,] -0.0498431167 0.0469805320 -3.286808e-03 7.346996e-04
## [519,] 0.0216068656 -0.0476515075 -3.416270e-02 -1.304970e-02
## [520,] 0.1523810055 -0.0451309386 -3.033061e-02 1.749013e-02
```

```
## [521,] -0.0591849335 -0.0255713138 1.596715e-02 -1.397577e-04
## [522,] -0.0395616001 0.0091315682 3.740507e-02 1.008395e-02
## [523,] 0.0513025394 0.0081396144 -1.686257e-03 -1.284561e-03
## [524,] -0.1277410469 -0.0095049270 6.099755e-02 -1.943908e-02
## [525,] -0.1521848402 -0.0408818910 4.394310e-02 1.438141e-03
## [526,] -0.0241695923 0.0197707678 -2.631440e-02 4.108005e-03
## [527,] -0.0502031636 0.0248580682 -2.886409e-02 1.869812e-02
## [528,] -0.0157216742 0.0417373451 6.411718e-03 -3.945196e-02
## [529,] 0.0226840232 -0.0011725978 1.220802e-02 2.561845e-04
## [530,] -0.0128800796 0.0008940912 4.154574e-04 -2.483717e-03
## [531,] 0.0142770079 0.0250853629 -3.624568e-03 -3.363374e-03
## [532,] -0.0065668831 0.0016770508 5.785196e-02 -3.674048e-02
## [533,] 0.0776102509 0.0225164413 -5.199929e-03 -1.656424e-03
## [534,] 0.0328960130 -0.0287557957 -4.530040e-02 -6.688662e-03
## [535,] -0.0730291458 0.0153900883 -5.554195e-03 -3.353871e-02
## [536,] 0.1253022047 0.0006555599 1.231382e-03 4.937076e-03
## [537,] -0.0282099570 0.0141624831 -2.623194e-03 1.917073e-03
## [538,] 0.0033372312 -0.0091753971 -4.953264e-03 6.203430e-04
## [539,] 0.0828029895 -0.0089573807 -1.291559e-02 -4.762266e-03
## [540,] 0.1346756425 0.0092818155 -4.752541e-03 3.466008e-03
## [541,] 0.0686944450 -0.0043570810 1.903166e-02 -1.182699e-02
## [542,] -0.0958839897 -0.0266441447 3.100822e-02 5.635812e-03
## [543,] 0.0391931001 0.0061086959 -2.330714e-03 -6.398906e-06
## [544,] -0.0884505800 0.0230539154 -5.910469e-02 -6.112608e-03
## [545,] 0.0461121057 0.0512587241 -3.534171e-02 7.330315e-02
## [546,] -0.0181344013 -0.0079308291 -5.151052e-02 -9.360687e-03
## [547,] -0.1284012027 0.0731570237 2.171499e-02 3.565962e-03
## [548,] -0.0652554774 0.0267267995 -1.453407e-02 1.372139e-03
## [549,] 0.0144803135 0.0290173096 -1.418995e-03 -4.295967e-03
## [550,] 0.0020030080 0.0038173956 1.280350e-02 8.471746e-04
## [551,] -0.0460309869 -0.0698233075 2.414560e-04 1.845563e-03
## [552,] -0.0306835658 0.0147021330 -5.820844e-03 -1.138799e-03
## [553,] 0.0013530758 0.1356038629 -3.808346e-02 3.787346e-03
## [554,] -0.0092761156 -0.0162335677 -6.313714e-03 8.823042e-04
## [555,] 0.0583525074 0.0104867651 -7.650307e-03 -7.688319e-03
## [556,] 0.0365396314 0.1285384513 -1.926274e-02 -3.420722e-03
## [557,] -0.0825366557 0.0120057039 -9.118959e-04 2.230323e-03
## [558,] 0.0596863336 0.0432872298 -3.428184e-03 -7.399596e-03
## [559,] 0.2118838404 -0.0181142975 3.600294e-02 2.217638e-04
## [560,] -0.0265311428 0.0214659480 -5.356050e-03 9.112897e-03
## [561,] 0.0612930701 -0.1122543797 -6.714921e-02 -1.368662e-02
## [562,] 0.0536497985 -0.0177312339 -1.023821e-02 -3.139075e-03
## [563,] 0.0572798895 0.0130302469 -1.209907e-02 -5.552985e-03
## [564,] -0.0318972163 -0.0229019521 -3.253642e-02 -9.340876e-04
## [565,] 0.0048045501 0.0281111851 4.728344e-03 -5.899725e-04
## [566,] 0.0068911201 -0.0175118860 -2.580188e-04 5.826148e-03
## [567,] 0.0471706437 0.0507946253 1.250840e-03 3.425887e-03
## [568,] 0.1477176175 0.0013794388 -1.939084e-03 -1.131610e-02
## [569,] -0.0426995400 -0.0728970801 3.245528e-02 -6.532395e-03
```

```
# Identifying the scores by their diagnosis
diag_pca <- cbind(data.frame(diagnosis),cancer_pca$x)
diag_pca
```

##	diagnosis	PC1	PC2	PC3	PC4
## 1	B	2.50194550	-0.096948052	-0.4489597008	2.334117555
## 2	B	1.46743888	-1.686300588	1.1542038774	0.336210935
## 3	B	2.92902790	-0.383199241	-0.8955890691	-0.116482776
## 4	B	1.99534236	-1.330465924	1.1172875551	2.050276131
## 5	B	2.50025164	2.010350968	-0.7584034865	1.986216853
## 6	B	2.01830827	-0.782420945	0.1125197163	-0.653227961
## 7	B	1.09348444	-1.293936715	1.4189069050	-3.356740242
## 8	M	-4.54183732	-3.099372405	-2.2612175075	-2.200950296
## 9	B	2.69412302	-1.421092569	0.9516155379	0.007476733
## 10	B	2.08173487	-1.812218651	-1.1720406658	1.137014305
## 11	M	-5.08416948	2.000137924	-0.7512306390	-0.076186113
## 12	B	2.42030088	-0.010337119	-0.8066693631	-0.070644793
## 13	B	0.42109190	-0.121776139	-0.5410059634	-0.365041743
## 14	B	3.72127373	1.784296564	1.2485358731	0.129289545
## 15	M	-2.50683608	2.519115720	0.7679362671	-0.814023090
## 16	B	0.10377563	0.205899348	0.3621314863	-1.000054021
## 17	B	0.71352261	1.556166034	-0.7062636839	1.691564007
## 18	B	2.87310984	0.482741343	-0.4233003513	0.743662891
## 19	M	-7.18617681	-0.044244030	2.0258549210	0.087485348
## 20	B	1.88203558	-1.429919420	-1.0832586631	1.705943528
## 21	B	2.83789903	0.393325503	-0.3614479874	0.812880484
## 22	B	-0.33608363	-3.535859467	0.0806908813	-1.552997026
## 23	B	2.34862913	-0.683708564	1.1197182845	-0.295906284
## 24	B	-1.40123647	-1.312422336	0.6099807955	1.894731466
## 25	B	1.35378261	-3.553367632	1.7257338713	-0.038167893
## 26	M	0.36757240	-0.131511726	-2.0517854155	1.050460940
## 27	B	1.96773313	0.957849703	-0.1042456721	-0.088392018
## 28	M	-3.99611352	-0.554685751	-2.7691318844	-1.904122982
## 29	B	1.94377603	-2.549019049	-1.0010501923	0.023504095
## 30	B	3.14007439	1.481392013	-1.2100992985	0.450805086
## 31	B	4.02708469	2.536551854	0.3201023892	1.521284235
## 32	M	1.97963602	0.413646828	-0.3874100402	-1.737038268
## 33	M	-5.92051113	-1.235591140	1.6913474333	-0.457479353
## 34	B	1.97245619	0.170054921	0.3939115987	-0.773371688
## 35	B	1.13538658	1.400448882	-0.5969586419	1.997234324
## 36	B	1.60653102	-0.299793694	-1.5936523874	0.905026936
## 37	M	-2.69844100	4.420137831	0.2529603192	0.501660080
## 38	B	0.73892075	-3.702602060	0.6503933965	2.236743562
## 39	M	-1.20949419	2.030094176	0.9393311840	0.254246634
## 40	M	-2.62903181	-0.590514951	-2.0090573484	0.268426633
## 41	M	-3.37008639	3.350976309	-1.7985794564	-2.074346194
## 42	M	-6.13756604	1.994599998	-1.6150397012	0.976403193
## 43	M	-7.11812078	-10.263194605	-3.1473916044	0.121405084
## 44	B	2.39686919	-0.995805736	-0.7705310186	1.553017799
## 45	B	3.17370620	2.079136566	-1.0061465196	0.391506420
## 46	M	-1.27212896	2.434528242	2.4069357804	-0.101418611
## 47	B	4.64234140	0.803512818	0.2422677400	0.480313638
## 48	M	-10.91746308	3.672587536	-0.9712242881	2.355734704
## 49	B	0.48966745	-0.091895060	-0.9743219974	-0.323695888
## 50	B	1.45902605	-0.595347371	1.1194916680	0.093040615
## 51	M	-1.31071031	-2.163284902	-1.7896139702	-0.014878073
## 52	B	0.37899113	0.625986823	-1.3115137359	1.157684780

## 53	B	2.71068202	0.214197953	-0.3290871583	0.057868635
## 54	B	0.68520263	1.130602189	1.2114889784	-3.846059245
## 55	M	-9.02109721	0.634635478	0.1673933507	-0.747308053
## 56	B	-1.16002006	-2.522911903	-1.9063958530	0.630738306
## 57	B	1.89187412	-1.675750393	0.1045973919	1.222231193
## 58	B	3.88962340	-0.814349374	1.0112433799	0.825915255
## 59	M	-12.87573436	-2.324575387	6.2450981501	1.985364374
## 60	M	-3.77524767	1.881732616	-1.7830011567	0.394615080
## 61	M	-9.07163621	-2.032511308	2.0795521059	-1.035032956
## 62	M	-5.06161345	1.774290825	1.1401674892	-0.682053867
## 63	M	-3.52696866	-2.336951122	7.7489267037	-0.523555170
## 64	M	2.15342402	1.913412787	-1.2005079052	-1.109606651
## 65	M	-4.72102980	-3.317643560	-1.4912712243	2.043051365
## 66	B	1.32751070	-1.468128570	0.8509474426	-1.139782681
## 67	B	2.47879771	1.413541128	-0.3300293450	0.329186462
## 68	B	3.28383340	3.154081348	0.1797972729	0.733291311
## 69	B	1.86854679	0.894248748	-0.8926930624	1.030400589
## 70	B	1.76125095	-0.787484445	-1.9530764794	-0.715597778
## 71	M	-0.75772517	-0.898784355	-2.7028656356	-0.287112874
## 72	B	3.07004076	-1.137654329	0.3645176409	-0.621084533
## 73	B	-1.56317061	-6.506081229	2.1551984163	0.046802299
## 74	B	1.63922138	4.568310634	0.7665801344	1.643167615
## 75	B	0.75307340	3.062757775	1.3999768264	-0.929764763
## 76	B	0.93888949	-0.932974158	-0.0515719454	-1.346989022
## 77	M	-0.35976583	3.555468206	-2.2591684707	0.223134444
## 78	B	3.51923913	0.655941140	0.5770684508	-0.005683076
## 79	B	2.12321200	0.022804183	-0.0079139450	1.771500671
## 80	M	-2.77132199	1.087548931	-1.1390502599	0.396154946
## 81	B	1.97882278	1.835388762	-0.3024160196	0.554071039
## 82	B	3.35841683	1.098081357	0.1255485894	0.835385947
## 83	B	2.48784540	1.182801959	0.3238305432	-1.244671309
## 84	B	-1.25193513	-1.025145982	-0.1126310289	2.057308860
## 85	B	0.93178328	-2.309906917	-1.6003994900	1.667412705
## 86	B	4.31206406	1.971577569	-0.2802141590	1.579424140
## 87	B	3.14232842	0.885778200	-2.1383772174	1.422536047
## 88	B	1.85744292	1.568886080	0.8181346387	-3.918373504
## 89	M	-4.20063730	5.106542143	-0.8039110546	-0.852966939
## 90	B	0.62500097	-0.643566700	-0.5024130627	-0.013864636
## 91	B	4.06387726	1.242978608	0.5530591326	1.708039317
## 92	B	2.55604475	0.754405572	-1.6220992846	0.057008703
## 93	M	1.91095867	3.109332934	-1.0918757059	-1.056248694
## 94	B	3.17353516	2.072192725	0.0653368157	-1.864627331
## 95	M	-6.50582706	-8.018131761	-0.3314399120	-2.757528828
## 96	M	-1.77786660	0.254481260	-1.7460651293	1.030151031
## 97	B	2.00452164	0.287116039	0.5844453196	-0.335501280
## 98	B	2.87272100	0.263011629	-0.4821301150	-0.243167336
## 99	B	2.97732093	-1.810950696	-0.2218200555	0.389630689
## 100	M	-10.75407134	2.235395747	-0.0150317513	-0.376563477
## 101	B	0.74369721	-3.149394191	1.4666856924	-0.306471973
## 102	B	5.56419667	0.480329489	4.0666384040	-2.307360378
## 103	B	3.15974344	-0.414099653	-1.1126449042	1.963719390
## 104	M	-0.22502189	1.553242547	-0.8230668033	-0.648931048
## 105	B	3.22993309	1.166555416	0.2405502778	-0.991857082
## 106	B	2.20667901	-1.291744626	-0.8964793212	0.699329128

## 107	B	0.98492738	-0.795767487	2.3452665725	0.173830356
## 108	B	1.23832538	-1.577605200	-1.2869771554	0.101176628
## 109	B	2.55333527	-0.229205082	1.3975774444	-1.955998009
## 110	B	3.34331455	0.019535956	0.4886576929	-1.133840406
## 111	B	0.75467299	-1.802314504	-0.5675651783	-0.563776953
## 112	B	-0.23405551	-6.909577147	0.6432228540	-1.991372884
## 113	M	-3.32563601	1.312453602	0.6822569181	1.015191328
## 114	M	-4.34396173	-4.850419127	-2.7395300114	-1.482475038
## 115	B	3.54319152	1.279452421	0.9941661042	-0.596285222
## 116	M	-2.46541768	1.489076147	0.5631340431	-2.254085759
## 117	M	-1.24815169	-0.399600312	-3.8408229784	-0.729563054
## 118	M	-4.13838217	-0.780943254	-0.9077267332	-0.008248176
## 119	M	-4.93583227	2.834367243	0.8654055442	0.349982907
## 120	B	-0.35258994	-2.130394017	0.6917292948	0.193867619
## 121	B	3.14475887	1.868857446	-0.6929978118	0.305619965
## 122	M	-4.96178269	3.255662851	3.3541117097	0.126932945
## 123	B	3.07589792	0.303342578	1.2318930380	-2.188096474
## 124	M	-5.30134864	6.705490137	1.4169226015	1.792384917
## 125	B	3.32800427	-0.479244890	-0.8989743659	0.806462957
## 126	B	3.05868796	0.176163451	0.6036047514	0.267996089
## 127	M	-3.20194758	-4.058183169	-2.7060133717	1.310403583
## 128	M	0.54660499	1.310515958	0.9688659512	-1.471547838
## 129	M	-1.91347476	3.524061808	1.1921877006	0.358825247
## 130	M	-0.54620527	-0.365054558	-0.3894794319	-1.891669003
## 131	M	-4.93667851	-3.019620986	-1.7627540211	-0.674128621
## 132	B	0.37675040	-0.123705021	-1.0182512870	-0.152079817
## 133	B	2.37505453	1.675406255	0.3641592639	-3.003351619
## 134	M	-6.42967129	3.562223895	2.3970024123	1.196760812
## 135	B	1.24613355	-4.092640542	-0.3296484329	1.025456769
## 136	M	-4.93900909	1.524965221	-1.7377797515	0.042748150
## 137	B	3.59610065	-2.599196504	1.8549658372	0.093409236
## 138	B	3.65596070	0.668084254	-0.9222607586	1.508003180
## 139	M	-3.32807721	1.589791411	1.3853613310	-0.695880706
## 140	B	3.45171557	0.493645518	-0.1687036600	0.578352099
## 141	M	-3.05717681	1.867826869	2.5297619845	0.151065606
## 142	M	-9.17512669	-1.969538383	-1.1705947085	3.636132897
## 143	M	-3.78612656	3.570277327	2.0277209606	-2.476509024
## 144	M	-4.74708917	-3.020362883	-0.1740351662	-0.604178954
## 145	M	-3.49819558	-2.189440708	-3.8933665908	-1.307716516
## 146	B	3.31199304	-0.159026138	0.5204251577	-0.502275645
## 147	M	-2.65735509	-0.058420105	-1.4841126892	0.033967958
## 148	B	0.78154772	2.116914996	0.2926301717	0.086811635
## 149	B	4.02593835	1.402315477	3.1373574119	0.048370686
## 150	B	3.16092338	1.026915066	-1.5028142442	-0.594200248
## 151	B	4.86998090	2.333703525	-0.1896292816	0.697303658
## 152	B	1.85254735	-2.538463969	1.9924625936	0.494722844
## 153	B	1.84126494	0.081472232	-1.4617360110	0.671064401
## 154	B	4.23789740	-0.187035082	-0.3338779135	0.587216485
## 155	B	-3.14113339	-4.243948078	5.8836153610	0.619438921
## 156	B	3.03053729	-0.335164808	1.1810683379	-0.145009044
## 157	B	3.49122498	2.628294411	-0.0956220793	-0.301117013
## 158	M	0.10005406	-2.267692611	-1.8890954371	-1.454440128
## 159	B	3.90121776	-0.729136663	2.1103085825	-0.761575134
## 160	B	1.57070979	1.199673442	-0.3918013345	-1.467088289



## 161	B	2.84805222	2.885829845	0.4913528507	0.609333144
## 162	B	-0.39881700	-3.715142277	4.5573395622	0.246226789
## 163	B	3.19482762	1.842380524	0.0730476205	-0.015662383
## 164	B	5.38991844	-0.556585142	0.5430028989	0.480171363
## 165	M	-7.24903297	5.474980658	1.8283919731	1.919299996
## 166	M	-9.49848726	5.572588077	-0.7193124915	0.241526929
## 167	B	0.81398320	1.264952402	0.2972668125	2.299175885
## 168	M	-3.27653012	0.981760715	2.4975002373	-0.094763769
## 169	B	0.97287731	-0.950362778	-0.8988725568	1.093720489
## 170	B	3.05107067	2.228865845	-0.4977435440	0.188926230
## 171	M	-1.69031709	-2.365213204	-3.0719795026	-0.080713640
## 172	M	-0.65718535	-0.450077454	-2.6813942566	-0.739975778
## 173	M	-2.14954157	-2.325644511	-0.8100154852	-0.149277074
## 174	B	2.01288744	1.100878086	1.3116132858	-1.598168836
## 175	M	0.95104246	1.675419077	-0.3721404026	-0.573502850
## 176	B	2.02343028	0.249627268	-0.6581670067	0.059344397
## 177	M	-4.63890499	2.291683054	-0.7716227078	0.645378358
## 178	B	3.78639838	0.320275220	-1.0674568156	0.603340211
## 179	M	-5.36869600	0.115824344	-1.7126596436	1.507048460
## 180	B	3.44899854	1.418741567	-0.1071372395	-1.702137890
## 181	B	1.47712989	-0.122692114	-0.2263450597	-0.488574076
## 182	M	-1.42434723	1.960376486	1.0839045026	0.760197981
## 183	B	3.31644321	1.433802935	-0.6130689322	1.787790448
## 184	M	0.22869703	0.688532733	-2.2837812338	0.990181994
## 185	B	3.21520178	-1.102627055	1.5935388949	-0.473290795
## 186	B	4.76954021	0.540142828	0.8597706560	1.743191407
## 187	M	-3.24697650	0.106441179	-2.9140544440	0.740083612
## 188	M	-2.16481716	2.810743587	-0.5976144490	-0.654054163
## 189	M	-1.82926213	4.304327234	0.2530941187	1.014778645
## 190	B	3.63907752	-1.585802244	0.7212294195	0.668811040
## 191	M	-1.33890020	1.264301286	0.5186113334	0.585216580
## 192	B	3.43205704	0.985905284	-0.7482663467	1.341428228
## 193	B	1.40300774	1.759456064	-1.5078772902	1.308112352
## 194	M	-4.07859093	-2.968555495	-3.0498013784	-2.485990722
## 195	M	-0.75287346	1.594332697	-1.5363512829	-1.074867388
## 196	M	-5.02530634	-0.781343899	2.6362573912	-1.638836435
## 197	M	-2.11291381	-0.300666426	0.8598358657	-1.445051908
## 198	B	1.59095196	1.611961540	0.2823855591	-1.080812600
## 199	B	0.84859271	-0.084394848	-2.7448026541	0.152345985
## 200	B	2.06227610	-0.326510578	-0.1456218446	1.026841470
## 201	M	0.99867305	3.350171877	4.2543601140	-0.532000286
## 202	B	2.31709971	-0.405624752	0.2634484397	-1.662371063
## 203	B	-0.14945474	0.427658843	-0.4868769250	-1.444332209
## 204	B	0.10891763	-2.279876952	2.0922165553	-0.338283979
## 205	B	2.16394913	-0.938596583	-0.1749286518	1.831737840
## 206	M	-4.08266081	-2.812412626	-0.5141617152	-1.974185172
## 207	B	2.80418141	0.311403175	-0.0807821084	-0.241162406
## 208	M	2.38745622	0.821899703	1.9514855274	0.071228350
## 209	B	4.65657121	3.057567171	-0.1123512300	1.515757901
## 210	M	-8.98977481	-0.606936867	-3.1640551169	-0.864188920
## 211	B	1.37464215	-0.007400690	1.5211249800	0.599184364
## 212	M	-2.16761997	-0.986024631	-1.9581424971	-0.738858263
## 213	M	-5.49097769	-0.955494860	-2.2199733939	-1.527989332
## 214	B	2.30350465	0.922467294	-1.1530825149	1.452187616

## 215	B	1.99531958	-1.906354886	-2.0271526600	0.900966300
## 216	B	2.38983518	-2.757958152	1.1893290588	1.805985521
## 217	B	1.18082935	-1.017898281	-0.7228424483	1.063295155
## 218	B	0.52512860	0.963874821	-0.3485778454	-0.537184068
## 219	M	-2.36906611	-3.961424731	-2.9267667306	0.924875051
## 220	M	-5.48555952	4.145099411	-0.6562594942	0.161879145
## 221	B	3.36739736	0.800646415	-0.8246480058	1.660919634
## 222	B	2.92432433	0.002755394	-0.9152429086	1.787544847
## 223	M	-6.57828205	1.467522312	0.3130793730	1.198241462
## 224	B	1.64233904	-1.717441602	0.4332022436	-1.524637599
## 225	B	4.65845853	0.222352429	1.5283762520	0.526800762
## 226	B	3.76722342	-4.387146807	3.9365144689	-0.285268179
## 227	B	-1.06673442	-8.289180715	0.4640803496	1.940495345
## 228	M	-4.53861239	0.799583755	-0.5577715706	0.921829616
## 229	M	-1.64280677	2.087042848	-1.0084390353	0.191905148
## 230	B	4.38667569	0.756350189	-0.4170181028	0.588888875
## 231	B	1.33059112	-0.776172394	1.2547857939	-3.772448530
## 232	B	3.64751113	1.238377720	1.3514834757	1.626472664
## 233	B	-3.58009537	-3.930791681	2.0113772036	-0.207429313
## 234	M	-2.24381118	0.337316241	-1.0803899740	-0.232872394
## 235	B	2.89656574	1.448675757	0.7698177588	-2.960092393
## 236	B	1.73014344	-1.002335191	-0.0906934116	1.063489830
## 237	M	-2.61807263	-1.547571448	-0.1721247834	-0.504081251
## 238	B	3.35636470	-2.676188168	-1.7638810132	1.373717970
## 239	B	2.56923218	-0.709022264	-0.4780858120	-2.349441576
## 240	B	2.28397274	-2.073809462	2.4199353830	-1.172161800
## 241	M	-0.45393258	-0.404503017	-1.0235114555	1.073947619
## 242	B	2.51450220	-3.253562631	-1.6677534812	1.172921141
## 243	B	3.99722047	-0.960234636	0.2031532378	-1.505410543
## 244	M	0.84277065	3.488917121	0.1474683803	-1.231377406
## 245	M	-7.07110609	-0.545834514	-1.3025778653	0.648525414
## 246	B	3.83723739	-0.496149052	0.9126200426	-0.544137621
## 247	B	4.70269768	0.430281382	-0.0008561058	-1.366618899
## 248	B	-1.00455722	-1.100757342	-0.6423927562	-1.753979749
## 249	B	4.56714653	-1.460709725	0.1063231304	0.278694417
## 250	B	2.21788936	-0.030096334	0.6365238667	-3.367658394
## 251	B	0.60538839	0.827782566	-0.7145914509	1.157382390
## 252	M	-8.71810460	-3.287712015	2.8625300217	-0.253772369
## 253	B	0.47808732	-3.700014104	1.9441730824	1.005952725
## 254	M	-6.29127392	-2.031817166	-3.1215379527	0.124631439
## 255	B	-0.34079274	-1.542560611	2.8064510060	1.928210419
## 256	B	2.62476369	-2.496988719	2.4294762979	-1.863859269
## 257	B	1.25268973	1.579051876	-0.3537337308	-0.916611334
## 258	B	2.93323571	0.488364553	-1.0216257612	-1.686773009
## 259	B	3.26242254	0.932985479	0.1833833847	1.093686111
## 260	B	1.23982397	0.182120665	-0.6080958795	1.594253100
## 261	B	2.01379503	-0.434976980	-0.1194601117	-0.156273940
## 262	B	2.05769335	-1.613579284	1.8388580521	-3.101215453
## 263	M	-1.42498620	1.035714965	-1.2853050001	0.531401234
## 264	B	2.48275826	2.354640224	-0.4584985010	-0.377768877
## 265	M	-4.55924187	-0.329218253	-0.7147911687	-0.713664643
## 266	M	-3.16294377	-3.405829538	-3.1165344333	-0.612514026
## 267	B	2.75792258	-1.085307017	1.6848196660	-0.498799733
## 268	B	0.31460901	-7.375250470	3.8218536136	2.144343377

## 269	B	2.87946321	0.995917330	-0.7438991960	-1.737888611
## 270	M	-3.78662739	1.013699567	0.8563038170	-0.744480316
## 271	B	1.89761823	0.671560181	1.4843187235	0.397964807
## 272	M	-8.17025666	-2.706886209	5.6446232863	-1.055831821
## 273	B	2.92226541	1.693164261	0.2627882599	-0.401797242
## 274	B	2.63091502	0.692201907	-0.5966191343	0.338798923
## 275	M	-3.46446115	2.259578599	-1.2741226314	-1.106397268
## 276	M	-12.27538365	7.534976906	9.9761684119	5.253259821
## 277	B	1.47792166	1.582683014	0.2883305714	-0.787112405
## 278	M	-1.25078953	1.892311705	0.5339969865	-2.075806241
## 279	B	4.69392206	0.767770063	1.5226677118	-0.764827757
## 280	B	4.19778142	-2.361801586	1.3370526100	-2.033652494
## 281	M	-6.21939189	-0.932468578	0.0559198046	2.543577973
## 282	B	4.42974415	0.781296321	-0.4855399867	-0.693621167
## 283	B	3.36918312	0.558479071	-0.2040622826	-0.567449025
## 284	B	2.21408235	1.231206989	-0.1507589647	1.455534428
## 285	M	-1.60810402	2.457264254	-2.0157869799	-0.381548843
## 286	B	2.28637139	2.455924452	-0.8495717882	-0.036313395
## 287	M	-2.50066195	-2.619856612	0.1943602737	-1.883628020
## 288	M	-3.37037453	2.315063721	-1.2401153351	0.556245329
## 289	M	-7.13162893	2.056655599	1.0245719092	0.737305466
## 290	B	0.23604874	-1.525815207	-2.2161873966	0.544847533
## 291	B	4.06322887	-0.117172872	3.2199823983	-3.443849844
## 292	B	2.61604614	1.094798217	-1.2582575963	0.909229429
## 293	M	-2.48998251	-2.281988826	1.3085887694	-1.172642347
## 294	B	2.22533885	0.351527308	-1.1073111389	0.182796136
## 295	M	-7.23741109	3.634422040	-0.2139444434	1.237671698
## 296	M	-8.63353979	3.459025489	-0.1785056134	1.172585880
## 297	M	-5.15473327	2.361867832	-0.4798488593	0.896135846
## 298	M	-4.93982745	4.094605135	-0.3619856118	-0.080241754
## 299	B	2.46469830	-0.607257344	-1.1796656632	2.202520525
## 300	M	-3.81333242	-2.315620428	-0.0011374585	0.679453389
## 301	M	-3.38202580	2.902611702	2.9416374165	2.852058366
## 302	B	2.78850338	2.522670559	-0.9109064348	-0.254420379
## 303	B	4.67980735	1.099639009	-0.2740666177	1.247122953
## 304	M	-2.21728118	-1.954232965	-2.2885576865	-0.347741914
## 305	M	-1.79613487	-0.179903922	-2.6335419506	-0.651563979
## 306	M	-3.32515110	3.945384235	-0.1802391699	-2.123830028
## 307	M	-5.90260783	-3.499457891	-3.2561723319	-3.921868793
## 308	B	2.47674615	0.325121610	-1.5017622956	0.465315324
## 309	B	-0.40293939	-1.063479658	2.2720166682	-0.454264062
## 310	B	0.97099433	-0.446279851	-1.4594153556	1.984105063
## 311	M	-4.03668377	2.950384280	1.6570189155	0.234392741
## 312	M	-1.30868548	1.761103474	-1.6981763997	0.693068298
## 313	B	2.23787877	1.289134995	-0.9244961908	0.435851359
## 314	B	1.27828094	-0.845568770	3.0438878228	1.181996915
## 315	M	-0.98258973	-0.997465519	-2.3161487140	-0.284244035
## 316	B	3.06592622	2.177572561	-0.2860272961	-2.932488426
## 317	M	-3.94222512	1.957966685	1.3999456125	2.934972617
## 318	M	-8.40721651	4.154354053	0.0564816333	-0.556647635
## 319	B	2.02880128	-1.264820521	0.4849104933	-1.122238796
## 320	B	1.21063322	1.305812364	-0.9600681561	1.705998765
## 321	B	-2.30766540	-4.391016775	1.7527424175	0.986368261
## 322	M	-2.75716304	0.337962638	-1.9212959898	-0.532709883

## 323	M	-4.38667401	2.106910355	0.5235549894	-0.756491191
## 324	B	2.04903657	-0.309392801	-0.5343870517	-0.493335379
## 325	B	4.47759348	1.733467485	-0.9114239429	0.767119669
## 326	M	-3.28115594	1.655238021	0.1053511791	0.448847365
## 327	B	2.32002306	1.367061430	0.2832989706	-1.225198444
## 328	M	-4.94412875	-2.398266796	-1.9352742691	-0.619670301
## 329	B	1.28699008	-0.074180875	1.1989425404	0.181278470
## 330	M	-7.34219116	5.219114040	0.2512487696	0.445824572
## 331	B	5.01541696	-0.577927104	-0.8518766118	2.165153839
## 332	B	2.24368335	0.447679622	-0.4837276950	0.191865316
## 333	B	4.38751753	-0.011142231	-0.9546015296	2.787802454
## 334	B	4.74646435	1.793365484	0.1407660257	1.557864917
## 335	M	-3.77316608	-0.864899791	3.6136080749	2.075271015
## 336	B	2.06024015	2.462482494	-1.4828903147	1.863251057
## 337	B	4.42549163	3.001985054	1.6444179948	0.184084166
## 338	B	-4.31582500	-9.199525903	1.4956708649	0.331499243
## 339	M	-4.66989046	0.953065243	-0.3259743279	-1.064085660
## 340	B	0.06248385	0.213528735	-2.2750542126	2.700479392
## 341	B	1.14691394	1.948967348	-1.2739318873	1.480544513
## 342	M	-3.59003122	2.210234996	-1.6750435814	-0.813771454
## 343	M	-2.10000735	-1.127785201	1.7393814581	0.279711479
## 344	B	-1.31311294	-4.793667784	-0.6589745753	-1.019753227
## 345	M	-1.36140479	1.163223258	-1.1703191740	-0.841912460
## 346	B	2.49572871	-2.595236994	1.6647884818	0.638899390
## 347	B	2.99349968	-1.625668220	2.5395986402	1.359313165
## 348	B	2.45895999	-0.901600050	0.3394183414	-0.362299509
## 349	M	0.72084892	1.958068868	-0.2325452407	-0.351124378
## 350	B	1.25989813	-1.068864432	0.2589017555	-1.238769486
## 351	B	3.21178488	2.227137473	-0.1963671300	1.135211741
## 352	M	-1.70852165	1.510710438	0.1013327971	1.920263759
## 353	B	2.15578208	0.826509643	0.5558642135	-3.002056105
## 354	B	2.23173048	-0.671785044	-1.0819686603	-1.086115548
## 355	M	-1.80399835	-0.734673424	-1.4761234432	-1.200705159
## 356	B	2.78878540	-2.309555755	0.4786568026	-1.604969641
## 357	B	3.45691371	-1.308443945	-0.0337157211	0.330228675
## 358	B	2.99913471	0.393406756	-0.6000451158	-0.209701932
## 359	M	-2.23156326	2.671724995	-1.6742616542	0.150510731
## 360	B	3.50337548	-1.795887616	2.7482853493	-0.846941117
## 361	M	-2.64182063	3.937812381	1.3188183197	0.224951506
## 362	M	-0.33748187	0.962045655	1.6782610683	-0.575043680
## 363	B	3.53454512	1.250355160	3.3557542193	-4.632734301
## 364	B	3.62918002	-0.767742600	-1.1017436835	2.073520369
## 365	B	2.59461099	-0.217007641	1.0077122264	0.673246457
## 366	B	1.66951097	-2.388763570	1.4885530344	0.883881984
## 367	M	-4.09294552	0.370471678	1.4100466686	0.715209141
## 368	B	4.08548593	0.486126777	0.6336680062	-3.394394708
## 369	B	4.03955715	0.233136340	-1.3488107029	2.437827496
## 370	M	-3.70269683	2.786982036	-1.7948849741	0.903922003
## 371	B	1.41360782	-1.510934480	-0.3655994091	1.120778638
## 372	B	2.31800321	-3.264867812	2.7622845766	0.591349171
## 373	B	3.81037876	0.906658903	0.4268162583	-0.942704028
## 374	B	2.98734956	0.667024320	-0.6033609456	-0.592465215
## 375	B	2.83865073	1.008610390	-1.5036215421	0.454979435
## 376	B	4.06414082	0.560902528	2.1406180234	1.393035369

## 377	B	1.30384281	1.813106080	0.3434531491	-1.833825790
## 378	B	0.40517343	-2.167385179	-0.9485730134	0.368731742
## 379	B	4.34480772	0.321428969	0.3739680132	1.110722971
## 380	B	2.48892114	-0.466170166	-0.6110439409	0.997150306
## 381	B	2.61665638	1.825922292	0.7331069540	-0.809708160
## 382	B	3.39492398	-0.752415278	1.7552820174	-0.264533585
## 383	M	-0.61757370	-0.144514295	1.6690516114	-1.112985137
## 384	M	-2.97464823	-0.777096467	-3.5052443958	0.044352274
## 385	B	2.33684795	-0.794558326	-0.3594567353	0.440698429
## 386	B	2.68114201	-2.316395007	-0.0519470212	0.338667973
## 387	M	-7.66552765	3.058434306	1.4197164199	0.572964284
## 388	B	3.58030465	-0.892489488	0.2582132651	-0.253481025
## 389	M	0.43685122	1.383500063	-0.1007785980	-1.928253946
## 390	B	1.17007394	1.655136843	-0.7647130395	1.761492887
## 391	M	-3.23818455	1.763005360	-1.8075976461	-2.484713739
## 392	B	4.86780798	2.133573665	3.3837236782	-5.101413172
## 393	B	3.15904838	1.681196178	-0.5187689280	0.197717109
## 394	M	-4.95116280	1.325613003	-1.4719240988	-1.470236646
## 395	B	2.66608395	1.498916434	-1.6871451758	0.998559342
## 396	B	3.42501230	2.437484016	0.0095606468	0.796083965
## 397	B	1.67399207	-0.869475578	-1.0224672822	1.320437371
## 398	M	-0.24737404	0.523777831	0.5616946601	-0.100682911
## 399	M	-4.96439202	1.315627678	0.8067436117	-1.264229625
## 400	B	3.90492025	-1.186740773	1.5498037503	-0.929696937
## 401	B	3.25449802	-1.287594856	-0.2183620911	0.304629161
## 402	B	2.20500981	0.729605522	0.2426828073	-0.028777747
## 403	M	-4.97925718	1.111992832	-2.5979470523	-1.220541842
## 404	M	-3.51135449	3.838551293	-1.0694296094	1.387036189
## 405	B	-1.36369824	-2.115640263	-0.8534680357	-0.724119237
## 406	M	-2.72842099	3.928028215	-0.0674857979	0.311125878
## 407	B	0.10236288	0.116730847	-1.6978103517	1.526461865
## 408	B	2.96896391	-0.379544939	-2.0701544207	2.059968651
## 409	M	-3.09986006	-1.584315906	-2.6198435377	0.606807912
## 410	B	4.03753336	-1.162078357	0.1903419552	0.937378110
## 411	B	-1.01759526	-2.370490183	-1.6223768308	1.140072703
## 412	B	4.00328560	1.372943228	-0.3043402577	-2.645779055
## 413	B	4.34627532	0.890970685	0.6179728858	0.433374031
## 414	B	2.60228779	0.480879027	1.8459991689	-0.423835743
## 415	B	2.47131113	0.137828348	1.7630774014	1.562701227
## 416	M	-4.74381108	1.469838574	-1.2940813424	-0.047002440
## 417	B	3.25989047	0.411816872	-0.7088635132	0.660796224
## 418	B	-0.28873282	-0.238193582	-1.1125759564	0.948526591
## 419	M	-6.21759203	1.379634010	2.6758285584	-1.062873542
## 420	M	-2.38825669	-4.847580637	-1.0518115676	0.352826796
## 421	B	-7.07789490	-12.554883895	7.3405395029	1.266306390
## 422	M	0.67853348	2.104165275	-1.4125558491	-1.044128093
## 423	B	3.74487498	-0.254089331	-0.1134712705	1.931935530
## 424	B	-1.28796097	-7.729781497	-0.6718208447	2.878456242
## 425	B	2.66132173	-0.540236395	1.6828861216	1.212992003
## 426	M	-1.69886069	-1.527444481	-1.7279018644	-1.417367198
## 427	B	1.93311747	-1.466669264	-0.1232268565	1.824847037
## 428	B	2.19720576	1.796392965	-0.4618512427	0.956953854
## 429	B	3.87799290	-1.081555731	1.8463011111	-0.422304964
## 430	M	-5.24194147	-3.905260300	-0.8455874001	1.677007487

## 431	M	0.64371117	0.899260215	-2.1473835938	-2.144783622
## 432	M	-2.68931058	1.927421355	-0.9955546145	0.462605135
## 433	B	2.17670829	-0.501863117	-0.9565264470	0.206102818
## 434	M	-3.70686636	1.045836713	0.4816649717	1.405224666
## 435	B	0.31260041	-2.188432075	0.0360614069	-0.484602153
## 436	B	3.15083363	1.764061105	-0.0632294997	1.509996120
## 437	M	-0.01524751	3.448970079	0.2683611903	0.485325701
## 438	B	2.82107844	0.962685843	-0.4077529743	0.469826563
## 439	B	4.13798735	-2.404639228	-1.2300675528	2.033618977
## 440	B	0.60139962	-1.785240622	1.4666782849	-0.166436664
## 441	B	0.53352373	-1.273635188	-0.9336863953	0.430309268
## 442	B	1.93007176	1.131792203	0.4550268686	-1.146989409
## 443	M	-2.76695531	-0.569358293	-0.6252299679	0.500201389
## 444	B	1.27740734	-0.521156760	-2.2513060674	1.663647265
## 445	M	-3.35826618	2.162947995	-1.0565262725	-4.361530635
## 446	B	3.55786464	-1.660931769	0.4482697727	2.071446564
## 447	B	1.83618421	1.602212545	1.2948376261	-0.801846011
## 448	B	4.62757459	1.830934754	0.0434021735	0.099618868
## 449	B	0.39315730	-2.277710841	0.6189674261	-0.422007359
## 450	M	-3.63473825	1.910328910	1.5351454389	-1.341170932
## 451	B	3.88022769	-0.518846486	-0.8185369950	1.014783257
## 452	M	-1.77103983	-2.782678257	-0.9305531747	-3.076978087
## 453	M	-4.69388630	0.188522351	3.6947443763	-0.968598650
## 454	B	1.08027822	-1.801568388	1.7689836487	-1.612246835
## 455	B	1.93304443	-0.895951051	0.0345573012	-0.555885766
## 456	B	0.40183385	0.402263545	-1.0023283842	1.347274382
## 457	B	0.83838745	-1.966762653	0.7725877851	3.437948548
## 458	M	-6.62685720	6.006832709	1.0015365559	-2.885629142
## 459	B	5.35125402	-1.025804930	0.3181294790	1.369092486
## 460	B	4.97367372	3.380264972	0.4093731190	-1.563279652
## 461	M	-16.46938497	8.001283491	6.8227122980	2.178064474
## 462	M	-4.43287778	0.980297785	1.3946494971	-0.555251668
## 463	B	3.29059930	-0.207287422	-0.6465120094	0.616613224
## 464	B	3.43847027	2.154949388	0.2409668794	1.518021787
## 465	M	-7.08380326	-2.033853631	-0.0709913272	2.594994840
## 466	B	0.92117411	-2.481318017	0.3551849407	0.264808325
## 467	B	3.85446131	1.516422548	-1.1629509462	0.813792591
## 468	M	-0.97691061	2.195771085	-1.7282163142	0.969959641
## 469	B	1.29999759	-3.469659371	1.1030087446	0.771752001
## 470	B	2.12740559	1.188622789	0.4616456305	0.863254679
## 471	B	1.71986719	0.542564358	3.2518722785	-0.059043180
## 472	B	2.99689351	2.731643097	-0.1890402758	-0.404471752
## 473	B	3.74961031	1.409849793	1.6902313540	-0.543500944
## 474	M	-4.30662137	4.672237959	0.0235188886	-3.658236399
## 475	B	2.04159305	0.905201564	2.8185006831	-2.861454997
## 476	M	-1.88824118	2.374723415	-1.7088784564	0.711253582
## 477	B	1.55874214	-0.982545866	1.1750816342	-1.757890448
## 478	M	-4.48999960	4.277621617	0.4603975344	-0.472569054
## 479	B	0.42300838	0.797151507	-1.1153035345	-0.087755288
## 480	M	-2.77998463	-3.392976475	-0.7521116151	-1.334441777
## 481	B	0.77614055	0.052750091	-1.1645115054	2.510123359
## 482	M	-0.60979819	-0.647069698	-0.2164656954	-1.091856046
## 483	M	-6.04737544	0.739789652	-0.3875141402	-1.053516423
## 484	B	-1.16246198	-7.004627198	4.2606786726	-0.308147895

## 485	B	4.04176095	1.353040592	0.5127792697	0.841962897
## 486	M	-6.16693990	-5.117734958	0.4877032413	0.955645338
## 487	B	2.68517460	-1.442920215	0.3367702304	-0.241159207
## 488	M	-13.03506747	-1.004983354	0.5311678616	1.492210275
## 489	B	2.79463414	1.073832317	0.8210316872	-1.097659561
## 490	M	-3.75325184	-5.996140633	-4.8357917197	-1.151186016
## 491	M	-3.09556060	1.224625925	1.2377328737	0.626478204
## 492	M	-10.35592316	-1.694906212	-1.9057410023	-2.349739772
## 493	M	-2.80883133	-1.280874054	-2.1763518377	2.700578691
## 494	B	2.13976976	-1.520474753	0.1761986584	-0.499332004
## 495	B	2.58210428	-3.135038371	1.4011848989	-0.757874406
## 496	B	0.20588012	-1.084141740	-0.6862811811	0.626860697
## 497	B	2.11977193	-1.852084367	-0.5520734905	-0.468183290
## 498	M	0.28415442	0.145945995	-3.2352065154	-1.039955783
## 499	M	-6.39728226	1.830013556	0.5032329987	-1.698616527
## 500	M	-3.69647780	-1.057918785	-3.4310567524	-4.803225993
## 501	M	0.74620212	2.435993214	-2.0302544596	-0.453035176
## 502	M	0.81368970	2.647839565	-0.5156845929	-1.664502015
## 503	M	-4.42147784	-1.411711503	-2.2150775265	-0.211780495
## 504	B	-2.03452475	-6.425374063	1.2724599041	-0.099902061
## 505	B	-0.63831360	-3.427027880	0.6106901398	0.232945182
## 506	B	3.66054805	1.312233041	0.4831790551	-4.606045057
## 507	B	4.50412687	3.163152158	-0.2168751969	0.398921843
## 508	B	2.76873417	2.152881994	-0.0536981339	1.615546908
## 509	M	-8.72659351	0.555855882	0.8428759683	0.402161897
## 510	M	-6.00904695	0.105313185	1.7442354073	0.939652604
## 511	B	1.58160293	-0.580754994	-1.8093603808	1.118841070
## 512	M	-0.33466018	3.133976261	-0.1416830569	-1.806826702
## 513	M	-2.89047627	-4.017286035	-2.9923030112	-0.337842490
## 514	B	2.37505103	0.725942626	-1.5357978170	1.845147722
## 515	M	-4.19709874	-1.189911932	-1.6089726944	-0.974578499
## 516	M	-2.74460834	-3.476536508	-2.4634009979	-1.019516606
## 517	M	-2.38120246	3.750159029	-0.5797185731	1.126446585
## 518	M	-5.73742406	1.079400718	-0.5326192329	0.902675836
## 519	M	-3.29377188	1.117043191	0.7711039905	1.000309242
## 520	B	-0.30821634	-2.085558711	-2.0794937290	-1.073778856
## 521	B	1.28839449	-2.553856815	-0.0911444274	0.772815346
## 522	B	0.78632237	-0.660183210	-0.6558631717	0.214280882
## 523	M	0.93673811	2.099509593	1.3988917258	-2.872373307
## 524	B	5.47344760	0.672196573	1.4758664356	-2.283033549
## 525	B	4.55695054	-3.526077823	-0.2041227666	1.084674429
## 526	B	2.28611591	-0.014487357	-0.4674202069	0.300346220
## 527	B	1.44511948	0.217810147	-1.0353200872	-2.023720743
## 528	M	-0.84527881	2.292676412	0.5048986202	-0.018565599
## 529	B	2.98947391	-0.332674223	1.2726378839	-0.718293436
## 530	B	3.83781210	-0.896352307	0.7017898365	-0.217783148
## 531	B	0.69043773	-1.695054635	1.0177396721	-0.866008187
## 532	B	1.14834301	-5.592125893	1.3271094555	-2.186535737
## 533	B	3.92661587	2.050066562	0.7339364697	0.502946664
## 534	M	-2.96250508	-0.696175098	-0.9977727035	-0.536715654
## 535	M	-4.63303653	1.462743378	-1.2105920136	-1.209013820
## 536	B	2.00189285	0.196839703	-1.6545301304	1.034559190
## 537	B	2.84469305	-0.133127057	0.4745695745	0.472207485
## 538	B	3.34962817	0.063488601	-0.2871035394	-0.621116699

## 539	B	1.66922234	0.207833811	-0.1631375423	-0.194091500
## 540	B	2.82110178	-0.374649303	-1.3592772183	1.730834304
## 541	M	-0.44201240	2.775367202	0.3966928739	0.486732332
## 542	B	1.29865971	-4.962105055	0.3526022459	2.234331114
## 543	B	4.13725536	1.375072291	0.8551058344	-0.048917995
## 544	M	-7.22128200	0.010718318	-2.8799687746	0.040062109
## 545	M	-11.64894933	-4.761813536	1.9451698825	0.350864750
## 546	B	1.42496615	-1.399869981	-0.8450435069	1.102039048
## 547	B	2.09990574	-3.657502132	3.6257113913	1.551381636
## 548	B	2.39991037	0.246681497	-0.3378671702	-0.274970968
## 549	B	0.48590718	0.173477406	1.0135793621	-1.997904671
## 550	B	2.13997388	-0.103944360	-1.5001858808	1.113655093
## 551	B	1.35404318	-0.370549656	2.4529396180	-1.116387394
## 552	B	3.01378035	-0.244652955	1.9465697299	1.697858904
## 553	M	-6.34937295	-7.716748627	-4.2345641977	-3.414140485
## 554	B	1.53390730	-0.409744080	0.5850370461	-0.339481767
## 555	B	2.80247498	1.662304949	-0.2002936463	-2.229008377
## 556	M	-7.65724966	0.835800511	-2.1970463290	0.257856262
## 557	B	3.01791604	0.668841737	0.3570566166	0.567682198
## 558	B	-1.97984933	-2.321801686	1.2034762501	1.781761087
## 559	B	3.48514918	-1.615286352	2.6549210046	1.266803646
## 560	B	1.55955384	1.028960265	-1.3197775498	0.621701342
## 561	M	-1.28833307	-0.924570038	-1.5853581885	-1.044030076
## 562	B	3.13117092	0.759786107	-0.8078990191	0.734645380
## 563	B	2.55960867	2.489030874	0.1537135592	-2.100294779
## 564	B	1.81436070	-0.403841548	-1.2387230231	1.269441800
## 565	B	2.59208254	2.033925156	-0.0683395784	-0.169487840
## 566	B	2.43449839	-3.439805597	3.4401454793	0.511458026
## 567	M	0.39541303	0.975171322	-2.5944480530	-0.791160326
## 568	B	1.17806944	0.465701673	-0.5094579617	2.144876827
## 569	M	-3.62685594	1.938721085	-0.8802583979	1.389599791
##	PC5	PC6	PC7	PC8	PC9
## 1	0.697715477	-0.243005836	0.5092014591	-1.114233e+00	0.2840243356
## 2	0.459625382	1.230824782	0.2937433944	1.000046e-01	-0.0668399016
## 3	0.984413772	-0.258787224	-0.3303384517	3.599041e-02	0.8734350372
## 4	0.253038461	-1.553963404	-0.9692185222	-1.318521e+00	0.6254396236
## 5	-1.135370958	0.594036057	0.1198200600	-4.827970e-01	-0.2727816446
## 6	0.018415769	0.691445258	0.1454025895	6.214539e-02	0.2342453501
## 7	-0.951965047	-1.418752354	-1.2388811831	-2.165076e-01	0.9315565326
## 8	3.459973177	-1.081225510	-0.4658149824	3.804442e-02	0.2385509971
## 9	1.250335936	0.972459383	0.0819567466	1.751165e-01	0.6908540096
## 10	0.414757427	0.095284975	0.0625272462	-1.062398e-01	-0.1778243252
## 11	-0.385543991	-1.203709368	-1.0330083689	-4.662867e-01	0.4201199428
## 12	0.075814497	0.812108515	0.3060748681	8.738049e-02	0.2419410388
## 13	-1.511092195	-0.539258610	-0.0996748214	-2.485447e-01	-0.6655039982
## 14	0.520260616	0.758438841	0.0317275218	4.888299e-01	-0.3406210411
## 15	0.426551810	-1.573412378	-1.0849024065	-2.361521e+00	-0.9159464767
## 16	-2.991100602	0.118726637	-0.3446117463	-2.433840e-01	0.2389030176
## 17	-0.340941385	0.318471906	-0.2688675939	-7.889994e-01	0.4451436582
## 18	0.860313171	-0.466661042	0.3785832621	-4.549091e-01	0.0643287310
## 19	0.664035557	0.386491087	0.2202986848	8.037426e-01	0.7244786367
## 20	0.884175937	0.612680388	0.2058233138	3.130149e-01	-0.3910788638
## 21	0.040063252	-0.571512030	-0.3028143767	-5.915440e-01	-0.0424183692
## 22	1.956881414	-2.125361510	-1.0205658953	-4.133036e-01	0.4584351566



##	23	0.539770064	-1.227651735	-0.7812871502	1.186259e-01	0.0772507569
##	24	0.034197398	-0.374286225	-0.6669001959	-1.185580e+00	0.5997355807
##	25	0.343071810	-1.072827677	-0.7787326475	1.877774e-01	0.5411289008
##	26	-0.752865683	-0.873828006	-0.3348789581	7.399897e-01	0.2356607813
##	27	0.547006886	-0.201713972	-0.4460408631	-5.170205e-01	0.3532327453
##	28	0.524809460	0.183124494	0.0783370475	1.446612e-01	-0.3090054963
##	29	-1.204979082	0.646631112	0.4006972374	7.852818e-01	0.3136289323
##	30	-0.839570619	0.280170184	0.1822270867	1.342487e-01	-0.2564342902
##	31	-0.668651573	-0.025278377	-0.2111594348	8.752728e-01	0.2504173641
##	32	0.307044021	-0.619514542	-0.3518807381	-3.129277e-01	-0.3649050396
##	33	-2.884900796	-0.911391449	-0.6624347459	2.102538e+00	0.1788796291
##	34	0.853191162	1.603601454	0.2003580803	-5.664399e-01	0.2925186417
##	35	-0.528505811	0.113336816	-0.1466828996	-1.537758e-01	0.2944745573
##	36	-1.233932411	0.911780229	0.5368713244	2.472982e-01	-0.8199302475
##	37	-0.376615080	-0.145344472	-0.4292595370	3.156379e-01	-0.0735878263
##	38	0.337401750	-0.353164991	-0.1050608983	1.375170e+00	-0.6835159477
##	39	-0.091939830	0.723122865	-0.1826208659	-3.182262e-01	0.2516837803
##	40	-1.194710401	-0.415366317	-0.4097246157	1.162924e-01	0.7129563632
##	41	0.594049060	-0.349746811	-0.5153796187	-7.868544e-01	-0.4233846133
##	42	0.332878874	0.437175823	-0.2827684007	-1.055016e-02	0.5515347428
##	43	2.965445913	2.559415577	1.9484628103	1.286858e+00	-1.2715190317
##	44	-1.428655251	-0.315518485	-0.1701827591	1.254641e+00	0.1896129904
##	45	-1.421225837	1.274601480	0.4150196773	5.198808e-01	-0.0382748425
##	46	-2.164134739	1.332601472	-0.0878076702	6.289778e-03	-0.2399777549
##	47	-0.529696031	0.038151689	0.5680425674	1.774667e-01	0.0759580917
##	48	0.483077938	0.378240285	-0.5731740129	-2.068647e-02	-0.7579397801
##	49	-0.131359549	-0.846498664	0.0601963202	-1.069404e+00	1.1489867269
##	50	-1.092491404	1.075898588	0.1532310034	5.948280e-02	-0.1413657992
##	51	-0.166863596	0.531354820	0.1438185386	-2.550616e-02	0.4288271014
##	52	-1.781580029	0.687755054	0.9059044038	-1.176474e-01	0.1508802562
##	53	0.046815390	0.187173381	0.0086699045	6.930719e-01	0.3400918790
##	54	-1.434177469	-1.006835348	-1.0556025893	1.924850e-01	0.5774347910
##	55	-0.571766253	-0.077461298	-0.9337311465	-2.575898e+00	0.1304511617
##	56	-0.234081020	0.113413200	0.0158864112	-3.133097e-01	0.0826367605
##	57	-2.566361316	0.241970807	0.0853750457	5.407370e-01	-0.7043882363
##	58	2.132628805	-0.748171662	-0.1228793450	3.840828e-01	-1.9575022282
##	59	3.143767328	-0.480500118	-1.4838315679	-1.166848e+00	-1.3333929484
##	60	0.336620919	0.221883238	-0.3424202572	-1.235137e+00	-0.0330467256
##	61	-0.814114250	4.231125686	1.0601609757	3.713915e-01	-1.4678768121
##	62	-0.650295434	-1.733438062	-0.9399865276	1.670854e+00	0.4665486353
##	63	-2.691800431	-6.007545293	4.5786997347	-4.808517e+00	-3.2829570049
##	64	-0.451361168	0.903611778	0.2489926365	2.377796e-02	0.2246776108
##	65	0.022275985	2.846149314	0.9274806597	-1.051971e+00	0.0078196232
##	66	0.048274411	-1.716342795	-0.7924647757	7.167521e-02	-0.6189025573
##	67	-0.661062602	-0.407934869	-0.1681029771	-7.356165e-02	-0.3127034395
##	68	-0.390150526	0.462845696	0.6107179168	-2.264838e-01	0.0518516309
##	69	0.229769428	0.902860571	0.1149502893	-5.465184e-01	1.0699234087
##	70	0.626092114	-0.542495400	0.7053588675	3.859499e-01	0.1662943975
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##	72	1.439458140	-0.081786575	-0.3805157736	-1.141573e-01	0.7461520304
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##	74	-1.397621661	-0.588362883	-0.0583767518	1.468285e-01	0.0831299932
##	75	-0.901643353	1.425650760	-0.2131017559	-1.391775e-01	1.1464761531
##	76	-0.068349941	0.275258116	-0.0919395773	8.954692e-02	0.1974373642

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## 77 -0.779394631 0.524271271 -0.0128034231 -5.532844e-01 -0.3102295771
## 78 -0.021764084 -0.348111360 -0.1723096076 -5.573505e-01 -0.9612237931
## 79 -1.291026449 -0.272520924 0.5993920868 3.455491e-01 -0.2346390490
## 80 0.171847035 -0.588860701 0.2474676356 -7.814022e-01 0.0174919393
## 81 0.204874318 -0.170575115 -0.4633412263 -4.826599e-01 0.8113381681
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## 83 0.123510536 0.622956092 -0.1584406867 -1.109609e-01 0.3622054707
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## 86 -1.982828702 0.459583999 0.1001849001 2.378814e-01 -0.6265070059
## 87 -0.420519084 0.041491587 0.8195254366 -1.713726e-01 0.3347040070
## 88 0.215618482 -0.985897249 -0.7789707715 4.097159e-01 0.3679873834
## 89 0.466182541 -0.414373257 -0.6078054437 -2.533740e-02 -0.3183108069
## 90 0.105817554 -0.506259427 -0.3969890115 1.834544e-01 0.1821476589
## 91 -0.613862590 -1.362678733 -0.6811377003 3.858522e-01 -0.0856829421
## 92 -0.505254685 0.203990728 0.0411694355 1.009222e-01 -0.0088894614
## 93 -0.960001763 0.385676600 -0.1313055419 5.861534e-02 0.1555958414
## 94 0.206783972 -0.396541374 -0.2846822352 -1.731591e-01 0.0829576156
## 95 -1.607920461 3.509829035 1.0923653908 4.188991e-01 -1.7690401618
## 96 -1.183314722 -0.100693881 -0.1723514482 -5.352170e-01 -0.1900829181
## 97 -1.172587586 2.385001153 0.5314898567 2.040450e-01 0.1265666279
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## 101 -0.948920976 -0.434288612 -0.3670927931 -2.535144e-01 0.0298908022
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## 136 1.738797218 -0.745882017 -0.2413601820 7.892255e-01 -0.2641181710
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## 225 1.887849642 1.407330925 0.0468560562 3.116843e-01 -0.0701712176
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## 455 1.277336273 0.143179160 -0.0094924393 -4.945632e-01 -0.5567320357
## 456 -0.854399957 -0.505564208 0.2906189448 -9.169138e-01 0.5104806418
## 457 2.353723768 -0.513928567 -0.4603827565 -7.274195e-01 0.0752469121
## 458 1.693922797 -0.800865176 0.1059801294 2.238272e+00 -0.3024142908
## 459 0.918035196 0.197747633 0.1750629985 1.103471e+00 -0.7577024678
## 460 -1.039634881 0.972213346 0.0613577634 4.641145e-01 -0.1709756089
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## 463 -0.173755530 1.445997891 0.4287780163 9.970134e-02 0.3863305176
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## 465 2.033805629 1.197576346 0.1613564676 6.256264e-01 1.5679536333
## 466 -0.138496571 -0.865181646 -0.5595374935 1.356727e-03 -0.1110770362
## 467 -0.492554063 0.270345397 0.1120956238 1.051918e+00 -0.0680618115
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## 469 -0.210809159 -0.727717899 -0.4711492622 2.531774e-01 -0.2008830506
## 470 0.103054750 0.251641678 -0.1057119878 5.123864e-05 -0.4800224366
## 471 -0.094851341 1.152198677 -0.2111267799 1.069001e+00 0.9298893016
## 472 -0.409732471 0.771072297 -0.0582610367 -3.931354e-01 0.0088037559
## 473 -0.089467851 0.527308405 -0.7900417316 -6.515414e-01 1.3311120113
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## 494 -0.681683440 -1.399576113 -0.7333262784 -6.711072e-01 0.1390741282
## 495 2.779442989 -0.674274970 -0.5123611717 -3.675883e-01 -0.2577982561
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## 499 -0.555042544 -0.174914704 0.2699011927 1.312018e+00 -0.3639189284
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## 506 0.739689168 0.854322337 0.8189775503 5.978404e-01 0.4234131420
## 507 -1.387764377 1.115600639 0.2460418097 1.482496e-01 -0.2437776247
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## 509 -0.684357967 -0.111555172 -0.5870359618 1.582447e-01 0.8468674137
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## 511 0.396147154 0.399554575 0.0877683684 3.696481e-01 0.7888879917
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## 513 0.856546078 1.056096624 0.8035930710 1.914856e+00 -0.0773420415
## 514 -1.177832271 -0.835145378 -0.2533694525 6.888865e-01 -0.1530277775
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## 517 -0.624301073 0.126504812 -0.2880164341 4.489533e-02 -0.4265407888
## 518 0.180442702 0.401501725 0.4627803995 -7.145798e-01 0.0107030762
## 519 1.186358789 0.876604414 -0.4387806679 7.668161e-01 1.2399840083
## 520 0.216900864 1.085812059 0.5058615226 8.400594e-01 -0.4371144795
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## 547 -2.233469867 -2.114395650 -0.8081957168 -9.432418e-01 -1.8421874333
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## 554 0.782786302 -0.894587237 -0.8405641779 1.940928e-01 1.1871156118
## 555 0.202865323 -0.477813530 -0.3432493797 -3.471683e-01 0.1051644252
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## 558 -0.147789993 0.251920697 -0.3626127590 4.353937e-01 0.2326286970
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## 561 -0.415744943 0.538246638 0.1981949428 -1.711627e-01 -0.3821272428
## 562 -0.291094479 -0.378041455 0.5979027595 6.359910e-01 0.0592792417
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## 563 -0.982931938 0.508360818 0.0978379328 -7.479209e-02 -0.3961000621
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## 565 -1.199669593 -2.912078943 6.3549541802 -1.022389e+00 0.5507899151
## 566 1.040071996 -0.778232217 -0.8280782595 -3.072258e-01 -1.4838648589
## 567 -0.732682392 0.143309545 0.1622291787 6.767105e-01 -0.2361719308
## 568 0.243326085 -0.381443243 -0.4651849404 -4.463920e-01 0.2193897831
## 569 -0.998290771 0.430903635 -0.7083565669 -1.028141e+00 0.9819074456
##          PC10          PC11          PC12          PC13          PC14
## 1 0.324631968 -0.3245353286 0.049813058 -0.197602199 0.1134402667
## 2 0.426121795 0.4564028530 1.193575663 0.018074243 -0.2824291530
## 3 0.022221919 0.4208601858 -0.066872858 0.374354577 0.2585457288
## 4 0.056664698 -0.0691645986 0.970824091 -0.909683790 0.2179116906
## 5 -0.294394853 -0.3577533113 0.032662079 -0.355471385 -0.1480139869
## 6 0.736812390 -0.3671238648 -0.770297426 -0.495422912 -0.2992430567
## 7 -0.268145770 1.4215267394 -0.651509044 -0.317605617 -0.0768989591
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## 10 0.115976898 0.4204331325 0.121876014 0.370894853 0.0889674845
## 11 -0.605111938 -0.2121319871 -0.313470516 0.017825525 -0.5243954149
## 12 0.365639712 -0.5147696697 -0.280157220 -0.192180993 -0.1080586114
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## 17 -0.356377025 -0.2042292754 0.106942718 -0.218718022 0.2454187079
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## 19 -0.035828230 -0.4143312616 -0.180509270 0.407728236 -0.5324382470
## 20 -0.601850454 0.0441103882 0.124299485 0.145939132 0.5115730326
## 21 0.612853494 0.4625823225 0.573814548 0.582981787 0.2061430439
## 22 -0.241614991 -1.2598680070 0.668608689 -0.493546250 0.5802300560
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## 24 -0.574364571 -0.5339825379 1.401136999 -0.246671578 0.0654226217
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## 26 -0.380983925 0.1767583215 0.377895597 -0.117109454 0.0526819556
## 27 0.031001284 0.4943522435 0.147079625 0.145574923 0.1279045527
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## 33 -0.685443917 -0.5730072028 0.536670506 -0.036590848 0.4670135475
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## 49	0.168132472	0.3360503872	0.158833232	-0.127936108	-0.0136777774
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## 51	-0.153506324	-0.0460017260	-0.119745747	-0.571119519	0.3621168686
## 52	-0.031423916	-0.3271522641	0.224795779	-0.807611722	-0.0698368998
## 53	0.419273108	-0.2871617854	-0.436759742	-0.304735087	-0.1236165285
## 54	-0.420909087	0.5811021590	0.023606536	-0.092257069	-0.6272202408
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## 59	-1.265921901	0.0928340596	-1.602444959	-1.188441379	-2.5848047156
## 60	-0.275336180	0.1181909365	-0.245231889	-0.139029086	0.4446115297
## 61	0.090595486	0.8818677783	1.280208987	-0.829044278	0.9254453526
## 62	0.715730652	0.5263508693	0.469831998	0.144299513	-0.2815361240
## 63	-0.853070369	-1.4803193562	0.050154286	-0.502198461	0.1659755047
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## 65	0.134193099	0.2509691987	0.746328734	-0.790505731	-0.0209473709
## 66	-0.446067749	-0.0547424998	0.163928866	0.077153756	0.0269948508
## 67	0.420750283	0.2507792614	-0.219630328	0.110091758	0.3714389161
## 68	-0.085354010	-0.2050737760	-0.291533780	-0.316670554	-0.0166225842
## 69	0.207848206	-0.7168583818	-0.029404756	-0.480514750	-0.0544807716
## 70	0.427468571	-0.0607919911	-0.087709146	0.133992578	-0.1788309072
## 71	0.508863784	0.3946613000	0.592868819	0.001088494	0.2377575458
## 72	0.116026029	0.3608474135	-0.504952990	-0.394958928	0.2238715194
## 73	0.484341271	0.0259593576	0.569030386	-0.235367353	-0.7577073610
## 74	-0.985482890	0.7766363095	-0.245649224	-0.121243069	0.0337448636
## 75	-0.257522807	-0.0355827346	-0.517525386	-1.136521744	0.0506356363
## 76	0.209945627	-0.4752791887	0.019983397	-0.314225761	0.3847227125
## 77	-0.254991746	-0.1185528566	-0.363119211	0.233407007	0.0101145900
## 78	0.729290126	0.2976772228	0.178007654	0.096254953	-0.2084783603
## 79	-0.077683191	0.0927109467	0.082048795	-0.204737909	0.2065594353
## 80	-0.332934122	-0.7594078156	0.239666738	-0.349634667	0.1984432088
## 81	-0.441367394	-0.3254246133	0.141393803	-0.257874230	0.0122569168
## 82	0.175066275	0.2151243746	0.221999475	-0.471559697	-0.6398934891
## 83	-0.005580005	-0.2207116914	-0.055412960	-0.310547755	-0.3972968464
## 84	0.101317593	-0.3888913660	0.742586919	0.020688915	0.0664747385
## 85	0.085951468	0.2300696101	0.020031263	0.365803120	0.3619603844
## 86	-0.143756040	0.4085960369	-0.035118683	-0.082717309	-0.2013104393
## 87	0.158110882	0.2573423050	-0.236146920	-0.305266327	0.2053676218
## 88	-0.195212459	-0.0888156952	0.797062184	0.897168381	0.1344217425
## 89	-0.277370756	-0.7019660311	-0.840988731	0.201268534	0.7635809130
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## 91	-0.347487689	-0.2566030591	-0.418349583	-0.215521143	-0.0118092871
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## 93	-0.082725854	-0.0426065100	-0.443368189	0.014991807	-0.0474505987
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## 95	-1.504305929	1.0227520801	-0.002359375	-0.990335506	0.1726820341
## 96	0.023259970	0.4525160753	0.155283259	-0.860442213	0.2643141528
## 97	-0.180276718	-0.1048707208	0.149901692	-0.399783572	0.1114674830
## 98	0.514545179	-0.1819028995	-0.336294234	-0.726477514	0.2757802178
## 99	-0.186721375	-0.1760836040	0.147324454	0.521766451	0.0575714643
## 100	-1.601637488	-0.3040170344	0.251301665	-0.569198422	-0.7551665683

## 101	0.129867849	0.2970640900	0.511244074	0.778446852	0.0758737257
## 102	-2.565872410	2.9412881026	-1.671742402	-1.171982373	-0.0557680574
## 103	0.223529985	-0.1223262382	0.121254607	0.091175389	0.0260986751
## 104	0.581064616	0.4440701158	-0.280828083	0.323990073	0.8764569166
## 105	-0.228534585	0.7892129312	-0.999122505	-0.329129372	-0.1284220284
## 106	0.155835573	0.5138101469	-0.573826244	0.333011512	-0.0125725203
## 107	0.213877611	0.6421924721	0.819024502	-0.184690069	-0.2338294582
## 108	0.398649214	-0.9189058421	-0.085835964	0.321087131	-0.9856011260
## 109	0.500872548	-0.4583557416	-0.104220791	-0.475906688	-0.1322818757
## 110	-0.102171762	0.5922872035	0.242146386	0.693735966	0.1297679103
## 111	0.472577064	0.4302849272	-0.154461451	-0.186793284	0.6342123334
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## 263 0.616863919 -0.1799482736 -0.102766329 0.203822004 -0.4426022845
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##	495	0.266407014	0.8939116523	0.340800050	0.376665201	-0.1598795044
##	496	-0.495103066	0.2740039332	1.355559607	0.580570212	0.1102905236
##	497	0.867644082	-0.2373291697	0.025885404	-0.440788615	-0.2426156879
##	498	0.464063903	0.2009412326	0.237851849	0.107389411	0.1622984572
##	499	-0.465865173	-0.6609083316	1.078900440	-0.362155546	-0.3003238515
##	500	0.414238636	-0.6948866643	0.208762436	0.184123244	-0.3043730808
##	501	-0.054695994	-0.5415839364	-0.485204092	-0.002003669	0.4178475313
##	502	-0.223141142	-0.3801038646	-0.292237955	0.610828408	0.6950728136
##	503	-0.170107334	-0.3154476633	-0.079882992	0.142910759	0.0542047521
##	504	0.887140418	-1.3297291689	-0.405412707	0.298924294	-0.6403752081
##	505	0.444630198	-0.0821479293	-0.026406391	-0.627325844	0.1545616088
##	506	0.432034000	-1.2431377930	0.362466898	0.846074796	-0.5289782076
##	507	-0.394891085	-0.3293215137	-0.297837044	0.058268987	-0.3561563432
##	508	0.022553968	-0.3571921519	0.034511088	-0.220458696	-0.0488523888
##	509	0.678753677	-0.5013129246	0.753349797	0.518789890	-0.5997000762
##	510	1.858572043	-0.1656236224	0.577217303	-0.382612447	1.0420190882
##	511	-0.416996415	-0.3034173272	0.249636772	0.180568508	-0.5372920728
##	512	-0.463222764	-0.2593304152	-0.424839504	0.482487407	0.4181537840
##	513	0.624849140	0.1750816660	-0.754144177	-0.264977088	0.5236994213
##	514	-0.536140100	0.6377863172	0.247698575	0.418295918	0.0314675361
##	515	0.595280881	0.3817976839	-0.096628450	0.177487031	0.1854029853
##	516	0.478151727	-0.0568700131	0.153079262	-0.345267594	-0.0828495662
##	517	-0.659359218	-1.0843908347	-0.809390183	0.158406027	0.9450300267
##	518	-0.082232842	-0.4262385574	0.603461528	0.122844727	0.4086560630
##	519	-0.879716840	-0.0006086996	-0.279527353	0.650767846	-0.6041318389
##	520	-0.639098103	0.0143566436	0.576861303	0.583283202	-0.1445584988
##	521	0.533059911	0.1660150319	-0.095665592	-0.370122821	0.1093381779
##	522	0.513134324	-0.2336025271	-0.082074012	-0.050424048	-0.0723208615
##	523	0.555746877	-0.3653248021	0.126044039	0.797391258	-0.1435346581
##	524	0.677135329	-0.0504033779	0.152484946	-0.173315166	-0.6716252908
##	525	-0.488794681	0.2203087228	-0.612662216	0.412146779	-0.4342837361
##	526	0.150469312	0.1116746155	-0.606827919	-0.126361804	-0.0765644229
##	527	0.406975966	0.3245174805	0.124078783	-0.164511013	0.0668691697
##	528	-0.233573860	0.3665648592	-0.463177498	1.161018058	0.6793471306
##	529	-0.355218177	0.2227754770	-0.284627855	-0.047605471	0.3650618160
##	530	0.319720403	0.2374201531	-0.358689715	-0.159583517	-0.1212345067
##	531	-0.339612654	-0.3129249583	0.570655995	-0.041266749	0.6758490456
##	532	1.235926851	-1.1078805388	-0.375373924	-0.539683363	-0.9436629460

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## 533 -0.110351038 0.2114073176 0.407641004 -0.147898571 -0.4972451607
## 534 -0.332029222 0.5275477127 0.157177689 -0.509736390 -0.0395355758
## 535 -0.366073447 -0.7301200931 -0.571437399 0.056282329 -1.5813721357
## 536 0.512987535 0.3195952775 -0.078908486 -0.027415913 -0.2994571880
## 537 0.339675719 -0.0900544184 0.197491977 0.539853412 -0.0589354306
## 538 0.149694140 -0.2253451505 -0.319599761 0.048737275 0.1798857962
## 539 -0.387037761 -0.3966377123 0.379679673 0.441380257 -0.3160906242
## 540 0.183443735 0.3534683222 -0.145343584 0.070289286 0.0037988944
## 541 0.483666335 -0.8367197910 -0.054032295 0.126364322 0.1238633572
## 542 0.158633990 0.0167773642 0.615420986 0.510529223 0.3816514063
## 543 -0.524291499 -0.0112971802 -0.164213736 0.194100693 -0.4931593765
## 544 -0.515610128 -0.7207468817 -0.743793978 0.431400798 0.1898207828
## 545 -0.922176217 1.3820803066 1.201482116 1.284511601 -1.3412401961
## 546 -0.222519815 0.0652336911 -0.179453643 0.595783184 0.5462903907
## 547 0.695577651 0.3223081967 1.335681026 -0.508823612 -0.7887745647
## 548 -0.023313236 0.0368267225 0.271251478 0.087300591 0.1488684140
## 549 -0.333933601 -0.4117304594 1.317015313 0.742582004 0.4451836317
## 550 0.473040642 0.5767965322 -0.323486683 0.094067722 -0.3925911789
## 551 -0.376080366 0.0042306197 -0.105138188 0.193097365 0.3499285973
## 552 0.461580846 0.1913154399 0.526190623 0.110091876 0.0924208006
## 553 -0.573495559 1.2172757471 -0.557359641 -1.090428976 0.3670518425
## 554 -0.009982176 0.9357217953 0.447006601 -0.022397637 0.4719301934
## 555 0.420906224 -0.3400949127 -0.031777347 0.431552530 -0.2663811858
## 556 -0.948436156 -0.0534339445 -0.249993709 0.220856222 -1.0216701316
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## 559 -1.063552145 0.2843885674 0.208233104 -0.185478026 0.1637748682
## 560 -0.073467027 -0.3473177037 -0.132173205 0.402572140 -0.1180118257
## 561 0.528587090 0.3277147391 -0.215016562 -0.017788260 -0.0303953954
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## 567 -0.059342950 -0.4682367273 0.075954717 0.412733239 -0.1802065333
## 568 -0.589972845 0.2230702081 0.327496905 0.829069498 0.1391170983
## 569 -2.124447530 -0.3475766336 -0.787402250 -0.043624788 -0.4412124086
##
##          PC15          PC16          PC17          PC18          PC19
## 1 -0.0593025583 0.166377231 -4.286656e-02 -1.045428e-01 -3.484189e-02
## 2 -0.2048588880 -0.070679588 3.088787e-02 -4.055342e-01 -2.886103e-02
## 3 -0.3302742156 -0.130001895 -2.461609e-01 3.277113e-01 1.593779e-01
## 4 -0.6658256690 0.102133866 -1.028945e-01 1.970852e-01 3.625177e-01
## 5 -0.0055405030 -0.064958814 2.227331e-01 -1.291292e-01 -3.587705e-01
## 6 0.0499528345 -0.201610826 1.492042e-01 -2.229379e-03 -8.178568e-02
## 7 0.2303431207 -0.135598898 -2.788628e-01 2.228275e-01 6.739350e-02
## 8 -0.5401684711 -0.533193146 -7.829331e-01 -8.384985e-02 -1.569704e-01
## 9 -0.4503166680 -0.108850944 3.750538e-01 -2.511901e-01 -6.940402e-02
## 10 0.3583931528 -0.189682612 1.493665e-02 2.734799e-01 -2.998938e-03
## 11 0.2015579744 0.040151422 1.190263e-01 -8.933002e-03 -1.286008e-01
## 12 0.1995607461 -0.056886087 1.086718e-02 9.370142e-02 -1.415268e-01
## 13 -0.0662729145 0.090378647 -2.390835e-02 -2.427080e-01 -4.482260e-02
## 14 -0.2197572955 0.343637180 2.063596e-01 -1.858051e-01 1.213888e-01
## 15 -0.0403864211 0.086836682 2.119048e-01 6.508138e-02 -1.448205e-01
## 16 -0.4043086084 -0.390732906 1.194096e-01 1.288939e-01 -1.910712e-02

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## 17	0.1128562649	0.130234432	-1.261238e-01	1.382616e-02	-5.094564e-02
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## 19	0.5523830072	-0.569253541	1.036564e-01	2.835675e-01	-9.017732e-02
## 20	-0.5297578395	0.094090139	3.112346e-02	1.817905e-01	-1.864672e-02
## 21	0.3794254938	0.082523144	-1.237892e-01	1.579260e-02	5.933084e-02
## 22	-0.2653407123	-0.298916941	1.844051e-01	2.587069e-01	-2.211982e-01
## 23	0.2301804899	-0.212830498	-6.229868e-02	-2.717846e-02	1.218820e-01
## 24	-0.2967199154	0.052680902	-1.495457e-01	3.095900e-02	-6.934114e-02
## 25	0.1020201596	-0.592719681	3.595383e-01	2.336257e-01	2.706467e-01
## 26	0.1560482298	0.059778364	2.323086e-01	-1.084881e-01	-4.270176e-02
## 27	-0.7094023267	-0.101721236	-6.246379e-02	3.644114e-02	4.855680e-02
## 28	-0.1984358766	-0.174272716	-3.466604e-01	-1.891704e-01	5.124000e-01
## 29	0.3379449841	-0.210233550	1.329305e-01	-1.594789e-01	-1.715399e-01
## 30	-0.1068575844	-0.035264653	-5.636630e-02	2.947379e-02	-2.661072e-01
## 31	-0.1770993163	0.216369579	5.541341e-03	-8.719242e-02	2.221158e-01
## 32	0.1672214559	-0.025354521	-1.495302e-01	1.596027e-01	-1.733590e-01
## 33	0.3477357183	0.292036732	-1.729689e-01	-3.171784e-02	2.893805e-02
## 34	-0.3333648150	0.008156900	-4.414144e-01	6.028979e-02	-1.211665e-01
## 35	-0.5285095107	0.166555572	-3.037006e-02	-1.028303e-01	2.777077e-01
## 36	-0.2790058116	0.427685230	-3.470538e-03	2.101913e-01	-2.076874e-01
## 37	0.1742791550	-0.289484970	-6.548585e-02	-3.232965e-01	3.558403e-01
## 38	-0.6314729945	-0.108652538	2.852529e-01	-2.966173e-01	-1.116214e-01
## 39	0.0757759907	0.213031719	-3.190089e-02	-1.007190e-01	2.525017e-03
## 40	0.1434566257	0.213901668	9.520973e-02	-1.633312e-02	7.186205e-02
## 41	-0.2711160847	-0.128650796	-8.231716e-02	-1.097702e-02	-1.979734e-01
## 42	0.2672252829	0.081202851	-1.972840e-01	-3.179374e-01	7.591987e-01
## 43	0.4945404116	-0.172079352	-6.241070e-02	4.630782e-01	3.452129e-02
## 44	0.1865398390	-0.333009658	4.986805e-01	2.761034e-01	-6.990563e-02
## 45	0.1657197674	0.095351175	1.721466e-01	-9.280238e-03	-1.272046e-01
## 46	-0.7446887577	0.027241062	-4.783811e-02	3.647888e-02	-1.705672e-01
## 47	0.5525203791	0.026833779	-4.734618e-02	5.843090e-02	4.947846e-02
## 48	0.0711927626	-0.555953043	-4.066040e-01	-1.211012e-01	3.671663e-01
## 49	-0.2132218689	0.102861102	-1.282732e-01	-9.936293e-03	-1.110597e-01
## 50	0.0230765442	-0.010018401	3.911403e-02	-1.016924e-01	-2.008620e-02
## 51	0.0986606375	-0.123075581	1.368015e-01	2.252240e-01	-1.368558e-01
## 52	-0.1835548209	-0.026895711	1.735375e-01	-1.285103e-02	-5.023757e-02
## 53	-0.4833731129	0.069750673	-7.866944e-02	1.405715e-02	3.218193e-02
## 54	0.1260899122	-0.218941828	-2.562217e-01	1.920552e-01	1.194130e-01
## 55	0.3416860624	0.207821187	6.344923e-02	2.959831e-01	-3.884609e-01
## 56	0.0164102058	0.153030859	-1.522467e-01	4.169582e-02	8.696207e-02
## 57	0.5763913805	0.199017477	2.379359e-02	1.181418e-01	9.812868e-05
## 58	-0.1356615323	0.127131332	-2.752838e-01	-1.006724e-01	2.038471e-01
## 59	-1.4123011803	0.172469710	-8.647610e-01	7.262622e-01	1.956888e-02
## 60	0.0911180468	-0.343578522	-3.229187e-01	1.379908e-01	2.472202e-02
## 61	-0.9937639461	-0.218198246	1.259744e-01	-5.190770e-01	-3.811198e-02
## 62	0.0156977027	0.223477206	-3.303582e-01	-2.896124e-01	5.510999e-01
## 63	-0.2643096262	-0.283067579	2.803105e-01	1.197289e+00	1.344579e+00
## 64	-0.0076951390	-0.004249728	-8.430511e-02	1.516885e-02	1.168719e-01
## 65	0.3957388006	-0.179295547	-8.150818e-02	3.797931e-02	1.439501e-01
## 66	-0.1354819478	-0.136527933	1.425655e-01	9.787605e-02	-4.806061e-02
## 67	0.1609747339	0.175616342	-8.243703e-02	-6.381668e-02	-9.536536e-02
## 68	0.0242662437	-0.122518294	-1.091700e-01	4.247097e-02	6.804639e-02
## 69	-0.2278594425	-0.018517613	4.778023e-03	7.568765e-02	-1.079477e-01
## 70	-0.5632212380	-0.118651380	-6.978776e-02	-1.337332e-02	-2.180062e-01

## 71	0.4561400654	0.668556185	2.521189e-01	-3.799022e-01	-3.964538e-01
## 72	-0.2008346752	-0.079199196	-2.068270e-01	3.099509e-02	-9.146318e-02
## 73	0.9868124859	-1.116351100	1.154812e-01	-1.258013e-01	-1.205257e-01
## 74	0.0869258155	-0.167898657	5.790013e-02	1.517053e-02	1.333051e-02
## 75	-0.3924042754	-0.386612906	2.223152e-01	2.137822e-01	-8.725618e-02
## 76	0.4354901863	0.209451143	-4.952896e-02	1.340756e-02	-2.287204e-01
## 77	0.0347659821	-0.186509352	-1.820081e-01	1.300136e-01	9.874569e-02
## 78	0.4629508916	0.322424948	-2.695424e-01	-2.730996e-01	-1.397568e-01
## 79	-0.1485075332	0.064814678	-3.494165e-02	-3.737264e-03	6.404672e-02
## 80	-0.0016961634	0.111005160	3.943212e-02	5.985223e-03	-7.554262e-02
## 81	-0.5714903057	-0.055601789	6.495184e-02	9.386670e-02	-6.039542e-02
## 82	-0.4109253790	0.018578716	-1.957055e-01	-2.542637e-01	-4.413392e-02
## 83	-0.4704640952	-0.060008853	-8.525828e-02	1.047699e-02	-1.291307e-01
## 84	-0.8234375494	0.236978551	-2.289071e-02	2.903442e-02	2.182258e-01
## 85	-0.1891779022	0.181428902	-2.392292e-01	1.130391e-01	7.235949e-02
## 86	0.3247110364	0.068145730	-1.181127e-01	3.362285e-02	-1.718386e-02
## 87	-0.0773363254	0.065452361	-4.570033e-01	2.140008e-01	-2.361075e-02
## 88	0.0078755579	0.048064377	-9.019228e-02	2.890748e-01	1.325708e-01
## 89	-0.1536269356	-0.583408888	1.750172e-01	-5.825216e-01	1.718104e-01
## 90	0.2971640712	-0.326875791	1.149838e-01	1.785231e-01	-2.978624e-01
## 91	0.3478939652	0.060583474	2.220166e-01	6.920324e-02	8.083662e-02
## 92	-0.0420734438	-0.194657396	-3.040978e-01	1.749788e-01	-4.769003e-05
## 93	-0.1399771970	-0.231554944	-1.741035e-01	1.493086e-01	3.840592e-02
## 94	-0.2724976613	0.090687783	-1.673595e-01	-6.981836e-02	-1.827023e-01
## 95	-2.6203039623	-0.179002899	-3.227320e-02	1.807734e-01	-4.037691e-01
## 96	0.0484620742	0.201266790	-3.899332e-03	-1.476732e-01	-9.979733e-02
## 97	-0.3341206355	-0.307271309	-1.855001e-01	4.826845e-02	-1.295130e-01
## 98	0.0309988780	0.010918923	-4.294400e-01	-5.169970e-03	-3.107285e-01
## 99	0.0325281602	-0.051107570	1.105994e-01	3.119691e-02	-7.838595e-02
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## 104	0.2034931074	-0.025401783	-2.406156e-01	-3.708195e-02	2.212549e-01
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## 107	0.2251702775	-0.157853822	1.605270e-02	-5.036831e-02	8.202677e-02
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## 110	-0.3603469979	-0.080490916	-2.310704e-03	1.981938e-01	2.087007e-01
## 111	-0.4052294294	0.109170941	-2.455506e-02	4.445504e-02	-1.904603e-01
## 112	0.4867012050	0.377737688	2.767902e-01	-1.601231e-01	-4.207824e-01
## 113	0.2200129554	0.115671366	1.536380e-01	-5.013979e-02	-2.221763e-01
## 114	-0.0138911395	0.501030094	1.536523e-01	1.527529e-01	-2.196078e-01
## 115	0.0418879950	0.041412675	6.233098e-02	-6.961252e-02	1.498783e-01
## 116	-0.3947917466	0.090257808	3.699896e-03	-2.253735e-01	-3.251814e-01
## 117	0.3567855897	-0.209278525	-4.937788e-01	5.749773e-01	4.020940e-01
## 118	0.2404426198	0.006895812	-3.255664e-02	-4.477846e-01	2.787354e-01
## 119	-0.2038515138	-0.014564471	2.565753e-01	-2.989123e-01	-1.799367e-02
## 120	-0.3777926782	0.094711570	-5.737135e-02	4.263902e-03	-1.807015e-02
## 121	-0.2812186773	-0.304304754	2.149320e-01	2.884342e-02	-5.140805e-02
## 122	0.1715012688	0.073917507	1.795720e-01	-9.951138e-04	-1.040315e-01
## 123	0.1034685097	-0.096740186	-1.245504e-01	3.417841e-02	-7.226714e-02
## 124	-0.3318820563	-0.618300386	1.801326e-01	-4.135556e-01	-7.681063e-02

##	125	0.4326589690	0.053733859	-1.817876e-01	7.192908e-02	-3.706753e-01
##	126	-0.2085513291	-0.090810047	-1.073170e-01	-7.293889e-02	1.427673e-01
##	127	0.2183653888	0.864995458	3.422789e-01	3.831675e-02	3.113535e-01
##	128	0.3332133948	0.521981738	-2.438699e-01	5.268949e-03	-1.352151e-01
##	129	-0.4698047776	0.059396119	4.126106e-01	-8.728869e-02	3.473966e-02
##	130	-0.2709749020	0.382658056	-1.505340e-01	3.043896e-02	-7.379857e-02
##	131	0.4899229158	0.520403647	1.734497e-01	-3.462492e-01	-3.649636e-02
##	132	0.1245944709	0.290047022	3.434603e-02	-5.264320e-02	-8.671717e-04
##	133	0.0008351230	-0.118462619	-1.227311e-01	1.859024e-01	3.728351e-02
##	134	0.3969422422	0.654516751	-1.417697e-01	3.629542e-01	1.913907e-01
##	135	0.5511167790	0.222896409	4.414003e-01	1.946630e-01	-1.851684e-01
##	136	-0.0627998786	-0.619142149	-2.147856e-01	-9.241954e-01	4.404488e-01
##	137	-0.2115650004	0.121655250	-1.438718e-01	-1.122009e-01	4.914709e-01
##	138	-0.1168587307	0.226083811	-9.579120e-02	4.694911e-02	-6.631578e-02
##	139	0.1573605667	0.238032269	-2.740028e-01	-9.520833e-02	2.899648e-01
##	140	0.5060482783	0.078806363	1.480172e-01	-4.151660e-02	-7.168650e-02
##	141	0.2907451887	0.237458055	2.698676e-01	3.180084e-03	-6.618046e-02
##	142	0.6894535217	-0.599892317	-7.428710e-01	-2.604877e-01	5.508211e-01
##	143	-0.0163453917	-0.069873842	1.377389e-01	2.961188e-01	1.078979e-01
##	144	-0.3079274483	-0.127190653	-1.362505e-01	-3.841389e-01	-7.132451e-02
##	145	0.7089323370	0.382555413	-3.335702e-02	4.485951e-01	1.574132e-01
##	146	-0.5064295350	0.021724111	-7.162530e-02	1.130464e-01	-3.184350e-02
##	147	-0.4100336909	0.075198237	1.457652e-02	1.546342e-01	4.197446e-01
##	148	-0.4634769346	-0.196998306	-6.867835e-04	1.101621e-01	-9.261058e-02
##	149	0.5571318289	0.477351736	3.923943e-01	-3.563529e-01	4.341049e-04
##	150	0.0368836766	-0.297651445	-3.980531e-01	3.175851e-01	-3.166345e-02
##	151	-0.1292193265	-0.034332509	-6.555343e-02	-3.327970e-02	5.416311e-02
##	152	0.1717319759	0.073396238	3.478353e-01	-2.463960e-01	1.761944e-01
##	153	0.2534708660	-0.301216477	-2.928211e-01	2.083178e-01	-7.246845e-02
##	154	-0.1768182261	-0.024492577	-7.340752e-03	3.375487e-02	-1.696552e-02
##	155	-1.7020627285	1.035860626	-1.726607e+00	-8.634538e-01	-2.320924e-01
##	156	0.3116021873	-0.372822318	-1.104207e-01	-2.575758e-01	3.619148e-01
##	157	-0.0642768545	-0.170151600	-3.495646e-02	-7.907467e-02	-1.132156e-02
##	158	-0.2342595452	0.130122293	-4.111523e-01	-1.754924e-01	-3.508902e-01
##	159	0.3049463756	0.344231223	2.232965e-01	2.066830e-01	2.601489e-01
##	160	0.1498017103	0.058911342	-1.743389e-01	5.795462e-02	-4.883182e-02
##	161	0.4043678724	-0.013617606	-3.410433e-01	-2.253278e-01	1.971972e-01
##	162	0.0795268311	-0.374326537	-1.724632e-02	5.449744e-02	-1.838220e-01
##	163	-0.0005093655	-0.211051607	-8.809421e-02	2.617836e-01	1.638992e-02
##	164	1.3664457296	-0.412961944	-1.414021e-01	1.169135e-01	-6.988524e-02
##	165	0.0638644651	-0.585763475	3.966608e-01	-4.475266e-02	4.304262e-01
##	166	0.2805186949	-0.368376737	-2.153212e-01	-3.904176e-03	-2.541044e-01
##	167	-0.2987336033	0.179994044	5.417862e-03	-2.378199e-01	1.312368e-01
##	168	-0.8998580373	0.243757379	-2.150256e-01	-1.002714e-01	-9.076299e-02
##	169	0.1508125383	0.073219124	-2.096709e-01	1.977582e-01	-3.676455e-04
##	170	-0.3029317057	-0.041909581	7.849588e-02	4.078843e-02	1.431406e-01
##	171	0.2615283842	0.646219434	3.471970e-02	1.389356e-01	-1.533832e-01
##	172	0.3114632707	0.189290414	-1.776043e-01	9.217565e-02	-2.483075e-02
##	173	0.0982536506	-0.188764595	3.337944e-01	1.662036e-01	4.113868e-02
##	174	-0.1082908837	-0.266994528	1.947080e-02	7.554220e-02	3.169527e-05
##	175	0.0193338027	-0.089442781	-3.018320e-01	-3.120110e-01	2.038555e-01
##	176	-0.5167953171	0.020777979	5.705901e-02	9.869446e-02	5.902616e-02
##	177	-0.1308954520	-0.596695797	1.686586e-02	-2.696835e-01	4.406408e-02
##	178	0.2777756235	0.156166497	-6.320437e-03	4.653165e-02	4.947341e-02



## 179	-0.3166045682	0.269850604	5.694780e-02	-3.119842e-01	7.252457e-03
## 180	0.2575644217	0.021383635	-3.175475e-01	1.707156e-01	-1.194288e-01
## 181	-0.0489672495	0.298889684	-1.967352e-01	-2.155974e-01	-2.286554e-01
## 182	0.1557555227	0.081924891	-1.864879e-01	-2.334583e-01	-1.484778e-02
## 183	-0.1830351731	-0.169542495	3.460192e-02	1.513143e-01	-6.512446e-02
## 184	0.0496055613	0.079596558	7.957722e-02	1.396697e-01	-1.108148e-01
## 185	-0.4157961113	0.023624644	3.273827e-01	-1.564256e-01	3.088299e-02
## 186	0.1474076022	0.276111244	6.046096e-02	-3.602096e-01	-7.154936e-02
## 187	0.3884784440	0.433286646	-2.802339e-01	-3.292672e-01	-3.840022e-01
## 188	-0.0897704403	-0.238341625	-4.490292e-02	-1.498768e-02	-9.804595e-03
## 189	0.2876961491	0.063604878	1.153640e-01	-4.422867e-03	-1.421138e-01
## 190	0.5612109152	0.275013247	-7.166472e-02	1.190678e-02	-8.404817e-02
## 191	0.1090747854	-0.187431094	1.202845e-01	-1.148853e-01	1.424007e-01
## 192	-0.3985311126	0.095414298	-3.716180e-01	-1.583732e-01	-1.393171e-01
## 193	0.0806792524	0.164545755	3.073972e-01	-3.931710e-02	1.497870e-01
## 194	-0.4167076410	0.530159714	6.359042e-01	1.843913e-01	1.669642e-01
## 195	-0.5529968182	-0.045745025	-2.264059e-01	1.697125e-01	2.677639e-01
## 196	-0.2565437113	0.561831020	-9.039943e-01	5.083163e-02	-2.752302e-01
## 197	0.4374608482	0.271582196	2.398050e-01	-2.361568e-01	-1.729211e-01
## 198	-0.3294507632	0.038536635	1.859095e-01	1.530796e-05	-7.201887e-02
## 199	-0.5061524450	-0.254622312	-1.831581e-01	2.196529e-01	-1.365678e-01
## 200	0.1183124202	0.274556338	9.177930e-03	2.771621e-02	8.595676e-02
## 201	-0.1320773835	0.404209736	5.865478e-01	7.557826e-01	6.356041e-01
## 202	-0.2211925108	-0.025514733	-6.617383e-02	-1.532354e-01	-1.743620e-01
## 203	-0.0169920400	0.248519809	3.243015e-01	2.662298e-01	6.551592e-02
## 204	0.7568629491	-0.283042931	9.118591e-02	2.449188e-01	1.442387e-01
## 205	-0.1154346278	0.176697604	2.941668e-01	-4.677648e-03	1.937469e-01
## 206	-0.0748621566	0.021258913	-8.220596e-02	1.122998e-01	-2.720955e-01
## 207	0.0436336534	0.121947246	-4.639241e-01	1.152234e-02	-1.856312e-02
## 208	0.2539161764	0.151910561	8.001495e-02	3.560967e-02	3.059615e-01
## 209	-0.0572817376	-0.053874666	-9.394591e-02	5.621632e-02	1.878869e-01
## 210	0.5021564888	-0.287039881	2.196185e-01	1.550088e-01	2.176324e-01
## 211	0.1403881016	-0.289931121	2.209542e-02	-5.929851e-02	2.788550e-02
## 212	0.0242797136	0.330536201	-1.133527e-02	4.643470e-01	4.545685e-01
## 213	-0.9399707142	0.370107093	7.076398e-01	-3.141872e-01	2.768654e-01
## 214	-0.2951130003	0.184460047	-1.632661e-01	-5.617051e-02	2.764911e-02
## 215	-0.5121601047	0.247008658	5.699984e-01	-1.328708e-01	-8.255577e-02
## 216	-0.3354222161	0.536652670	5.987819e-01	-5.763811e-01	-1.062597e-01
## 217	-0.4626173626	-0.130495586	2.679680e-01	7.246722e-02	3.367686e-02
## 218	-0.3484045885	-0.291697508	6.927678e-02	-1.255761e-02	6.935103e-02
## 219	-0.0019295466	0.177871737	1.082877e-02	1.955579e-01	2.984538e-01
## 220	0.5362700139	-0.116767835	5.524356e-01	4.202950e-01	-1.455522e-01
## 221	-0.2579340680	-0.354954358	3.576010e-02	4.390782e-02	-1.617041e-01
## 222	0.3659112209	0.344818125	-9.685019e-03	1.863642e-01	-2.297377e-01
## 223	-0.0176475188	-0.051168571	3.759137e-01	-1.932464e-01	5.009384e-01
## 224	-0.1851473985	-0.447725371	1.252915e-01	2.064328e-01	6.537733e-03
## 225	-0.1423158831	-0.058877698	2.298855e-01	-3.346599e-01	9.608468e-02
## 226	0.6139264235	0.480123885	7.192897e-01	-6.574233e-01	3.078245e-01
## 227	1.1766123434	-0.696515349	-1.060124e-01	1.507905e-01	-2.037321e-01
## 228	0.2947396064	0.339768688	-1.143257e-01	5.505415e-02	-3.466093e-01
## 229	0.0786704737	0.150104370	-3.349342e-01	-1.184740e-02	-2.692893e-02
## 230	-0.0211088616	-0.261499163	-1.385273e-01	7.101842e-02	-4.465156e-02
## 231	-0.2338833679	-0.308241191	8.386019e-02	-6.500569e-02	-6.937127e-02
## 232	0.3267215193	0.217126618	2.651017e-01	-2.406110e-01	8.706456e-02

##	233	0.7170695735	-0.250953954	-5.977497e-01	-1.810416e-01	2.586629e-02
##	234	-0.2766625547	-0.047911673	-1.860799e-01	7.519659e-02	1.038998e-01
##	235	0.1071580124	0.048399368	6.184851e-02	5.391726e-02	-1.231416e-01
##	236	-0.1584226575	0.133965667	9.184280e-02	-7.540586e-02	4.454720e-02
##	237	0.0142118823	-0.215494976	-3.174174e-01	7.635585e-02	2.142165e-01
##	238	0.2066383417	-0.020325375	-9.984224e-02	1.175523e-01	-3.291435e-01
##	239	-0.1345985698	-0.106599728	-3.176339e-01	1.175394e-01	-2.181008e-01
##	240	0.4852447668	0.231723289	7.856556e-02	1.161908e-01	2.797731e-01
##	241	-0.5710483144	0.056309150	-1.954153e-02	-2.333026e-01	-6.963754e-03
##	242	0.1230649167	-0.341480455	1.174062e-01	1.093147e-01	-2.747598e-01
##	243	0.1621509543	-0.166578912	-1.241428e-01	1.702998e-01	3.983759e-02
##	244	-0.4998966252	-0.277824974	3.083424e-01	7.009527e-02	-1.704325e-01
##	245	0.1865050098	0.496564844	8.706277e-01	-4.535768e-01	-1.418331e-01
##	246	0.3787730395	0.194812884	-1.358418e-01	-4.548023e-02	4.734380e-02
##	247	0.4956802288	-0.127807141	-8.949133e-02	8.660098e-02	-1.117199e-01
##	248	-0.4125701238	0.230139775	1.565099e-01	-2.722907e-02	-1.742913e-01
##	249	0.2413948573	-0.278434015	-4.386279e-01	-1.470685e-02	-8.026809e-02
##	250	-0.1107183395	0.106308362	-6.185837e-02	6.414414e-02	-1.306249e-01
##	251	0.3820417974	-0.424768574	9.474926e-02	1.871235e-01	1.185295e-01
##	252	1.4932216205	-0.853221633	-7.833246e-01	1.205321e-01	2.446040e-01
##	253	-0.1810987356	-0.035676897	-1.883865e-01	1.561197e-01	1.104227e-01
##	254	-0.0096650233	0.321771645	8.265653e-02	-4.896066e-01	-1.595829e-01
##	255	-0.3428170179	0.150944039	4.886481e-01	3.996770e-01	2.654841e-01
##	256	0.0630624703	0.170228324	1.859414e-01	-1.037547e-01	8.391226e-02
##	257	-0.1005603288	-0.038174940	9.798738e-02	4.581327e-02	1.961191e-01
##	258	-0.1243662272	-0.193750042	-7.729964e-01	1.545053e-01	-3.296650e-01
##	259	-0.1156276656	0.357610154	1.106340e-01	-1.205309e-01	2.772930e-03
##	260	0.1478572735	0.278570548	-1.184453e-01	-1.180394e-01	-1.065903e-01
##	261	-0.4306927470	-0.303101533	-2.154955e-01	7.462495e-02	1.642826e-02
##	262	0.3247262805	0.297754427	-1.840264e-02	1.338298e-01	-1.131429e-01
##	263	-0.1632383401	0.419833036	-2.628300e-01	-3.935872e-01	1.194818e-01
##	264	0.0215268323	0.108906202	6.582484e-02	-5.796553e-02	1.123472e-01
##	265	-0.2160770082	0.403735243	-5.454224e-01	-1.945896e-01	2.992714e-01
##	266	-0.1110598441	0.034131131	-5.100856e-01	2.778363e-01	2.896351e-01
##	267	-0.1222934465	-0.156965272	1.994427e-02	-7.010668e-02	8.561535e-02
##	268	-0.4868361666	0.251455031	-1.481502e+00	-3.907053e-01	5.049568e-01
##	269	-0.0143988146	-0.140222925	-2.818255e-01	2.707795e-01	4.487176e-03
##	270	0.0123792377	-0.114013794	-7.190028e-02	1.384272e-01	-1.750618e-01
##	271	-0.0781777230	0.203189223	-2.289360e-01	-1.800856e-01	4.559354e-02
##	272	0.2698808314	-0.493414248	2.905403e-01	6.539891e-02	-9.612894e-01
##	273	0.3076077380	-0.237447729	-7.119531e-02	2.203103e-01	-1.617051e-01
##	274	-0.2580003743	0.032495425	-5.567998e-02	3.905960e-02	1.184457e-01
##	275	-0.4955790592	-0.265091344	2.734542e-01	8.473960e-04	3.427154e-02
##	276	-0.2336010225	1.780478267	1.081961e-02	1.905434e+00	-1.496232e+00
##	277	-0.0215716650	-0.038068702	-8.461770e-02	1.245557e-01	-7.617565e-02
##	278	-0.2903715506	0.092613504	2.382606e-01	-5.160082e-02	-2.317899e-02
##	279	0.3178198325	0.118241428	1.582867e-02	-3.101389e-01	9.978339e-02
##	280	1.0648569842	0.324041550	-2.176206e-01	-5.633713e-02	2.085709e-01
##	281	-0.3275482652	0.107586731	-2.192088e-01	2.627401e-01	-4.709641e-03
##	282	0.1717081745	-0.217211175	-3.834945e-02	2.236240e-01	-9.967780e-02
##	283	0.0950205765	-0.137150555	-1.634288e-01	1.739532e-01	-1.229623e-01
##	284	-0.0808112498	0.233832643	-3.270578e-02	-1.650084e-01	-1.037745e-01
##	285	-0.0932037583	0.069482913	-1.296839e-01	-3.876968e-01	-1.727323e-01
##	286	-0.4962901897	-0.038685770	-1.342816e-01	4.795577e-02	1.349394e-01

##	287	0.5320986489	0.262957282	-7.218387e-02	5.072557e-02	-1.755219e-01
##	288	-0.0378959682	-0.071552404	5.272317e-01	-1.186864e-01	-4.717765e-02
##	289	0.0371694139	0.356095988	6.865669e-02	-2.205090e-01	1.371998e-01
##	290	0.0210498630	0.054800845	3.527104e-02	2.032225e-01	5.348659e-02
##	291	0.2566315505	0.356265970	-1.032830e-01	-2.255101e-01	4.439039e-01
##	292	-0.2123462114	0.077334622	6.370013e-02	2.296390e-01	3.692120e-02
##	293	0.2406260397	-0.064941780	1.397217e-01	1.476745e-01	1.943560e-01
##	294	-0.2293640822	-0.032879404	-1.877755e-01	-5.556093e-02	7.788054e-02
##	295	0.4560999970	0.111294122	-3.793144e-01	-2.238025e-01	3.773096e-01
##	296	0.7191539692	-0.582859549	1.873248e-01	1.545968e-01	-1.712787e-01
##	297	0.4366988965	-0.123450616	-2.235813e-01	-6.044063e-02	1.729059e-02
##	298	0.1721331797	-0.183697193	1.476437e-01	-6.829453e-01	2.902658e-01
##	299	-0.2099289715	-0.228843024	1.591780e-01	-2.455280e-02	-4.617045e-02
##	300	0.0233863010	0.110953859	-5.671758e-03	-3.134262e-02	-9.725271e-02
##	301	0.6197374543	0.451922207	1.815366e-01	-1.003842e-01	-1.556542e-01
##	302	0.2688252158	-0.098567001	2.552750e-02	6.989325e-02	-3.649545e-02
##	303	0.3308985159	0.180537808	-5.342720e-01	9.477698e-02	6.453277e-02
##	304	0.8336270486	0.128912922	-9.933371e-02	-1.291633e-02	4.294687e-02
##	305	-0.2311040863	0.063938637	3.934769e-02	3.304929e-01	1.277689e-01
##	306	0.0732521482	-0.051287635	3.399593e-01	1.027305e-01	1.320912e-01
##	307	0.5627316818	0.978627781	8.026433e-01	1.269734e-01	4.980919e-01
##	308	-0.2925890256	-0.214414053	-1.624011e-02	4.777667e-01	1.886067e-01
##	309	-0.2268459811	0.183089027	2.630323e-03	-9.935289e-02	-1.843930e-01
##	310	-0.5014962301	-0.045261340	1.347019e-02	-4.265856e-02	5.121218e-02
##	311	-0.1150787051	0.054732274	-6.438698e-03	9.774965e-02	-1.784083e-01
##	312	0.1480594540	0.363614765	-2.826965e-01	1.254624e-01	-3.872224e-02
##	313	-0.1523021449	-0.148203388	1.095340e-01	9.686967e-02	9.291485e-03
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##	317	0.5391180197	0.309726484	1.528187e-01	1.477917e-01	3.434184e-03
##	318	0.6482147059	-0.894323221	3.714780e-01	-4.215858e-01	-1.043042e-01
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##	324	-0.6455232250	0.138590498	-1.186710e-02	-1.821939e-01	-2.266269e-01
##	325	0.0939610592	-0.108708225	-2.406286e-01	2.889618e-01	3.711019e-02
##	326	0.4158744811	0.021817366	9.058169e-04	9.219553e-02	5.756405e-02
##	327	-0.1467751874	-0.066995496	1.075412e-01	1.932863e-01	-1.629051e-01
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##	337	0.0175089661	0.246504727	-8.668807e-02	-3.182765e-01	2.207360e-01
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##	339	-0.1222883883	-0.568695108	4.545990e-01	-2.943050e-02	-1.792850e-01
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##	342	0.4185810338	0.395423051	2.252467e-01	2.267904e-02	5.490977e-01
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##	344	-0.0902415266	0.082189512	5.630190e-01	5.180442e-02	-1.114611e-02
##	345	-0.5352410131	-0.258738222	-1.917233e-01	-5.001360e-03	7.110563e-02
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##	352	-0.1298424448	-0.090777432	-5.125469e-02	7.145752e-02	5.743147e-02
##	353	-0.0937208918	0.137187460	5.602576e-04	-1.841035e-02	-9.205115e-02
##	354	0.2966557553	-0.212567470	-2.236327e-01	-1.937286e-01	-5.608869e-01
##	355	-0.1556393525	0.009094894	-4.712064e-01	1.002230e-01	-5.179746e-02
##	356	0.0973424585	-0.137095594	-7.263589e-02	2.309984e-01	-1.476059e-01
##	357	-0.3153420076	0.107410473	-1.158821e-01	1.754548e-01	1.845983e-01
##	358	-0.2387355704	-0.009856887	-8.608752e-02	-5.753796e-02	-1.244839e-01
##	359	0.2191842038	-0.059704730	3.212869e-02	-3.153155e-01	-1.202578e-01
##	360	0.5123193895	0.141773206	4.369307e-01	-1.936947e-01	1.674626e-01
##	361	-0.3104970424	-0.105055196	4.977194e-01	6.243493e-03	-3.249411e-02
##	362	0.1166463058	0.152553871	2.039966e-01	2.325330e-02	-9.945205e-02
##	363	0.1122946699	0.147353308	3.123028e-01	-1.606919e-01	6.741521e-02
##	364	-0.0823393027	-0.176741048	-2.268899e-01	-4.534887e-02	-5.780982e-02
##	365	0.1840193850	0.060001488	6.003685e-01	-6.579110e-02	-3.482096e-02
##	366	-0.2923066884	-0.533655813	5.537424e-02	1.696970e-01	1.071847e-02
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##	369	-0.0994327081	-0.205630579	-1.363862e-01	2.947049e-01	1.471755e-01
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##	371	-0.2915412317	-0.291373314	2.472193e-01	2.212320e-03	-1.367801e-01
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##	373	0.1797012676	-0.205086502	-3.856979e-02	1.799574e-01	-1.429561e-01
##	374	-0.2574145211	-0.394162129	-7.372390e-02	1.244495e-01	1.601312e-02
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##	376	0.8135572437	0.315426854	1.735040e-01	-1.342114e-01	1.561435e-01
##	377	0.3001821235	0.092035196	2.197425e-01	3.046653e-02	-7.750701e-02
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##	379	-0.4652118829	0.010021418	1.300154e-01	-1.584255e-01	-6.262367e-02
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##	382	0.3444252226	-0.055402327	7.104193e-01	-1.921920e-01	1.067923e-01
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##	385	-0.2432170910	-0.201601935	-1.816504e-03	-9.438031e-02	-1.808457e-01
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##	390	0.1861154517	0.253703872	4.346255e-01	-4.198514e-02	-4.035177e-01
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##	392	-0.0026931398	0.057870837	-1.825900e-01	7.785307e-02	3.305013e-01
##	393	0.4451250552	-0.108966004	-2.775816e-02	2.228803e-01	-1.452783e-01
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## 401 0.3026304583 -0.273780253 -3.470963e-01 1.299979e-01 -6.871719e-03
## 402 0.1032140380 0.015238795 -1.782393e-01 -5.788895e-02 -9.242535e-02
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## 406 0.0972931146 -0.429656209 2.191828e-01 -3.042748e-02 -1.748831e-01
## 407 0.2511823756 -0.213439540 3.615828e-01 2.992490e-01 -2.183506e-01
## 408 -0.1846913840 0.055707260 -3.215662e-01 -5.050403e-02 -3.278144e-01
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## 410 0.8841321632 0.201847992 -3.191753e-01 -1.390881e-01 -3.551229e-01
## 411 -0.3784708165 0.739142178 4.659218e-01 -2.738244e-01 2.451110e-01
## 412 -0.1415094288 0.063594198 -1.344329e-01 8.246452e-02 -2.968042e-02
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## 414 -0.3704520590 0.226272904 4.450355e-02 5.645117e-02 2.993826e-01
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## 417 -0.2677886434 0.071963814 -3.223322e-01 1.311989e-01 1.599013e-01
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## 419 0.3078081566 -0.103156288 -5.651710e-02 3.400822e-02 1.605622e-02
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## 437 0.0438500968 0.241286042 2.641637e-01 1.983714e-01 -1.841881e-01
## 438 0.1163359878 0.064842228 -1.767356e-01 1.073602e-01 -3.916015e-02
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## 444 0.1452641774 -0.014355913 -8.515875e-02 3.619401e-01 8.436882e-03
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## 447 -0.4899325603 0.250877405 5.162165e-02 -1.712514e-01 4.138032e-02
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## 451	-0.2831805754	0.003479262	5.130458e-02	1.048402e-01	1.001737e-01
## 452	-0.1271198334	0.192436488	2.151186e-01	-1.869465e-01	-4.264351e-01
## 453	0.5758952288	0.214432386	6.462198e-01	4.572245e-01	-1.856783e-01
## 454	0.1291508504	0.055169410	-3.023139e-01	-9.939037e-04	-1.284078e-01
## 455	-0.4773820599	-0.305309372	-4.839912e-02	-1.447690e-02	-2.087116e-01
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## 457	-0.8567691057	0.591158273	-5.824376e-02	-1.919702e-01	3.868300e-01
## 458	-0.2723129675	-1.238236947	2.562185e-01	-7.671496e-01	3.889420e-01
## 459	0.3085463713	0.101701285	-8.905947e-03	-1.834538e-01	1.857571e-01
## 460	0.2379927387	-0.027289191	-1.938181e-01	1.048415e-01	3.829356e-02
## 461	-0.6851859190	-0.232007751	-1.040052e-01	1.123264e+00	-9.171639e-01
## 462	-0.3068642697	-0.193424611	1.479751e-01	1.220193e-01	-1.296267e-01
## 463	0.2689354326	-0.306261486	-3.180119e-01	9.160075e-02	-4.150144e-02
## 464	-0.2711098914	-0.122691218	2.366885e-01	-3.423337e-02	2.481726e-01
## 465	0.9264318197	0.284431074	-5.373005e-01	-2.197313e-01	9.126616e-02
## 466	-0.2403733017	-0.387817362	3.272425e-01	3.568318e-02	-2.214587e-01
## 467	-0.3189927202	-0.002403087	2.411783e-01	2.350863e-01	-5.933900e-02
## 468	0.2149421146	-0.007050347	2.245577e-01	-2.302748e-02	-1.105619e-01
## 469	0.0090332219	0.135831371	-1.488714e-01	-7.360296e-02	-1.879613e-04
## 470	0.2821039365	-0.003629775	-7.855821e-04	6.830880e-02	2.467393e-02
## 471	0.3109821404	0.537527339	3.246052e-01	-4.279484e-01	-1.136128e-02
## 472	-0.3803367427	0.027946365	2.598719e-02	1.712958e-01	4.211271e-03
## 473	0.3682936673	0.147895534	4.808134e-01	-3.842855e-02	-8.438951e-02
## 474	-0.5377826428	-0.793888072	9.113932e-02	-6.231881e-01	1.802401e-01
## 475	-0.0146661875	0.490390249	4.206388e-02	1.444518e-03	3.732401e-01
## 476	0.0115307037	0.194558951	1.065368e-01	-2.703042e-01	-1.832076e-01
## 477	0.7038096599	0.104406066	-2.029487e-01	9.143765e-03	-8.764407e-02
## 478	0.4099275981	-0.131892905	-1.728015e-01	-3.374861e-01	-2.453675e-02
## 479	0.0565981722	0.237160597	-7.589834e-02	1.284184e-01	-3.049761e-01
## 480	-0.0914409318	0.278073334	7.642517e-02	7.834827e-02	-4.114467e-01
## 481	-0.0091611975	0.035489310	7.554027e-02	1.064340e-01	2.369870e-02
## 482	0.2123841113	0.075341273	-2.679651e-02	7.012865e-02	-2.191363e-01
## 483	-0.0721889408	0.378214785	-2.994907e-01	-1.718938e-01	1.884331e-01
## 484	-0.4492941295	0.207366238	-5.127782e-01	-3.057416e-01	-5.080697e-02
## 485	0.4637904582	0.267661517	-1.475477e-01	-5.880012e-02	2.418804e-01
## 486	0.1011299199	0.160793835	-6.273395e-02	-3.355876e-01	-2.163270e-01
## 487	0.1579977596	0.135816514	-4.255877e-02	1.036395e-02	6.282936e-03
## 488	-0.9386746592	-0.531399452	-4.496353e-01	-3.185160e-01	4.075489e-02
## 489	0.0789124111	-0.207794417	-2.662606e-02	2.779920e-02	-1.687871e-01
## 490	-0.1191264680	0.113393152	1.461215e-01	-2.297842e-01	-6.620763e-01
## 491	0.0399800883	-0.103007964	1.943839e-01	-5.543440e-02	-4.570038e-02
## 492	-0.2184508572	0.229914505	6.398183e-02	-1.532645e-01	2.999025e-01
## 493	0.3191900071	0.317532497	-3.956745e-02	-6.010655e-02	5.091094e-01
## 494	-0.2496802869	-0.329124788	-1.681714e-01	1.558327e-01	-2.237534e-01
## 495	-1.1895464097	-0.320876607	1.769579e-01	-7.245117e-02	1.136919e-01
## 496	-0.3731344429	-0.612017784	3.929945e-02	1.046406e-01	1.354219e-01
## 497	-0.1129202949	0.278629074	-1.865938e-01	-2.960133e-01	-3.609647e-01
## 498	0.0980788247	0.192786849	-3.889979e-01	2.365209e-01	1.460354e-01
## 499	0.0132236724	-0.140545704	-2.833183e-02	-3.104887e-01	1.326170e-01
## 500	0.0629209923	0.332746984	-6.319986e-02	-7.551425e-02	-6.652837e-01
## 501	-0.2781926522	-0.338995899	-9.344278e-02	9.901804e-01	6.421150e-01
## 502	0.1275944334	-0.090342175	1.543415e-02	2.988634e-01	5.001757e-02

## 503	0.5584909918	-0.358503836	-2.240897e-01	-7.878395e-02	-5.590329e-02
## 504	0.8272913384	-0.587762677	1.443914e-01	2.253109e-01	-2.219344e-01
## 505	0.2716100457	-0.301767474	-1.331452e-02	-1.601497e-02	-5.344261e-02
## 506	0.0880498113	0.248285550	-1.003313e-01	1.713688e-01	5.698937e-02
## 507	0.3529801504	-0.082443008	-1.682447e-02	1.438520e-01	-1.074637e-01
## 508	-0.0424403919	0.146445039	1.677802e-01	-2.057488e-02	-1.296074e-01
## 509	0.9156578054	0.162461738	-2.910723e-03	-5.103379e-02	-8.202462e-02
## 510	0.1769938781	0.061501941	1.514250e-01	-3.959298e-01	4.192862e-01
## 511	-0.5341369707	-0.631346691	1.402750e-01	2.272247e-01	8.547209e-02
## 512	-0.1569377440	0.035917931	2.972855e-01	4.120388e-02	-2.181584e-01
## 513	0.2986456418	-0.072565111	6.178922e-01	1.435550e-01	5.811865e-01
## 514	-0.2588477893	-0.181161342	2.135466e-01	2.718003e-02	-4.912263e-02
## 515	0.2581279496	0.316351789	-2.068107e-01	2.599902e-01	2.412226e-01
## 516	0.2956694138	0.390824367	1.253419e-01	-2.881450e-01	-4.275129e-01
## 517	0.6507877800	0.008774552	6.497785e-01	-1.805544e-02	-3.135482e-01
## 518	-0.0142663199	0.481976874	-3.293015e-01	1.711032e-01	9.873633e-02
## 519	-0.6055341658	0.502187780	-4.608419e-01	5.547023e-05	2.223657e-02
## 520	0.1942559322	-0.432294179	-8.054027e-02	7.225780e-01	2.246223e-01
## 521	-0.2165212659	-0.261258845	1.638865e-01	2.379180e-03	3.269736e-02
## 522	-0.0132877379	0.098417670	-4.291707e-02	-1.177568e-01	4.538950e-02
## 523	-0.2301902078	0.142600797	2.410581e-01	-4.090518e-02	-5.325102e-02
## 524	1.1639853363	0.220356808	-9.133137e-01	-2.917686e-01	1.782965e-01
## 525	-0.1169639770	-0.467287857	6.369633e-02	-8.119408e-02	-5.406241e-02
## 526	-0.7963934843	-0.071938038	-2.589559e-02	1.625276e-01	-1.403617e-02
## 527	0.2361358109	0.383074437	1.825142e-01	1.203009e-01	3.562098e-03
## 528	0.0709807056	0.362195518	-7.305934e-02	1.380033e-01	8.816791e-02
## 529	0.2270911682	0.239366697	-9.820480e-03	-1.195668e-01	-1.106766e-01
## 530	0.3960698327	-0.164249962	-3.373828e-01	-8.416289e-02	-5.884947e-02
## 531	0.0309582587	0.159935357	-2.649021e-01	9.446633e-02	1.975404e-02
## 532	-0.0447574452	-0.887234564	-1.093859e-01	-8.923846e-02	-5.598322e-01
## 533	0.0723392572	0.013008288	-1.062929e-01	-1.389453e-01	6.636244e-02
## 534	0.2339949835	0.278991401	-1.532250e-01	1.523534e-01	-1.017746e-01
## 535	0.0161554129	0.137951400	-2.011831e-01	1.580920e-01	1.431658e-01
## 536	-0.1999144948	0.100880058	-9.777967e-03	-6.844052e-02	-5.737702e-02
## 537	0.1418115391	0.348951641	4.366443e-02	-7.993361e-02	1.460571e-01
## 538	0.1167628839	-0.319533141	-1.223469e-01	3.313896e-01	-8.598395e-02
## 539	-0.1322141228	-0.477036294	4.380175e-01	9.143835e-02	-1.773155e-01
## 540	0.4543109077	-0.099776102	-2.279189e-01	-1.003754e-01	-3.246732e-01
## 541	-0.2113295568	0.341929890	1.289705e-02	3.247747e-02	1.198331e-01
## 542	-0.2593729687	-0.553313202	5.671734e-01	7.486506e-02	4.305565e-02
## 543	-0.1477408846	-0.045412315	2.427122e-01	-1.199505e-01	-1.661727e-02
## 544	0.7344624467	-0.113251800	-7.198274e-01	7.052837e-01	5.161733e-01
## 545	0.5402865922	-0.904924324	1.028031e-01	-4.337089e-01	-6.636632e-01
## 546	0.2011325764	0.371659563	1.356213e-01	2.697584e-01	-1.378859e-01
## 547	0.0974957717	-1.228240716	-1.553035e-02	3.728226e-01	5.489113e-01
## 548	-0.2886440662	-0.262031421	9.882671e-02	7.233476e-02	-2.273541e-01
## 549	-0.1646237934	0.311450665	1.719494e-01	9.135246e-02	1.576022e-02
## 550	-0.6008976317	0.170161002	-6.368251e-02	-1.767436e-01	-1.460728e-02
## 551	-0.3837949225	0.180656310	-1.834892e-01	-9.469667e-02	5.872848e-02
## 552	0.1769105391	0.015117030	-7.605966e-02	-3.111501e-01	-3.266208e-02
## 553	0.0082202381	1.201454129	1.122160e+00	7.516535e-01	2.335447e-01
## 554	0.1126334500	-0.338023153	-2.372481e-01	1.713651e-01	1.671014e-01
## 555	-0.2941651354	0.091626652	-9.066874e-02	1.931629e-02	-2.231490e-01
## 556	0.1370061074	0.099366347	-1.018107e-01	8.715036e-02	3.572740e-01

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## 557 0.0078033901 0.081554527 -2.661295e-02 -1.739581e-01 1.196125e-01
## 558 0.0305867690 -0.790026663 1.069384e-01 -4.538448e-02 -3.859532e-02
## 559 0.6456100401 0.097891170 5.724399e-01 -1.890217e-03 1.941505e-01
## 560 -0.2605007134 -0.264277825 1.267142e-01 2.571626e-01 5.585308e-02
## 561 -0.1723330264 0.480265871 1.380471e-01 1.471092e-01 1.122127e-01
## 562 -0.0974440934 -0.220393540 -9.813933e-02 3.902463e-02 -4.018143e-02
## 563 -0.0377576898 0.014317763 9.616475e-02 -9.499271e-02 -2.490674e-01
## 564 -0.5959395225 -0.083489849 7.184560e-03 7.199413e-02 -1.846356e-01
## 565 0.3236060666 0.058856156 -4.695702e-01 -4.501508e-01 -3.471412e-01
## 566 0.0831864321 -0.214182122 5.780081e-02 -4.559676e-02 1.528344e-01
## 567 0.0903740474 -0.092989166 4.923031e-01 1.781862e-01 3.839729e-03
## 568 -0.0653393979 0.445170663 -4.445366e-02 1.158968e-02 1.025494e-01
## 569 0.5287516553 0.231756423 -3.548587e-05 2.473740e-01 -2.592611e-01
##          PC20          PC21          PC22          PC23          PC24
## 1  -9.691187e-02 -2.846306e-02 -6.736280e-03 -0.0389719369 6.221208e-02
## 2  -5.262226e-02 -5.987170e-02 5.868642e-02 0.0709786126 -3.082234e-02
## 3  -1.380489e-01 -1.348974e-01 1.008003e-01 0.0539090082 8.548436e-02
## 4  -4.001824e-01 -1.030209e-01 -2.882171e-01 0.1820459068 2.228481e-01
## 5   8.515543e-02 -8.500541e-02 -6.332008e-02 0.0435910301 8.165322e-03
## 6   1.897094e-01 -6.872875e-02 9.669594e-02 -0.0014580538 -3.133835e-02
## 7  -2.937883e-02 -1.475160e-01 -1.731877e-02 -0.0108743761 3.634293e-02
## 8   3.024854e-01 -3.099751e-02 9.995874e-02 -0.0072754677 2.939741e-02
## 9  -3.919811e-02 -5.436148e-02 -7.930105e-02 0.1166388585 -6.923093e-02
## 10 -2.211534e-01 1.244503e-01 2.906959e-03 -0.0958436133 -7.627162e-02
## 11  1.932840e-03 -1.077269e-01 3.219922e-01 -0.0207780502 4.516000e-03
## 12 -1.206356e-01 5.042482e-02 1.573921e-01 -0.0222931936 -2.352901e-02
## 13  1.515462e-01 -6.981790e-02 -1.931869e-01 -0.2024735878 1.395437e-01
## 14  2.401749e-01 -5.455272e-02 -4.795192e-02 -0.0424807415 7.299235e-02
## 15  1.270436e-01 1.373108e-01 -3.501457e-02 -0.0602123244 6.673425e-02
## 16  5.353835e-02 -5.469285e-02 -1.008057e-01 -0.0522950385 8.616948e-03
## 17 -6.569926e-02 -1.493094e-01 1.716667e-02 0.0597777408 -1.506182e-01
## 18  1.634152e-01 -3.505539e-02 -1.464825e-01 -0.0039775402 9.139378e-02
## 19  2.239174e-01 5.765831e-01 1.983251e-01 -0.1213930293 -3.455752e-01
## 20  4.683065e-02 6.678614e-02 6.078671e-03 0.1437547933 4.511770e-02
## 21 -2.227016e-01 5.752789e-02 -2.271678e-02 -0.0993528734 -8.267351e-02
## 22 -1.446453e-03 -1.498505e-01 -2.707121e-01 -0.1656619655 -1.070458e-01
## 23 -5.508613e-02 1.981001e-01 1.483337e-01 -0.0618197083 -2.100676e-02
## 24 -4.532253e-02 -2.759078e-01 -3.047715e-01 0.2331576854 1.453243e-01
## 25 -1.764213e-01 6.727165e-03 -2.542099e-01 -0.2043585353 -9.270941e-02
## 26  3.859665e-02 -9.409569e-02 -8.135817e-02 0.2831371452 -2.032727e-01
## 27  1.156892e-01 -1.749649e-01 -3.564202e-02 -0.0021298665 4.299954e-02
## 28  1.635999e-01 -1.848541e-01 -6.633801e-02 -0.2971181506 5.371614e-02
## 29 -3.608488e-01 2.075860e-01 1.482093e-01 -0.1579593052 -4.576235e-03
## 30  1.262038e-01 6.594744e-02 -1.394044e-01 0.0686306984 -5.039420e-03
## 31  1.932421e-01 -2.564502e-02 4.135938e-02 0.0759173497 1.268250e-02
## 32 -2.004161e-02 -1.317350e-02 1.869560e-01 0.0006658619 4.387252e-02
## 33 -8.026859e-02 9.746735e-02 -6.751488e-02 0.1257145839 2.765132e-03
## 34 -1.495394e-01 -6.830546e-02 8.381920e-02 0.0983623254 -5.417455e-02
## 35  1.261303e-01 -1.181033e-02 -9.847136e-03 0.0919067189 -1.375531e-02
## 36  3.626214e-02 1.484199e-01 -1.239235e-01 0.0374694412 2.285953e-02
## 37 -4.197287e-02 2.687950e-02 -5.888385e-02 -0.0859464734 -2.035974e-01
## 38  1.940495e-02 1.230285e-01 3.737305e-01 -0.1400014645 -1.340131e-01
## 39 -1.021625e-01 -8.007357e-02 1.273240e-01 0.0428784496 -7.150104e-02
## 40  1.837580e-02 -1.085884e-01 5.159482e-02 0.2692212532 5.291070e-02

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## 41	-7.182280e-02	9.492884e-02	2.480937e-01	0.1557606094	9.392111e-02
## 42	-3.661367e-01	-2.251888e-02	-4.545154e-02	0.0014049365	4.347633e-01
## 43	-2.551570e-02	4.871783e-01	-4.105041e-01	0.2049395102	-1.352027e-01
## 44	-4.464008e-02	-1.383938e-02	1.263177e-02	0.0731473296	-1.655978e-01
## 45	3.368770e-02	-9.491693e-02	1.219370e-01	0.1056865731	-1.468908e-02
## 46	-6.757124e-02	5.126289e-01	1.365662e-02	0.1544413525	-1.057409e-01
## 47	-2.387263e-01	2.589452e-02	-2.408946e-02	0.0129381577	4.422292e-02
## 48	-3.665774e-01	2.505283e-02	-2.875499e-01	0.2702383409	2.785541e-01
## 49	-1.304463e-01	-2.190066e-01	-5.820846e-02	-0.1852676668	-3.203136e-02
## 50	-1.911266e-02	-1.180622e-01	-9.377084e-02	0.1568846712	-4.390793e-02
## 51	-5.049758e-02	-2.459290e-01	1.174748e-01	-0.1628544758	-6.038947e-02
## 52	1.196252e-01	-2.345591e-02	-1.214327e-02	-0.2335117134	-2.437841e-01
## 53	6.765320e-02	1.443405e-01	1.415283e-01	0.1538616179	-5.782007e-02
## 54	7.615175e-04	-2.072122e-01	1.323145e-01	0.0802648379	7.402856e-02
## 55	-1.572611e-01	3.299894e-01	1.889017e-02	-0.1873737113	3.448364e-01
## 56	-3.741426e-02	-1.043469e-01	-1.405715e-01	-0.1367940210	-1.884924e-01
## 57	-3.218577e-01	-7.521182e-02	-2.059829e-02	-0.0401296842	8.302990e-02
## 58	4.480643e-01	-1.985189e-02	4.734385e-02	0.1577233862	7.506917e-02
## 59	-2.216465e-01	1.803297e-01	-1.893444e-01	0.1820445696	-7.747473e-01
## 60	-1.208383e-02	-1.865519e-01	-7.992594e-03	-0.1665103209	-1.263988e-01
## 61	1.732927e-01	3.122983e-01	4.079434e-01	-0.1192643306	-2.826409e-01
## 62	2.233374e-01	1.020955e-01	5.578265e-02	0.2234615113	9.639506e-02
## 63	1.105663e-01	-3.027858e-01	2.495947e-01	-0.0385025175	7.058262e-02
## 64	-2.090100e-01	-1.657851e-01	1.484928e-01	-0.1907336224	-2.026248e-01
## 65	-2.400854e-01	-2.771342e-01	-1.369491e-01	-0.2089155797	-7.170512e-02
## 66	4.014291e-02	2.160654e-05	-7.557324e-02	-0.0038943873	-1.121020e-01
## 67	8.480001e-02	2.445064e-02	9.166255e-02	0.0541509910	-7.139758e-02
## 68	7.100866e-02	-2.756946e-02	1.220851e-01	0.0163544543	-2.888771e-02
## 69	-1.197138e-01	-7.377440e-05	2.103255e-01	-0.0358172332	-6.259188e-02
## 70	1.520258e-01	-3.014141e-02	-1.688518e-03	-0.0759812609	7.224716e-02
## 71	-2.444988e-01	-6.300314e-02	-2.164920e-01	-0.2378835401	-4.343156e-01
## 72	-6.982760e-02	-8.479141e-02	-5.422003e-02	-0.0027982237	-4.355751e-03
## 73	-1.510822e-01	8.541415e-02	2.915549e-02	-0.0333658295	1.201150e-01
## 74	3.044185e-01	-6.402310e-02	1.137560e-01	0.0488086884	-1.824063e-01
## 75	2.007785e-01	1.120532e-01	1.245316e-01	-0.1288528664	-1.277029e-01
## 76	-5.096010e-02	-5.563118e-02	8.021101e-02	0.0324491564	-6.977127e-02
## 77	4.661505e-02	1.623249e-02	8.159645e-02	-0.4131439022	-5.879948e-02
## 78	3.469879e-02	-8.409871e-02	-5.155655e-02	0.0599092993	3.273339e-02
## 79	9.428148e-02	7.526564e-02	-3.076992e-02	0.0318128932	-1.002296e-01
## 80	-5.768723e-02	1.500129e-01	-2.184574e-01	-0.1091813960	-2.979646e-01
## 81	2.256086e-02	-7.773527e-02	-2.472293e-05	0.0011709659	-1.242832e-01
## 82	2.757705e-02	-9.161123e-02	-8.948520e-02	0.1339585498	5.468082e-02
## 83	1.701040e-02	1.046182e-01	8.291585e-02	0.0286825532	-5.979366e-02
## 84	-1.155270e-01	2.507838e-01	1.674362e-01	0.1337843317	-2.409064e-01
## 85	-2.253929e-01	-1.124682e-02	1.729709e-01	0.0257520889	-4.571119e-02
## 86	-5.179854e-02	8.163988e-02	-4.471860e-02	0.0492940454	2.785647e-02
## 87	-1.136738e-01	-3.576620e-02	1.752846e-03	-0.0789253084	-1.028445e-01
## 88	-5.858067e-02	-1.453083e-01	8.873090e-02	0.1100800401	-6.799447e-02
## 89	-4.470740e-01	-2.607882e-01	1.733362e-01	0.1216993166	-1.468678e-01
## 90	6.219814e-02	2.693609e-02	-2.549020e-02	-0.1527460650	-1.375469e-01
## 91	1.059663e-01	4.797419e-02	6.154202e-02	-0.0715126450	1.341152e-02
## 92	-4.400381e-02	-4.136765e-02	-1.057176e-01	-0.1773947096	-6.240683e-02
## 93	3.768159e-02	-2.165230e-01	4.625731e-01	-0.0855125109	2.878605e-02
## 94	6.862753e-02	-1.856984e-02	-1.213680e-01	0.0529474459	-5.407444e-02

## 95	-6.844513e-01	3.298913e-01	2.726410e-01	0.2185276728	-2.219966e-01
## 96	1.780083e-02	-1.147551e-01	-7.368947e-02	-0.1630477035	-1.761428e-01
## 97	-4.217719e-02	1.025760e-01	8.153254e-02	0.0040975044	6.594482e-02
## 98	-3.838017e-02	-1.501033e-02	-8.072285e-02	0.0079276455	-6.017968e-02
## 99	-1.089704e-01	-2.172575e-02	-1.185778e-02	0.0508272649	4.226873e-02
## 100	2.849708e-01	1.248444e-01	9.116132e-02	0.2681759811	-5.329849e-02
## 101	-9.665741e-02	-2.028714e-01	-1.803556e-01	0.0051388394	-2.483258e-02
## 102	-2.535293e-01	6.625575e-01	-1.084281e+00	-0.2347493428	-3.422147e-01
## 103	-1.295815e-01	-4.475997e-02	-1.211885e-01	0.0410939511	1.511541e-03
## 104	-8.278568e-02	1.515508e-01	2.390892e-01	-0.0794663842	-1.156608e-01
## 105	6.800031e-02	-1.375502e-01	1.360304e-01	0.0231070817	8.793587e-02
## 106	-2.930022e-02	6.711671e-02	1.769746e-01	0.0658680871	-2.156580e-02
## 107	-7.336140e-02	4.714799e-02	2.572311e-02	0.1911052872	5.026887e-02
## 108	-4.160787e-02	-7.479602e-02	-9.608814e-03	-0.3172368980	1.453821e-01
## 109	3.543467e-01	1.845745e-01	-6.584448e-02	0.0197937732	-9.299709e-02
## 110	-2.756987e-03	-3.883811e-02	-3.238621e-02	-0.0109364275	3.643436e-02
## 111	4.301571e-02	-1.057384e-01	1.306320e-01	-0.0421728071	1.064455e-01
## 112	5.728126e-02	1.681176e-01	2.560146e-02	0.1680908041	1.343392e-01
## 113	8.184356e-02	7.309725e-02	1.124325e-01	-0.0357572036	6.035875e-02
## 114	-4.624384e-02	-3.531754e-01	-1.187774e-01	0.0534573592	4.025357e-03
## 115	8.566905e-02	6.429725e-02	-6.115708e-02	0.0514710126	2.146106e-02
## 116	3.282345e-02	-4.867828e-02	-1.622403e-01	-0.1866094170	1.271833e-02
## 117	2.333728e-02	1.710947e-01	-1.906664e-01	-0.2991592767	1.370564e-01
## 118	1.626625e-02	4.911274e-04	1.413516e-01	0.0220215195	-2.697410e-03
## 119	2.694869e-02	-7.522668e-02	-2.004008e-02	0.0996311322	-1.814838e-02
## 120	-9.055572e-02	-1.376946e-01	3.459390e-02	0.0351551248	2.438251e-02
## 121	1.358824e-01	-9.265657e-02	1.469881e-01	0.0309295960	-4.397430e-02
## 122	3.549181e-01	-1.430365e-01	7.569173e-02	0.0203602521	1.908844e-01
## 123	-2.400428e-01	8.871290e-02	1.915555e-02	0.0182783453	-6.160766e-02
## 124	-9.908786e-01	-4.650019e-01	-1.798379e-01	0.0279396549	1.832863e-01
## 125	1.545334e-01	1.899343e-01	-1.212036e-01	0.2154539278	1.206485e-01
## 126	1.946551e-02	1.399124e-01	-5.298728e-02	-0.0037736635	-6.088065e-02
## 127	-1.752493e-01	1.002607e-01	1.385618e-01	0.3744793365	1.142437e-01
## 128	1.033013e-01	1.730269e-02	5.301831e-02	-0.0579485601	-3.876584e-02
## 129	1.793221e-01	7.666868e-02	2.624210e-01	-0.0782265560	-2.728897e-03
## 130	-5.593432e-02	-1.986999e-01	2.705303e-01	0.0036479322	1.636961e-01
## 131	-3.606313e-02	-1.471282e-01	1.508971e-02	-0.3279315206	2.416778e-01
## 132	-2.267120e-01	-2.045166e-01	7.344491e-02	-0.0798426949	-7.125818e-02
## 133	-2.368851e-01	-8.071943e-02	5.752056e-02	0.0084822894	-1.343485e-01
## 134	-2.756236e-01	3.910524e-01	3.618725e-03	0.0666147515	9.579772e-02
## 135	-1.988189e-01	8.132707e-02	8.321794e-02	-0.0617919036	-5.158649e-05
## 136	-1.643511e-01	-2.661851e-02	-1.069770e-01	0.1637439473	1.467365e-01
## 137	3.456651e-01	-1.509268e-02	3.400897e-02	-0.3156395860	-2.135918e-01
## 138	-9.530113e-02	-1.229754e-02	1.097488e-01	0.1752255456	-7.774262e-03
## 139	1.456718e-01	9.677291e-02	4.494405e-01	-0.1135993826	-1.135752e-01
## 140	-1.020101e-01	1.688823e-02	2.140397e-02	-0.0788141360	-7.690707e-04
## 141	3.521533e-01	-4.762834e-02	9.672915e-02	0.0477638096	-3.387758e-02
## 142	1.681920e-01	-3.330383e-01	-1.072762e-01	-0.0695731185	8.515658e-02
## 143	-1.984944e-01	2.218888e-01	1.582779e-02	-0.0202282825	-5.199248e-02
## 144	2.531344e-01	4.229265e-01	1.418888e-01	0.0215239573	5.846783e-02
## 145	-2.118998e-01	-3.773255e-01	-4.044968e-02	-0.0232482526	-5.904874e-01
## 146	-3.890924e-02	-2.416675e-01	-7.131564e-02	0.0585434014	1.483818e-01
## 147	-1.218627e-01	-5.578638e-02	-2.908681e-02	0.1773098712	-2.160652e-01
## 148	2.254638e-01	1.955686e-02	2.232875e-04	0.0049164854	5.692668e-02

## 149	-1.558170e-01	-2.074354e-01	-1.649951e-01	0.0809564879	1.071895e-01
## 150	-8.843663e-02	-1.010523e-01	5.449172e-02	-0.2697746780	-1.172558e-02
## 151	5.143907e-02	6.514002e-03	-1.303650e-01	0.0049924246	6.625856e-02
## 152	1.938502e-01	1.446072e-01	1.548206e-01	-0.1978438606	-2.068378e-01
## 153	1.952118e-01	-1.720730e-02	-1.733941e-01	-0.0650436116	2.235338e-02
## 154	1.260045e-02	-3.068383e-02	2.467449e-02	0.0731806120	1.759142e-01
## 155	-3.332399e-02	-2.394380e-01	-2.879152e-01	-0.4923477320	1.706329e-01
## 156	2.385643e-01	2.875704e-01	2.485259e-01	0.0070811822	-2.714711e-01
## 157	3.460246e-02	-9.863066e-02	2.252294e-01	-0.0067499602	2.306925e-02
## 158	-7.279950e-02	-8.657553e-02	3.946026e-01	-0.0329364685	1.531804e-01
## 159	-1.692037e-01	-2.178339e-01	-3.707996e-01	-0.1077547860	2.773207e-01
## 160	-2.054861e-01	-2.250561e-01	1.202167e-01	-0.2476731514	-9.425568e-02
## 161	-6.642942e-02	-2.100221e-01	9.519623e-02	0.0351894635	-7.643320e-02
## 162	-7.640756e-01	4.052880e-01	-2.112293e-02	0.5966602376	3.063263e-01
## 163	1.161746e-01	-1.356920e-01	2.816270e-01	0.0790430759	-1.047247e-02
## 164	-2.976533e-01	1.101321e-01	1.098312e-01	0.0357136223	5.147368e-02
## 165	-8.442259e-02	1.257549e-01	-2.894234e-02	-0.1834480415	1.763315e-02
## 166	-4.536357e-01	9.739372e-02	8.218897e-02	0.2463973633	-1.764938e-03
## 167	1.664817e-01	6.677150e-03	3.291299e-02	0.0029004037	-8.085119e-02
## 168	-1.536027e-02	3.529032e-01	2.732713e-02	0.1868427106	-1.012730e-01
## 169	2.414615e-01	1.241120e-01	-1.247251e-01	-0.0090270433	3.223288e-01
## 170	9.307739e-03	-7.814691e-02	-6.652948e-02	0.0072146674	-3.399993e-02
## 171	-2.562120e-01	2.284106e-01	8.424825e-02	0.0692000947	-1.751988e-01
## 172	-1.565144e-01	3.052766e-02	2.184345e-01	0.1004367744	-1.385080e-01
## 173	2.189479e-01	1.256311e-02	-4.489380e-02	0.1300008606	-2.445569e-01
## 174	1.772023e-01	-1.332699e-01	1.854908e-02	0.0387148129	-6.793792e-02
## 175	9.365210e-02	-1.595190e-02	2.119976e-01	-0.0176583617	6.442827e-02
## 176	1.268749e-01	-2.663478e-01	-4.952687e-02	0.0503977316	-1.038751e-02
## 177	-2.362358e-01	-4.735852e-02	-1.678289e-01	-0.0293861036	2.804602e-02
## 178	-5.842553e-02	1.138943e-01	7.041492e-02	0.0806214836	5.450894e-02
## 179	1.396108e-01	2.205098e-01	-3.646602e-01	-0.4105018038	6.723007e-02
## 180	-2.034624e-01	-1.987425e-01	3.446918e-01	0.0244247037	-2.671246e-02
## 181	-7.198716e-02	-9.731495e-02	9.546019e-02	0.2159465786	-1.040093e-01
## 182	2.656367e-01	1.713810e-01	-1.170657e-01	-0.0238310263	-2.467022e-02
## 183	1.043774e-01	-1.308547e-02	-4.688391e-02	-0.0016640872	5.302315e-02
## 184	3.809876e-01	2.479269e-01	-3.591413e-01	0.1075508205	1.684172e-01
## 185	9.766867e-02	-2.642368e-01	-6.721539e-02	-0.0128276680	4.223413e-02
## 186	-3.540156e-01	-1.983570e-01	-1.385483e-02	0.1061536389	2.153516e-01
## 187	-1.874595e-01	6.648262e-02	-1.573997e-01	-0.1484955747	-3.053475e-01
## 188	3.001583e-01	1.345382e-01	5.625386e-02	-0.1395057578	1.335936e-01
## 189	2.629688e-02	8.437520e-02	-6.226093e-02	-0.0154022975	9.671004e-03
## 190	4.581621e-02	-2.085777e-02	-9.238639e-02	0.0109446320	1.248002e-01
## 191	2.610038e-01	-8.506850e-02	8.968085e-02	0.0185755767	-1.191098e-01
## 192	1.172441e-01	-1.240008e-01	1.898263e-01	0.1911918934	4.229521e-02
## 193	2.203045e-02	-7.950465e-02	-8.424779e-02	-0.1015309342	-7.204711e-02
## 194	9.138999e-02	2.831831e-01	9.108256e-02	0.0483767843	1.244292e-01
## 195	-1.633421e-01	-1.231305e-01	1.057320e-01	0.1581643389	-1.079601e-01
## 196	-1.796536e-01	7.904802e-01	1.624536e-01	-0.2851177083	2.069744e-01
## 197	2.250094e-01	2.396939e-01	1.749473e-02	0.0493535330	2.184564e-02
## 198	4.921302e-02	-1.021211e-01	-8.271408e-02	0.0776061164	-6.171713e-02
## 199	2.536521e-01	4.199219e-03	-3.280808e-01	-0.2966972504	-1.912028e-01
## 200	-1.233506e-01	-3.133539e-03	1.905980e-01	0.0152391906	-9.455043e-03
## 201	9.871757e-01	6.100016e-01	-3.776159e-01	-0.1395040494	1.092156e-01
## 202	-8.291183e-02	7.217449e-02	1.988700e-01	0.0451317336	4.328973e-02

##	203	-8.232950e-02	-2.653727e-01	1.792719e-01	0.0379992600	-1.903467e-01
##	204	-1.199538e-01	8.564248e-02	1.205523e-02	0.0112337495	1.275080e-01
##	205	-4.964364e-02	1.105254e-01	1.196608e-01	-0.0660997052	6.139741e-03
##	206	-1.829123e-02	-1.773679e-01	1.726468e-01	-0.1994815112	6.830229e-02
##	207	1.880398e-01	1.683138e-01	-1.213812e-01	0.0135141803	2.299602e-02
##	208	4.575122e-02	2.355315e-01	-9.720134e-02	-0.0539196177	-4.438601e-02
##	209	1.528991e-01	-1.642208e-01	2.696229e-02	0.1325405174	1.484724e-01
##	210	-1.837152e-01	-3.182773e-01	-3.912929e-01	0.1190787227	-3.310830e-01
##	211	-5.334945e-02	-5.858532e-02	-1.305067e-01	0.1390518168	-9.457379e-02
##	212	-3.927603e-01	9.305365e-02	7.259281e-02	0.2323853538	-2.205045e-01
##	213	-2.012513e-01	-8.499478e-02	-1.331912e-01	0.4432521684	-1.727574e-02
##	214	1.497725e-01	-1.485868e-01	-1.775562e-01	-0.1365308569	6.134671e-02
##	215	-1.553671e-01	1.443459e-02	2.518656e-03	-0.0027425075	4.320270e-03
##	216	2.437730e-02	-2.463683e-01	1.195832e-01	-0.2168724504	3.499997e-02
##	217	2.922507e-01	-1.246421e-01	-3.389090e-02	-0.0234732995	-7.925001e-02
##	218	-5.147723e-02	-1.568910e-01	-1.727371e-02	-0.1732616147	-2.336272e-01
##	219	-1.269964e-01	6.968257e-02	4.729528e-03	0.1017164005	3.206025e-02
##	220	-2.721115e-01	1.639506e-01	-1.604450e-01	-0.1254664532	-1.426485e-01
##	221	1.103623e-01	-1.051000e-01	-1.027122e-01	0.0155731671	3.084248e-03
##	222	9.502978e-02	8.131321e-02	3.973088e-02	0.2370837094	3.251858e-02
##	223	1.268873e-01	2.724010e-02	1.050945e-01	0.0210696465	1.401083e-01
##	224	1.535021e-01	-7.552487e-02	1.503043e-01	-0.1098539559	-3.048291e-02
##	225	-5.820942e-02	6.404235e-02	-2.425732e-02	-0.0203391201	-1.764052e-01
##	226	-3.181228e-01	-4.498204e-01	1.483310e-01	-0.5911992307	-3.896179e-01
##	227	1.860692e-01	-3.505935e-01	-4.986152e-02	-0.0094260535	-1.472720e-01
##	228	6.650959e-02	1.301951e-01	-4.803791e-02	-0.0434731192	1.144714e-01
##	229	1.905691e-01	-4.154683e-02	-1.316911e-01	-0.0979873056	-2.408943e-01
##	230	1.141732e-01	-2.674189e-02	1.794913e-01	0.1886751155	1.497639e-01
##	231	1.045944e-01	5.015495e-02	-2.075232e-01	-0.1599018254	2.373777e-02
##	232	-7.138071e-02	-1.114786e-01	6.687344e-02	0.1007243402	-7.788084e-03
##	233	3.376361e-01	-4.153486e-01	-8.988502e-02	-0.0305816296	1.532246e-01
##	234	1.248996e-01	2.504142e-03	2.031383e-01	0.0442473844	1.232611e-01
##	235	-9.518525e-02	4.752261e-02	-1.014773e-01	-0.0550024332	5.065814e-03
##	236	7.738434e-02	-1.318901e-01	6.901238e-03	-0.0531487934	-1.544883e-02
##	237	1.193195e-01	-1.286103e-01	5.794374e-03	-0.0804324811	4.816626e-02
##	238	-1.739811e-01	2.348742e-01	-7.612752e-02	0.1082768360	3.470316e-02
##	239	1.091443e-01	4.505975e-03	-7.278709e-02	0.0759180710	1.402337e-01
##	240	-8.706375e-02	-1.164869e-01	1.446910e-01	-0.0267965221	2.634652e-02
##	241	6.600479e-02	-1.169471e-01	-1.853370e-01	-0.0053679609	-1.855063e-02
##	242	-2.927293e-01	4.835259e-01	-6.569372e-02	-0.2457889104	-9.015132e-02
##	243	-2.174504e-01	1.719548e-01	4.290187e-02	0.1586008372	1.035183e-01
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##	247	-1.919817e-01	8.353376e-02	1.164899e-01	0.1694052119	2.622695e-02
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## 416 -1.892464e-01 1.605080e-01 2.633204e-01 0.0920018880 1.117854e-01
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## 421 7.737662e-01 -7.888964e-01 -7.840523e-01 0.3665653526 -7.093082e-01
## 422 -6.236693e-02 -8.097566e-02 2.183312e-01 -0.1869762394 -2.316362e-01
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## 427 -9.672801e-03 -1.885959e-01 -7.878408e-03 0.0266094433 5.257688e-02
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## 431 6.875126e-02 5.410363e-02 8.036884e-02 -0.5468071267 8.691772e-04
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## 434 -4.089167e-02 1.615806e-01 4.982969e-02 0.1456375321 -2.241647e-01
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## 547 -2.034081e-01 1.515715e-01 2.989098e-01 0.3782120958 6.510716e-02
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## 568 -2.207317e-02 1.535468e-02 2.079176e-02 0.2007992398 3.274830e-04
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## 10 0.0756044146 -6.937821e-02 -1.796520e-02 0.0208900863 -0.0229256417

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## 13	-0.0691677978	8.501714e-02	3.606267e-02	-0.0115189160	-0.0236487859
## 14	0.0102124604	3.722602e-02	6.986498e-02	-0.0001342391	0.0262774321
## 15	-0.0853201274	1.334041e-01	-1.542447e-02	0.0526092277	-0.0106431857
## 16	0.0090468072	-1.829778e-01	-4.008585e-02	-0.0395565231	-0.0113053550
## 17	-0.0152625722	1.245288e-02	2.818542e-02	0.0118991338	-0.0219583607
## 18	0.0938305177	-9.511740e-02	2.112906e-02	0.0091836992	0.0184535080
## 19	-0.1894668092	3.825001e-02	-4.004954e-02	0.2263597091	0.0319045180
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## 23	0.0507842783	7.119412e-02	7.321933e-02	-0.0246700231	-0.0128612569
## 24	-0.1788807166	-8.480195e-02	-1.183986e-01	0.0901569755	-0.0098411879
## 25	-0.0926433708	2.229218e-02	3.239943e-02	0.0109952266	-0.0379124107
## 26	0.0761380686	-1.154140e-01	7.134229e-02	0.0315139751	-0.0401102951
## 27	0.0443721087	9.815390e-03	8.943533e-03	-0.0247139379	0.0219728384
## 28	0.2223300734	3.523143e-01	4.655721e-02	0.2407008095	-0.1852027901
## 29	-0.0969571997	2.177043e-01	-8.187578e-02	0.0814109162	-0.0090939596
## 30	0.0150136413	-3.881930e-02	4.031957e-02	0.0125186331	0.0273630567
## 31	0.0009953973	-2.754930e-02	6.837954e-02	-0.0685101420	0.0017889958
## 32	-0.1097327326	-1.438424e-02	2.354461e-02	0.0452194197	0.0061246303
## 33	-0.4685082392	-1.420587e-01	1.462870e-01	-0.0715863646	-0.0595115348
## 34	-0.0892776751	-1.181234e-02	-2.728450e-02	-0.0590833361	0.0130416480
## 35	-0.0527567526	-5.676271e-02	1.130212e-02	-0.0252578940	0.0047644298
## 36	0.1279337665	-5.895633e-02	2.285244e-02	-0.0136113786	-0.0323834364
## 37	0.1011202827	-3.357129e-02	6.766046e-02	0.0145404352	-0.0403402638
## 38	0.0111714403	4.503495e-02	2.602385e-02	0.0620363491	0.0259186233
## 39	-0.0387415011	-2.464867e-02	-1.087789e-02	0.0551020192	0.0091668531
## 40	0.0943461369	-4.286375e-02	1.438983e-01	-0.0360424650	0.0146077001
## 41	0.0651897641	1.877662e-01	7.902163e-04	-0.0507089905	-0.0501071660
## 42	-0.0743079159	-1.631005e-01	-4.585383e-02	-0.0446278063	0.0911078308
## 43	-0.1585197035	7.561717e-02	2.728082e-01	-0.1841875377	0.0424279229
## 44	-0.1460182294	-8.889271e-02	5.022301e-02	0.0855229177	-0.0160270811
## 45	0.1277058437	5.078077e-02	8.309459e-02	0.0328784540	-0.0146923196
## 46	-0.1358683606	-7.533672e-02	1.286545e-02	0.0511279444	-0.0069384905
## 47	0.0448974673	4.700963e-02	3.348837e-02	0.0547823196	-0.0023206355
## 48	0.3640639956	4.252981e-01	-1.610565e-01	-0.2137482100	-0.0381373067
## 49	-0.0500563756	-8.777444e-02	-1.307610e-01	0.0329035277	0.0020957473
## 50	-0.0144715042	-9.489208e-03	-2.550507e-02	0.0129741769	0.0087123575
## 51	-0.1705878139	-3.509082e-02	-1.240212e-01	0.0815819893	0.0152921924
## 52	0.1683498705	-3.132125e-02	-2.445748e-02	0.0297321325	-0.0331236455
## 53	-0.0054999763	-2.176484e-02	-3.526310e-02	-0.0402841172	0.0107722059
## 54	-0.2736456719	5.622345e-02	5.266598e-02	0.0411842454	-0.0065017458
## 55	0.1321172318	-8.178540e-02	-3.337910e-02	-0.3121274609	-0.1007394701
## 56	-0.2531247119	2.228869e-01	-1.272440e-01	0.1271426338	0.0718062109
## 57	-0.1089841112	-3.560177e-02	5.678484e-02	-0.0655979733	-0.0067404314
## 58	0.0719560204	1.683691e-02	-3.146452e-02	-0.0723397173	0.0078063902
## 59	-0.0424870646	-4.802237e-01	2.236996e-01	0.0259482166	-0.1009891889
## 60	-0.1636192440	1.365975e-01	9.958089e-02	-0.1472098173	0.0646962815
## 61	0.3116929272	-4.721569e-02	9.617825e-03	0.0247950621	-0.0709616241
## 62	-0.1343916004	7.231524e-02	1.136106e-01	-0.0428475099	-0.0022463043
## 63	0.1114669183	-9.834757e-02	1.625239e-01	0.0773552872	-0.0035421174
## 64	-0.0027351620	-2.804132e-02	7.235304e-02	-0.0695511185	0.0115904549

## 65	-0.0942765442	7.511854e-02	1.164406e-01	0.0225291261	0.0010160584
## 66	-0.0239005145	-5.847443e-02	7.847559e-02	0.0155835137	0.0132711018
## 67	0.0429068137	-1.230085e-01	3.105377e-02	0.0063615856	-0.0200441666
## 68	-0.0899346204	6.555616e-02	8.579570e-02	0.0090042996	0.0268352584
## 69	0.0048920911	5.756206e-02	4.386319e-02	0.0008812426	-0.0057755937
## 70	-0.0398584826	1.240890e-01	-9.446651e-02	0.0355147201	0.0043148745
## 71	0.1220617691	-2.817758e-01	1.028822e-01	-0.1283744567	-0.0742747228
## 72	0.0554795482	-5.558347e-02	-9.018179e-02	-0.0877352341	-0.0180453170
## 73	-0.2443386275	8.264495e-02	9.686764e-02	-0.2556893106	0.0202584002
## 74	-0.1490244395	3.240252e-02	-3.872063e-02	-0.0235123863	0.0065685994
## 75	-0.1678873227	-5.288383e-02	2.059670e-02	-0.1048133481	-0.0187357842
## 76	-0.0115288083	-9.555230e-02	-3.089866e-02	0.0058851872	-0.0156305323
## 77	-0.0484098587	1.684822e-02	-9.668038e-02	-0.0431265122	0.0255737824
## 78	0.0313510355	2.512156e-03	-7.507889e-02	0.0099252444	0.0360829529
## 79	0.0390315478	-5.162826e-03	-1.473371e-02	-0.0029162883	0.0269282854
## 80	0.0891386890	1.432587e-01	4.878600e-02	0.0456480058	0.0399893607
## 81	0.0578263133	8.518959e-02	-4.887769e-03	0.0471852749	0.0094077473
## 82	0.0136858433	-6.121074e-02	-2.857840e-02	-0.0243818933	0.0177535238
## 83	0.0606959620	7.197988e-02	-1.613640e-03	0.0582247814	0.0209370866
## 84	0.1039266228	-5.042327e-02	-6.672070e-02	0.0117268178	0.0200736766
## 85	0.1022451505	2.110807e-02	-7.624146e-03	-0.0262027019	-0.0252608854
## 86	0.0069460266	-1.805527e-02	6.074353e-02	0.0148952545	0.0195915284
## 87	0.0460613254	2.573183e-02	-1.960069e-02	-0.0438845496	0.0303948560
## 88	-0.0174394151	-2.151042e-02	-1.978784e-02	0.0202943160	-0.0054566694
## 89	0.1075658504	-3.645791e-02	-8.998042e-02	-0.1463380961	0.0686806867
## 90	-0.1099188974	2.536473e-02	1.063745e-01	-0.0044985114	-0.0065792676
## 91	-0.0522484053	7.668235e-02	1.185034e-01	0.0426828314	-0.0027990550
## 92	0.0646334827	7.978067e-02	4.281465e-02	-0.0204368923	-0.0016042409
## 93	-0.1550553926	1.427484e-01	-9.572533e-03	0.0472780084	-0.0007851106
## 94	0.0457449775	2.927924e-02	2.244525e-02	0.0074520198	0.0193216886
## 95	-0.2935017758	-4.215238e-02	-6.465893e-02	0.0469707091	0.0453389373
## 96	0.0132731634	1.586993e-02	-7.002411e-02	0.0132492143	0.0562672060
## 97	0.1301095392	1.339322e-02	2.906127e-02	0.0402028224	-0.0080441089
## 98	-0.0004972036	8.423928e-02	8.449636e-03	0.0025384196	-0.0130582355
## 99	0.0296308778	-4.863822e-02	-5.311916e-02	-0.0327142984	-0.0275644972
## 100	0.2594786505	2.019148e-01	-1.525702e-01	-0.2069422358	-0.0652489816
## 101	0.0662983982	-1.180823e-01	-9.163093e-02	-0.1105311481	-0.0013877012
## 102	0.0417686641	-1.324622e-01	1.158632e-01	0.0483677669	-0.0459407868
## 103	0.0389782247	-6.721938e-02	-3.709477e-02	-0.0319105688	0.0088608692
## 104	-0.0255754243	-1.982912e-01	7.454308e-02	-0.0145317355	0.0016645102
## 105	-0.2064147261	2.974752e-02	1.552320e-03	0.0467342886	0.0108345237
## 106	0.0513109180	-1.507174e-01	-4.474898e-02	-0.0413517840	-0.0235905790
## 107	0.1024154529	-6.863568e-02	2.296470e-02	0.0038392754	0.0547225235
## 108	-0.2155207343	-1.102408e-01	4.761926e-02	-0.0547154320	-0.0165025183
## 109	-0.0177316301	9.759488e-02	1.163344e-03	-0.0339964747	0.0000718563
## 110	0.0691238587	-8.841457e-03	2.782423e-02	-0.0774286268	-0.0086110360
## 111	-0.0444865433	1.285814e-02	-3.602926e-03	-0.1260690549	0.0102767042
## 112	-0.0593811591	-1.004975e-01	-1.162423e-01	-0.1059939623	0.0209075529
## 113	-0.0565027902	4.812365e-02	1.529775e-01	0.0608933628	0.0347631876
## 114	0.1213407120	1.360353e-01	1.811619e-01	-0.1688223678	-0.0124969057
## 115	-0.0562668124	5.686048e-02	2.176677e-02	-0.0609383834	-0.0095368814
## 116	-0.2461710802	1.221111e-01	6.936528e-03	-0.0079588418	0.0138315864
## 117	-0.0674255964	-1.160652e-01	3.946167e-02	-0.0280718398	0.0896049660
## 118	0.0369478006	-1.852986e-01	1.895132e-01	0.0347009373	0.0099651920

## 119	-0.0299824920	-7.763703e-02	-6.352995e-02	0.0464008304	-0.0172127457
## 120	0.1141629666	-6.209135e-02	-5.950972e-02	0.0232720382	0.0300235803
## 121	-0.0194618498	2.824328e-03	1.123157e-01	0.0120739896	-0.0140748285
## 122	0.0552955240	6.900238e-02	-1.056908e-01	-0.0819232074	0.0199223694
## 123	0.0429847356	-4.981911e-02	2.418855e-02	0.0037971424	-0.0054421608
## 124	0.0310673024	-2.369412e-01	-8.592591e-05	0.0740656010	0.0613338234
## 125	0.0287597468	-1.149515e-01	-1.140700e-02	0.0816355564	-0.0004452459
## 126	0.0401587393	-5.873955e-02	2.215959e-02	-0.0787976846	0.0187022302
## 127	-0.0338676143	-4.631066e-01	2.307277e-02	-0.0494097662	0.0115558742
## 128	-0.0289841686	7.324480e-03	-5.569650e-02	-0.0251301543	0.0360568391
## 129	0.0458523838	3.241629e-02	-8.700215e-02	-0.0233064238	0.0051391732
## 130	0.1080890189	-9.987341e-02	4.759814e-02	-0.0589353385	0.0101458940
## 131	0.2730583569	-5.744083e-03	1.488094e-01	-0.0945252230	-0.0297929641
## 132	0.0274846494	-7.486807e-02	-9.955069e-03	-0.0247079409	0.0015682757
## 133	-0.0431553225	4.052828e-02	-5.632060e-02	0.0787434612	-0.0116143645
## 134	-0.1038898468	2.204643e-01	1.258709e-01	-0.1570491375	0.0098631463
## 135	0.1112811247	-4.139158e-02	2.320060e-03	0.1797595658	-0.0101186032
## 136	0.1833308531	-2.952819e-01	8.809702e-02	0.1440536968	0.0034560762
## 137	0.0508634071	1.647743e-02	-9.724222e-02	-0.1693512189	0.0191597416
## 138	0.0678122193	-6.667526e-02	3.521664e-02	-0.0510039159	0.0015462011
## 139	0.0766838959	3.784341e-02	-6.485448e-02	0.1548661527	-0.0396956918
## 140	0.0159438691	-3.102602e-02	9.032628e-02	0.0189329208	0.0047664647
## 141	-0.2031759127	4.592656e-02	4.946270e-02	-0.0740378147	-0.0175467891
## 142	0.1754731793	-1.506417e-01	2.006303e-01	0.2529700286	-0.0338815826
## 143	-0.0848259028	1.467344e-03	-6.519909e-02	0.0687944496	-0.0235485113
## 144	-0.2346117052	2.070687e-01	9.892023e-03	0.0012334927	0.0963857208
## 145	0.2204989933	-1.020924e-02	3.604761e-02	-0.0607442854	-0.0238867784
## 146	0.0072408178	-1.414076e-03	-5.441514e-03	0.0112391989	-0.0086323819
## 147	0.1673712349	2.770967e-01	9.772829e-02	0.0499220344	0.0167192981
## 148	-0.0720795356	4.745721e-02	-3.774029e-02	0.0855603625	0.0163266005
## 149	-0.0390318620	1.156171e-01	3.831845e-02	0.1056232897	-0.0076881080
## 150	-0.1092036223	1.034113e-01	-6.018408e-02	0.0155594355	0.0230259878
## 151	0.0151579646	-3.471117e-03	7.556558e-02	-0.0105248347	0.0052661208
## 152	-0.0624775110	1.733630e-01	-1.067506e-01	-0.1021820958	0.0090077426
## 153	0.0112737717	-1.209309e-02	-4.236905e-03	0.0369795461	-0.0230542834
## 154	0.0620332484	9.101424e-02	-1.142071e-02	-0.0444215862	0.0054761789
## 155	-0.6403887785	8.754556e-02	-1.110122e-01	0.0423785082	-0.1189758996
## 156	-0.1008923340	1.026997e-01	-5.810925e-02	-0.1027359325	-0.0324492431
## 157	-0.0921105539	-1.139243e-02	7.893999e-02	0.0150952486	-0.0038538689
## 158	-0.0455153307	-8.753892e-02	-1.501919e-01	0.0037113226	-0.0488170641
## 159	0.2126149777	-2.037071e-02	-1.633700e-02	0.0547616829	0.0188567292
## 160	-0.0391792959	-1.332804e-01	-2.342096e-02	-0.0326339555	-0.0084983195
## 161	-0.0713113235	-3.261414e-02	5.728524e-02	-0.0211644709	0.0026083217
## 162	-0.3935068627	-1.138294e-01	-7.957375e-02	0.1029920697	-0.1320359748
## 163	-0.0876665433	2.958082e-02	3.265942e-02	0.0324474322	0.0041253801
## 164	-0.0823219059	1.709041e-01	9.193060e-03	0.0700441492	-0.0250198232
## 165	0.2605957801	1.524530e-01	1.214507e-01	-0.2638728581	-0.0789245094
## 166	0.2205255397	3.888138e-01	-5.058351e-01	-0.3887220698	-0.0365019991
## 167	0.1223648454	4.354804e-05	-5.297979e-03	0.0320885383	0.0159184451
## 168	0.0249293522	-2.349126e-01	-1.122822e-01	-0.0067707839	-0.0389681250
## 169	-0.0520460771	-6.989352e-02	1.322786e-01	-0.0216166738	-0.0143759871
## 170	-0.0646083904	-4.399196e-03	4.282660e-02	-0.0529657326	0.0319985403
## 171	0.0338506774	-1.450856e-01	-2.556078e-03	-0.0148185594	0.0178340636
## 172	0.0525970322	-1.100367e-01	1.294865e-01	0.0112561239	-0.0335303997

## 173	-0.0991447569	-1.963789e-01	5.805887e-02	-0.0673929446	0.0261427521
## 174	-0.0282084214	-7.312496e-02	-2.216123e-02	0.0282248351	-0.0043906016
## 175	-0.0588411722	-1.624387e-01	6.259458e-02	0.0473397740	-0.0279385828
## 176	0.0049826844	-9.481793e-02	-5.978567e-02	-0.0789825207	0.0179760149
## 177	0.0362929558	4.070496e-02	7.327750e-02	0.0822172373	0.0727222269
## 178	0.0044700474	-3.278330e-02	8.200673e-03	-0.0084703621	0.0071098142
## 179	-0.1623239375	-3.140733e-02	-1.327822e-01	-0.0158687942	0.0542320387
## 180	-0.0968864293	-4.568893e-03	1.469554e-02	-0.0341987777	0.0002996804
## 181	0.0530071022	5.112694e-02	-4.018436e-02	0.0409088669	0.0165848011
## 182	-0.0697486027	6.892414e-02	3.682818e-03	0.0957711588	0.0256512152
## 183	-0.0290206654	1.592063e-02	4.858685e-02	0.0034861498	0.0042715325
## 184	0.0659770778	-8.186981e-02	4.490610e-02	0.0182635901	-0.0014884541
## 185	0.0755500208	-5.904186e-02	1.131207e-02	-0.0153716350	-0.0019545732
## 186	0.0440280411	1.597414e-01	3.502765e-03	0.0262076696	-0.0114572595
## 187	0.1653941150	-6.676519e-02	1.426098e-01	-0.0682213414	-0.0050720262
## 188	-0.2326060757	1.253373e-02	-1.187090e-01	0.0390749887	0.0175751718
## 189	-0.0745742020	4.426271e-02	-7.276261e-02	-0.0593689344	-0.0186617141
## 190	0.1310849955	3.170750e-02	-3.128847e-02	-0.0073629388	0.0086639314
## 191	-0.2136082722	-6.701336e-02	-2.022827e-02	0.0937831254	0.0057336425
## 192	0.0001927270	1.923934e-02	-4.484964e-02	-0.0316711822	0.0243156430
## 193	0.0237854469	-1.029612e-01	-2.239957e-02	0.0161883160	0.0264481006
## 194	0.1155166635	2.494865e-01	1.204074e-02	0.1540981236	-0.0831214775
## 195	0.0822384726	8.744713e-02	4.156478e-02	0.0191736091	0.0502720356
## 196	0.5191401035	-1.093991e-01	-6.642388e-02	0.2535468108	0.1220972919
## 197	-0.1724035124	-5.659860e-02	7.445831e-02	0.1377148523	-0.0466271699
## 198	-0.1052534848	1.884970e-02	9.525402e-04	0.0116182552	0.0025851687
## 199	0.0526940709	-1.478355e-01	-3.425526e-02	-0.0843984405	-0.0050726863
## 200	-0.0011392554	-6.804224e-02	-3.339488e-02	-0.0467904418	-0.0054182411
## 201	-0.3684134034	3.095598e-01	-1.740714e-01	-0.1600935990	0.0538812276
## 202	0.0290381704	2.580806e-03	9.205003e-03	-0.0486704254	-0.0396450877
## 203	-0.0022921987	-4.793023e-02	-2.071192e-02	-0.0607609902	0.0155759941
## 204	-0.0511928007	1.262098e-01	5.312232e-02	0.1302058140	0.0023842517
## 205	0.0920646230	3.357490e-03	5.060960e-02	-0.0076333583	0.0069129307
## 206	-0.0448445139	-3.103725e-02	1.763900e-01	-0.1350441358	0.0406781538
## 207	0.0296033502	-9.032876e-02	-4.506850e-02	-0.0473031822	0.0076293215
## 208	-0.1495890372	1.508820e-01	-5.962514e-02	-0.0048129359	-0.0264465624
## 209	-0.0017968367	-3.279966e-02	7.346729e-02	-0.0144120095	0.0083469672
## 210	0.0050794844	2.284236e-02	-1.712061e-01	-0.0110996987	0.1370702906
## 211	0.0280064199	-7.289287e-02	5.590997e-02	-0.0381426451	0.0171359015
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## 213	0.0142061788	1.550110e-01	8.081073e-02	-0.0143132559	0.0881507588
## 214	0.1056929335	2.896941e-02	-1.374830e-01	0.0652718210	-0.0111549889
## 215	0.1232462444	6.623019e-02	-1.762370e-02	-0.0408947713	-0.0166146907
## 216	0.0321473237	1.804440e-01	-5.654763e-02	-0.0712375633	0.0088058717
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## 218	0.0236208630	1.442181e-02	8.359519e-02	-0.0705155682	-0.0476980872
## 219	-0.0030637134	1.222639e-01	3.008454e-02	0.0845005649	0.0007302365
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## 221	0.0092046592	-1.594076e-02	3.532352e-03	0.0027789603	-0.0141018068
## 222	0.0509716488	-4.772932e-02	6.531397e-02	-0.0047404917	-0.0027064160
## 223	-0.2614672285	7.714413e-02	2.930116e-02	-0.0832420693	0.0074095683
## 224	-0.1131833308	-6.795939e-02	9.493646e-03	0.0474847961	-0.0231362931
## 225	0.0430016326	-2.772661e-02	6.473523e-02	-0.0277846355	0.0100025365
## 226	0.2384145870	2.747639e-02	6.425754e-02	0.0224433136	0.0274260208

##	227	-0.1601797407	-1.462192e-01	-2.756728e-01	0.3014725649	0.0096765848
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##	230	0.0275154965	9.540408e-02	7.521928e-02	0.0202973189	-0.0135886111
##	231	-0.0605310119	-8.826081e-02	5.748563e-03	0.0265283376	-0.0182928703
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##	238	0.1733696096	-5.842901e-02	-8.744763e-02	-0.1153445838	-0.0522883595
##	239	-0.0458246367	-7.034186e-02	-7.192833e-02	-0.0386395525	-0.0262213066
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##	241	-0.1030497672	5.868842e-02	4.198682e-02	-0.0573744623	-0.0291055063
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##	243	0.1191123641	1.670217e-02	-7.507241e-02	0.0151957175	-0.0335511891
##	244	-0.0665699709	2.548041e-02	4.482281e-02	-0.0036090041	-0.0178579169
##	245	-0.5351665902	-9.894784e-02	1.108669e-01	-0.2376608434	0.0723076818
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##	248	0.1735364459	-5.641707e-02	9.980857e-02	-0.0016147537	-0.0199412980
##	249	0.0753444621	1.671612e-01	-1.428217e-01	-0.0554342137	-0.0182624883
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## 360	0.1657037418	1.354127e-01	-3.005117e-03	-0.0034553300	-0.0096417581
## 361	0.0661671243	-2.150301e-02	-6.658307e-02	-0.0499211581	-0.0538873115
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## 372	-0.1789792161	6.575644e-02	-3.370480e-02	-0.0531927697	-0.0811070818
## 373	-0.0566251575	7.211925e-02	9.285333e-02	0.0348787173	0.0030620786
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## 377	-0.0107429144	-1.227174e-01	5.754123e-02	-0.0153413694	-0.0129438578
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## 379	0.0718061150	8.999644e-02	8.858243e-02	-0.0010979427	0.0162872265
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##	392	0.0777592791	-2.155272e-01	-4.381554e-03	-0.0222715704	0.0074841579
##	393	-0.0173820829	-6.814400e-02	7.420863e-02	-0.0375785740	-0.0141811849
##	394	-0.1298843403	7.115241e-02	-2.342321e-02	0.0219843983	-0.0306441299
##	395	0.0103671079	-1.548752e-01	8.138412e-02	-0.0174295031	0.0114921869
##	396	-0.0518655372	-1.963524e-02	8.336186e-02	0.0073210088	-0.0007752132
##	397	-0.0324249392	-5.604223e-02	-1.322974e-01	-0.0486232375	0.0097184652
##	398	-0.0715130925	6.777719e-02	-1.248135e-02	0.2067254671	-0.0023829184
##	399	0.1418629305	-1.127397e-02	3.857840e-04	-0.0875842865	-0.0525127967
##	400	0.0651854688	-1.784458e-02	3.212601e-02	-0.0714287878	-0.0093369488
##	401	0.1111761383	1.003437e-01	-6.623646e-02	0.0265463399	-0.0213612966
##	402	-0.0650342592	7.742818e-02	2.052615e-02	0.0597416109	0.0506498893
##	403	0.0253855294	3.774294e-01	3.091429e-02	-0.0396898939	0.0125537732
##	404	0.0111945153	1.568840e-01	8.939623e-02	-0.1705170835	0.0104824484
##	405	0.3443668269	-2.390574e-01	-9.134783e-02	0.0862387788	-0.0949645590
##	406	0.0468450726	-2.369625e-02	-7.465967e-02	-0.0354990894	-0.0292468599
##	407	-0.0681233789	-1.923930e-01	-1.138304e-01	0.0518832702	-0.0322149940
##	408	0.1147245374	8.787314e-02	-5.060023e-02	0.0645600920	0.0079869376
##	409	0.0475764113	4.302627e-02	1.233156e-01	0.0173680490	0.0013691007
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##	411	0.2323072391	-6.776329e-02	-1.596578e-01	0.0685037180	-0.0344586454
##	412	0.1264690874	8.209105e-02	-6.142649e-03	0.0419564902	-0.0141285395
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## 405 8.448022e-04 -1.249734e-02
## 406 3.805861e-02 4.725156e-03
## 407 -1.622386e-02 -2.125707e-03
## 408 -8.634743e-03 1.276700e-02
## 409 4.203722e-03 -6.828909e-03
## 410 -1.163306e-02 4.761856e-03
## 411 -8.850614e-03 -8.768147e-03
## 412 -5.745710e-03 -5.038678e-03
```

```
## 413 1.284531e-02 -2.367629e-03
## 414 1.745347e-02 3.720207e-03
## 415 -9.529769e-03 5.459147e-03
## 416 1.257098e-02 -3.378836e-03
## 417 7.497507e-04 9.035674e-04
## 418 -6.732613e-03 9.228168e-03
## 419 2.279874e-02 4.683381e-03
## 420 -2.317425e-03 1.119183e-02
## 421 -1.737515e-02 1.616932e-03
## 422 -1.094600e-02 4.362715e-03
## 423 -1.068488e-02 7.370769e-03
## 424 5.061465e-02 -3.668280e-02
## 425 6.882123e-03 1.313766e-02
## 426 8.220909e-02 4.832588e-03
## 427 4.611937e-03 -8.105397e-03
## 428 1.384809e-02 -7.527852e-03
## 429 1.819202e-02 7.067432e-05
## 430 -2.085851e-02 -2.189689e-02
## 431 5.171234e-02 8.043168e-03
## 432 2.479837e-03 1.591278e-02
## 433 1.677800e-02 8.532504e-03
## 434 -3.133822e-03 9.361456e-03
## 435 -2.204831e-02 -4.859522e-03
## 436 2.496869e-03 8.477714e-04
## 437 9.591191e-03 -1.664866e-02
## 438 -2.322229e-02 -1.084854e-03
## 439 -1.570473e-02 6.902621e-03
## 440 -9.793930e-03 -1.758416e-02
## 441 -2.341923e-02 -8.699658e-03
## 442 4.957624e-03 3.136420e-03
## 443 1.835307e-02 1.286356e-02
## 444 -1.197309e-02 -3.355402e-03
## 445 1.064709e-01 -3.466310e-03
## 446 6.705462e-03 8.610555e-03
## 447 -1.736319e-02 9.509159e-04
## 448 -8.392955e-03 -1.326196e-03
## 449 3.716477e-03 9.579577e-03
## 450 2.005276e-03 -1.180672e-02
## 451 2.192633e-02 1.449200e-03
## 452 2.964486e-02 1.696583e-02
## 453 5.639098e-02 -7.523633e-03
## 454 9.392628e-05 -9.942180e-03
## 455 -2.338543e-02 4.479801e-03
## 456 -1.288361e-02 -4.932915e-03
## 457 -3.945065e-02 -2.635609e-04
## 458 -1.494124e-01 -2.460544e-02
## 459 -6.830642e-03 4.327957e-03
## 460 5.822948e-03 -7.239153e-03
## 461 -1.416941e-02 1.570558e-02
## 462 3.240388e-04 1.347570e-02
## 463 1.065499e-02 1.170937e-03
## 464 7.425218e-03 3.459640e-03
## 465 1.664518e-02 3.187039e-03
## 466 -2.384961e-02 -1.136713e-02
```

```
## 467 -7.879551e-03 -1.122062e-03
## 468 -4.907562e-03 -1.931371e-02
## 469 -9.578580e-03 1.446233e-02
## 470 -1.657304e-02 -3.880822e-03
## 471 -4.864309e-02 1.219165e-03
## 472 6.548298e-03 -1.147811e-02
## 473 1.615000e-02 -5.160398e-04
## 474 -1.801906e-02 1.798879e-02
## 475 -5.067542e-03 9.467318e-04
## 476 1.049049e-02 -3.297660e-03
## 477 6.261255e-03 -7.853052e-03
## 478 -1.688671e-02 -2.796787e-03
## 479 -5.146066e-02 -7.753824e-03
## 480 -3.365654e-02 1.531822e-02
## 481 -1.763929e-02 -5.580673e-03
## 482 -1.306305e-02 7.644811e-03
## 483 -2.112252e-02 -1.606756e-02
## 484 3.734145e-02 1.790719e-03
## 485 1.009832e-02 4.256908e-03
## 486 -2.607947e-02 -4.951705e-03
## 487 -6.041273e-04 1.252251e-02
## 488 -5.595981e-03 -1.960175e-02
## 489 -2.376301e-02 -2.479727e-03
## 490 -3.704814e-03 -3.061750e-02
## 491 4.367477e-03 2.171240e-03
## 492 8.422818e-02 -2.374215e-02
## 493 1.938583e-02 1.442880e-03
## 494 -9.186819e-03 3.113970e-03
## 495 1.576101e-02 -5.252938e-03
## 496 1.922416e-02 -1.087247e-02
## 497 3.592632e-03 -3.646989e-03
## 498 7.108301e-02 1.083214e-02
## 499 -1.782818e-02 4.751815e-02
## 500 -2.727051e-02 5.957476e-03
## 501 2.363354e-02 -9.646078e-03
## 502 1.050801e-03 -8.568039e-03
## 503 9.157892e-03 1.261060e-02
## 504 3.350919e-02 -2.700494e-02
## 505 1.063655e-02 2.760851e-05
## 506 -1.182673e-03 -4.053176e-03
## 507 -7.102198e-03 -1.406710e-02
## 508 -9.707108e-03 -9.199495e-03
## 509 -6.987832e-02 -7.615465e-03
## 510 8.573809e-03 8.449619e-03
## 511 1.875760e-02 1.130911e-02
## 512 2.964767e-02 -1.229652e-02
## 513 7.487201e-02 1.145739e-03
## 514 1.385273e-02 5.862815e-04
## 515 -3.015268e-02 3.004115e-02
## 516 7.006575e-03 -2.118240e-02
## 517 5.896892e-03 -1.843209e-03
## 518 -3.286808e-03 7.346996e-04
## 519 -3.416270e-02 -1.304970e-02
## 520 -3.033061e-02 1.749013e-02
```

```
## 521 1.596715e-02 -1.397577e-04
## 522 3.740507e-02 1.008395e-02
## 523 -1.686257e-03 -1.284561e-03
## 524 6.099755e-02 -1.943908e-02
## 525 4.394310e-02 1.438141e-03
## 526 -2.631440e-02 4.108005e-03
## 527 -2.886409e-02 1.869812e-02
## 528 6.411718e-03 -3.945196e-02
## 529 1.220802e-02 2.561845e-04
## 530 4.154574e-04 -2.483717e-03
## 531 -3.624568e-03 -3.363374e-03
## 532 5.785196e-02 -3.674048e-02
## 533 -5.199929e-03 -1.656424e-03
## 534 -4.530040e-02 -6.688662e-03
## 535 -5.554195e-03 -3.353871e-02
## 536 1.231382e-03 4.937076e-03
## 537 -2.623194e-03 1.917073e-03
## 538 -4.953264e-03 6.203430e-04
## 539 -1.291559e-02 -4.762266e-03
## 540 -4.752541e-03 3.466008e-03
## 541 1.903166e-02 -1.182699e-02
## 542 3.100822e-02 5.635812e-03
## 543 -2.330714e-03 -6.398906e-06
## 544 -5.910469e-02 -6.112608e-03
## 545 -3.534171e-02 7.330315e-02
## 546 -5.151052e-02 -9.360687e-03
## 547 2.171499e-02 3.565962e-03
## 548 -1.453407e-02 1.372139e-03
## 549 -1.418995e-03 -4.295967e-03
## 550 1.280350e-02 8.471746e-04
## 551 2.414560e-04 1.845563e-03
## 552 -5.820844e-03 -1.138799e-03
## 553 -3.808346e-02 3.787346e-03
## 554 -6.313714e-03 8.823042e-04
## 555 -7.650307e-03 -7.688319e-03
## 556 -1.926274e-02 -3.420722e-03
## 557 -9.118959e-04 2.230323e-03
## 558 -3.428184e-03 -7.399596e-03
## 559 3.600294e-02 2.217638e-04
## 560 -5.356050e-03 9.112897e-03
## 561 -6.714921e-02 -1.368662e-02
## 562 -1.023821e-02 -3.139075e-03
## 563 -1.209907e-02 -5.552985e-03
## 564 -3.253642e-02 -9.340876e-04
## 565 4.728344e-03 -5.899725e-04
## 566 -2.580188e-04 5.826148e-03
## 567 1.250840e-03 3.425887e-03
## 568 -1.939084e-03 -1.131610e-02
## 569 3.245528e-02 -6.532395e-03
```

```
# Means of scores for all the PC's classified by diagnosis status
tabmeansPC <- aggregate(diag_pca[,2:31],by=list(diagnosis=cancer$diagnosis),mean)
tabmeansPC
```

```
##  diagnosis      PC1      PC2      PC3      PC4      PC5
## 1      B  2.204253 -0.3436398  0.2160542  0.1384470 -0.09800974
## 2      M -3.711879  0.5786765 -0.3638272 -0.2331395  0.16504470
##      PC6      PC7      PC8      PC9      PC10
## 1  0.004373132  0.01691799  0.04905754  0.03377092 -0.01002704
## 2 -0.007364189 -0.02848926 -0.08261104 -0.05686895  0.01688516
##      PC11      PC12      PC13      PC14      PC15
## 1 -0.0007888591  0.006017621  0.003305282 -0.03736471 -0.02453152
## 2  0.0013284090 -0.010133446 -0.005565970  0.06292076  0.04131016
##      PC16      PC17      PC18      PC19      PC20
## 1 -0.02516699  0.0001112917  0.006103777 -0.01307695 -0.009733891
## 2  0.04238026 -0.0001874111 -0.010278530  0.02202108  0.016391505
##      PC21      PC22      PC23      PC24      PC25
## 1 -0.008359794 -0.006225063 -0.003024993  0.002609428  0.007813479
## 2  0.014077577  0.010482771  0.005093974 -0.004394179 -0.013157604
##      PC26      PC27      PC28      PC29      PC30
## 1 -0.000879209 -0.003967725 -0.001909259 -0.0003418423 -0.0009838392
## 2  0.001480555  0.006681499  0.003215121  0.0005756496  0.0016567480
```

```
tabmeansPC <- tabmeansPC[rev(order(tabmeansPC$diagnosis)),]
tabmeansPC
```

```
##  diagnosis      PC1      PC2      PC3      PC4      PC5
## 2      M -3.711879  0.5786765 -0.3638272 -0.2331395  0.16504470
## 1      B  2.204253 -0.3436398  0.2160542  0.1384470 -0.09800974
##      PC6      PC7      PC8      PC9      PC10
## 2 -0.007364189 -0.02848926 -0.08261104 -0.05686895  0.01688516
## 1  0.004373132  0.01691799  0.04905754  0.03377092 -0.01002704
##      PC11      PC12      PC13      PC14      PC15
## 2  0.0013284090 -0.010133446 -0.005565970  0.06292076  0.04131016
## 1 -0.0007888591  0.006017621  0.003305282 -0.03736471 -0.02453152
##      PC16      PC17      PC18      PC19      PC20
## 2  0.04238026 -0.0001874111 -0.010278530  0.02202108  0.016391505
## 1 -0.02516699  0.0001112917  0.006103777 -0.01307695 -0.009733891
##      PC21      PC22      PC23      PC24      PC25
## 2  0.014077577  0.010482771  0.005093974 -0.004394179 -0.013157604
## 1 -0.008359794 -0.006225063 -0.003024993  0.002609428  0.007813479
##      PC26      PC27      PC28      PC29      PC30
## 2  0.001480555  0.006681499  0.003215121  0.0005756496  0.0016567480
## 1 -0.000879209 -0.003967725 -0.001909259 -0.0003418423 -0.0009838392
```

```
tabfmeans <- t(tabmeansPC[, -1])
tabfmeans
```



```
##          2          1
## PC1 -3.7118786952  2.2042528946
## PC2  0.5786764540 -0.3436397990
## PC3 -0.3638271826  0.2160542373
## PC4 -0.2331394896  0.1384469798
## PC5  0.1650447018 -0.0980097389
## PC6 -0.0073641886  0.0043731316
## PC7 -0.0284892608  0.0169179924
## PC8 -0.0826110415  0.0490575373
## PC9 -0.0568689505  0.0337709174
## PC10 0.0168851623 -0.0100270432
## PC11 0.0013284090 -0.0007888591
## PC12 -0.0101334459  0.0060176205
## PC13 -0.0055659702  0.0033052820
## PC14 0.0629207582 -0.0373647080
## PC15 0.0413101623 -0.0245315249
## PC16 0.0423802589 -0.0251669885
## PC17 -0.0001874111  0.0001112917
## PC18 -0.0102785304  0.0061037771
## PC19 0.0220210837 -0.0130769461
## PC20 0.0163915046 -0.0097338907
## PC21 0.0140775772 -0.0083597937
## PC22 0.0104827709 -0.0062250628
## PC23 0.0050939739 -0.0030249929
## PC24 -0.0043941787  0.0026094282
## PC25 -0.0131576035  0.0078134789
## PC26 0.0014805547 -0.0008792090
## PC27 0.0066814986 -0.0039677247
## PC28 0.0032151208 -0.0019092594
## PC29 0.0005756496 -0.0003418423
## PC30 0.0016567480 -0.0009838392
```

```
colnames(tabfmeans) <- t(as.vector(tabmeansPC[1]))
tabfmeans
```

##		M	B
## PC1	-3.7118786952	2.2042528946	
## PC2	0.5786764540	-0.3436397990	
## PC3	-0.3638271826	0.2160542373	
## PC4	-0.2331394896	0.1384469798	
## PC5	0.1650447018	-0.0980097389	
## PC6	-0.0073641886	0.0043731316	
## PC7	-0.0284892608	0.0169179924	
## PC8	-0.0826110415	0.0490575373	
## PC9	-0.0568689505	0.0337709174	
## PC10	0.0168851623	-0.0100270432	
## PC11	0.0013284090	-0.0007888591	
## PC12	-0.0101334459	0.0060176205	
## PC13	-0.0055659702	0.0033052820	
## PC14	0.0629207582	-0.0373647080	
## PC15	0.0413101623	-0.0245315249	
## PC16	0.0423802589	-0.0251669885	
## PC17	-0.0001874111	0.0001112917	
## PC18	-0.0102785304	0.0061037771	
## PC19	0.0220210837	-0.0130769461	
## PC20	0.0163915046	-0.0097338907	
## PC21	0.0140775772	-0.0083597937	
## PC22	0.0104827709	-0.0062250628	
## PC23	0.0050939739	-0.0030249929	
## PC24	-0.0043941787	0.0026094282	
## PC25	-0.0131576035	0.0078134789	
## PC26	0.0014805547	-0.0008792090	
## PC27	0.0066814986	-0.0039677247	
## PC28	0.0032151208	-0.0019092594	
## PC29	0.0005756496	-0.0003418423	
## PC30	0.0016567480	-0.0009838392	

```
# Standard deviations of scores for all the PC's classified by diagnosis status
tabsdsPC <- aggregate(diag_pca[,2:31],by=list(cancer$diagnosis),sd)
tabfsds <- t(tabsdsPC[, -1])
colnames(tabfsds) <- t(as.vector(tabsdsPC[1]))
tabfsds
```

```
##           B           M
## PC1  1.63956487 3.02839244
## PC2  2.08691418 2.72966952
## PC3  1.36038677 2.07323861
## PC4  1.39613539 1.39927526
## PC5  1.39777817 1.04807636
## PC6  0.95340249 1.33789147
## PC7  0.95140466 1.05116532
## PC8  0.64932787 1.04212370
## PC9  0.65881989 0.70917409
## PC10 0.57998076 0.71917808
## PC11 0.60269891 0.57186757
## PC12 0.54006502 0.54668527
## PC13 0.51222488 0.51016086
## PC14 0.37926601 0.63294179
## PC15 0.38070917 0.41867516
## PC16 0.26760334 0.36012377
## PC17 0.26627925 0.30856638
## PC18 0.17881651 0.32377631
## PC19 0.17193548 0.30152802
## PC20 0.17202337 0.28613872
## PC21 0.15015083 0.21280261
## PC22 0.15982321 0.19320204
## PC23 0.14579937 0.19476702
## PC24 0.12247334 0.19984615
## PC25 0.11050781 0.16637188
## PC26 0.09806381 0.15950557
## PC27 0.07202620 0.11477556
## PC28 0.06617618 0.10565982
## PC29 0.02588741 0.05609976
## PC30 0.01834069 0.03798219
```

```
t.test(PC1~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC1 by cancer$diagnosis
## t = 26.251, df = 285.72, p-value < 2.2e-16
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  5.472542 6.359721
## sample estimates:
## mean in group B mean in group M
##      2.204253      -3.711879
```

```
t.test(PC2~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC2 by cancer$diagnosis
## t = -4.2387, df = 357.38, p-value = 2.865e-05
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -1.3502373 -0.4943952
## sample estimates:
## mean in group B mean in group M
## -0.3436398 0.5786765
```

```
t.test(PC3~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC3 by cancer$diagnosis
## t = 3.6343, df = 320.28, p-value = 0.0003246
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## 0.2659658 0.8937970
## sample estimates:
## mean in group B mean in group M
## 0.2160542 -0.3638272
```

```
t.test(PC4~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC4 by cancer$diagnosis
## t = 3.0652, df = 442.55, p-value = 0.002308
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## 0.1333371 0.6098358
## sample estimates:
## mean in group B mean in group M
## 0.1384470 -0.2331395
```

```
t.test(PC5~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC5 by cancer$diagnosis
## t = -2.5485, df = 537.03, p-value = 0.0111
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.46581747 -0.06029141
## sample estimates:
## mean in group B mean in group M
## -0.09800974 0.16504470
```

```
t.test(PC6~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC6 by cancer$diagnosis
## t = 0.11197, df = 339.17, p-value = 0.9109
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.1944615 0.2179362
## sample estimates:
## mean in group B mean in group M
## 0.004373132 -0.007364189
```

```
t.test(PC7~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC7 by cancer$diagnosis
## t = 0.51587, df = 408.87, p-value = 0.6062
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.1276209 0.2184354
## sample estimates:
## mean in group B mean in group M
## 0.01691799 -0.02848926
```

```
t.test(PC8~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC8 by cancer$diagnosis
## t = 1.6584, df = 309.75, p-value = 0.09825
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.02455572 0.28789287
## sample estimates:
## mean in group B mean in group M
## 0.04905754 -0.08261104
```

```
t.test(PC9~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC9 by cancer$diagnosis
## t = 1.5132, df = 417.67, p-value = 0.131
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.0271048 0.2083845
## sample estimates:
## mean in group B mean in group M
## 0.03377092 -0.05686895
```

```
t.test(PC10~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC10 by cancer$diagnosis
## t = -0.46277, df = 372.52, p-value = 0.6438
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.14126432 0.08743991
## sample estimates:
## mean in group B mean in group M
## -0.01002704 0.01688516
```

```
t.test(PC11~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC11 by cancer$diagnosis
## t = -0.041845, df = 462.01, p-value = 0.9666
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.10154692 0.09731238
## sample estimates:
## mean in group B mean in group M
## -0.0007888591 0.0013284090
```

```
t.test(PC12~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC12 by cancer$diagnosis
## t = 0.34227, df = 439.04, p-value = 0.7323
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.07659212 0.10889425
## sample estimates:
## mean in group B mean in group M
## 0.006017621 -0.010133446
```

```
t.test(PC13~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC13 by cancer$diagnosis
## t = 0.20025, df = 444.77, p-value = 0.8414
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.07819457 0.09593708
## sample estimates:
## mean in group B mean in group M
## 0.003305282 -0.005565970
```

```
t.test(PC14~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC14 by cancer$diagnosis
## t = -2.0945, df = 302.42, p-value = 0.03705
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.194508096 -0.006062836
## sample estimates:
## mean in group B mean in group M
## -0.03736471 0.06292076
```

```
t.test(PC15~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC15 by cancer$diagnosis
## t = -1.8752, df = 410.43, p-value = 0.06147
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.134862771 0.003179396
## sample estimates:
## mean in group B mean in group M
## -0.02453152 0.04131016
```

```
t.test(PC16~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC16 by cancer$diagnosis
## t = -2.37, df = 349.77, p-value = 0.01833
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.12360307 -0.01149143
## sample estimates:
## mean in group B mean in group M
## -0.02516699 0.04238026
```

```
t.test(PC17~cancer$diagnosis,data=diag_pca)
```



```
##
## Welch Two Sample t-test
##
## data: PC17 by cancer$diagnosis
## t = 0.011737, df = 393.3, p-value = 0.9906
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.04973747 0.05033487
## sample estimates:
## mean in group B mean in group M
## 0.0001112917 -0.0001874111
```

```
t.test(PC18~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC18 by cancer$diagnosis
## t = 0.67787, df = 288.75, p-value = 0.4984
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.03118389 0.06394850
## sample estimates:
## mean in group B mean in group M
## 0.006103777 -0.010278530
```

```
t.test(PC19~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC19 by cancer$diagnosis
## t = -1.5516, df = 293.85, p-value = 0.1218
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.079616015 0.009419955
## sample estimates:
## mean in group B mean in group M
## -0.01307695 0.02202108
```

```
t.test(PC20~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC20 by cancer$diagnosis
## t = -1.2062, df = 303.02, p-value = 0.2287
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.06874572 0.01649493
## sample estimates:
## mean in group B mean in group M
## -0.009733891 0.016391505
```

```
t.test(PC21~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC21 by cancer$diagnosis
## t = -1.3487, df = 336.76, p-value = 0.1783
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.05516116 0.01028642
## sample estimates:
## mean in group B mean in group M
## -0.008359794 0.014077577
```

```
t.test(PC22~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC22 by cancer$diagnosis
## t = -1.0618, df = 380.13, p-value = 0.289
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.04764831 0.01423264
## sample estimates:
## mean in group B mean in group M
## -0.006225063 0.010482771
```

```
t.test(PC23~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC23 by cancer$diagnosis
## t = -0.52575, df = 351.71, p-value = 0.5994
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.03849078 0.02225285
## sample estimates:
## mean in group B mean in group M
## -0.003024993 0.005093974
```

```
t.test(PC24~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC24 by cancer$diagnosis
## t = 0.4614, df = 306.57, p-value = 0.6448
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.02286480 0.03687201
## sample estimates:
## mean in group B mean in group M
## 0.002609428 -0.004394179
```

```
t.test(PC25~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC25 by cancer$diagnosis
## t = 1.6337, df = 322.91, p-value = 0.1033
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.004282315 0.046224480
## sample estimates:
## mean in group B mean in group M
## 0.007813479 -0.013157604
```

```
t.test(PC26~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC26 by cancer$diagnosis
## t = -0.19467, df = 307.18, p-value = 0.8458
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.02621273 0.02149320
## sample estimates:
## mean in group B mean in group M
## -0.000879209 0.001480555
```

```
t.test(PC27~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC27 by cancer$diagnosis
## t = -1.2162, df = 311.14, p-value = 0.2248
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.027878004 0.006579557
## sample estimates:
## mean in group B mean in group M
## -0.003967725 0.006681499
```

```
t.test(PC28~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC28 by cancer$diagnosis
## t = -0.63596, df = 310.76, p-value = 0.5253
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.02097902 0.01073026
## sample estimates:
## mean in group B mean in group M
## -0.001909259 0.003215121
```

```
t.test(PC29~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC29 by cancer$diagnosis
## t = -0.22436, df = 265.22, p-value = 0.8226
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.008969119 0.007134135
## sample estimates:
## mean in group B mean in group M
## -0.0003418423 0.0005756496
```

```
t.test(PC30~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC30 by cancer$diagnosis
## t = -0.9487, df = 270.4, p-value = 0.3436
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.008120430 0.002839256
## sample estimates:
## mean in group B mean in group M
## -0.0009838392 0.0016567480
```

```
t.test(PC31~cancer$diagnosis,data=diag_pca)
```

```
##
## Welch Two Sample t-test
##
## data: PC31 by cancer$diagnosis
## t = -0.54256, df = 278.74, p-value = 0.5879
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.002917016 0.001656473
## sample estimates:
## mean in group B mean in group M
## -0.0002348289 0.0003954429
```

```
# F ratio tests
var.test(PC1~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC1 by cancer$diagnosis
## F = 0.29311, num df = 356, denom df = 211, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.2293890 0.3717204
## sample estimates:
## ratio of variances
## 0.2931115
```

```
var.test(PC2~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC2 by cancer$diagnosis
## F = 0.58451, num df = 356, denom df = 211, p-value = 8.474e-06
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.4574343 0.7412633
## sample estimates:
## ratio of variances
## 0.5845061
```

```
var.test(PC3~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC3 by cancer$diagnosis
## F = 0.43055, num df = 356, denom df = 211, p-value = 2.327e-12
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.3369504 0.5460214
## sample estimates:
## ratio of variances
## 0.4305526
```

```
var.test(PC4~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC4 by cancer$diagnosis
## F = 0.99552, num df = 356, denom df = 211, p-value = 0.9625
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.7790915 1.2625024
## sample estimates:
## ratio of variances
## 0.9955172
```

```
var.test(PC5~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC5 by cancer$diagnosis
## F = 1.7787, num df = 356, denom df = 211, p-value = 5.82e-06
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 1.391972 2.255662
## sample estimates:
## ratio of variances
## 1.778651
```

```
var.test(PC6~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC6 by cancer$diagnosis
## F = 0.50782, num df = 356, denom df = 211, p-value = 1.795e-08
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.3974207 0.6440124
## sample estimates:
## ratio of variances
## 0.5078212
```

```
var.test(PC7~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC7 by cancer$diagnosis
## F = 0.8192, num df = 356, denom df = 211, p-value = 0.1
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.6411036 1.0388957
## sample estimates:
## ratio of variances
## 0.8191973
```

```
var.test(PC8~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC8 by cancer$diagnosis
## F = 0.38823, num df = 356, denom df = 211, p-value = 3.319e-15
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.3038290 0.4923489
## sample estimates:
## ratio of variances
## 0.3882304
```

```
var.test(PC9~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC9 by cancer$diagnosis
## F = 0.86303, num df = 356, denom df = 211, p-value = 0.2243
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.6754099 1.0944883
## sample estimates:
## ratio of variances
## 0.8630336
```

```
var.test(PC10~cancer$diagnosis,data=diag_pca)
```



```
##
## F test to compare two variances
##
## data: PC10 by cancer$diagnosis
## F = 0.65036, num df = 356, denom df = 211, p-value = 0.0003698
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.5089722 0.8247793
## sample estimates:
## ratio of variances
## 0.6503607
```

```
var.test(PC11~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC11 by cancer$diagnosis
## F = 1.1107, num df = 356, denom df = 211, p-value = 0.4012
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.8692598 1.4086183
## sample estimates:
## ratio of variances
## 1.110734
```

```
var.test(PC12~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC12 by cancer$diagnosis
## F = 0.97593, num df = 356, denom df = 211, p-value = 0.8346
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.7637603 1.2376584
## sample estimates:
## ratio of variances
## 0.975927
```

```
var.test(PC13~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC13 by cancer$diagnosis
## F = 1.0081, num df = 356, denom df = 211, p-value = 0.956
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.7889451 1.2784699
## sample estimates:
## ratio of variances
## 1.008108
```

```
var.test(PC14~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC14 by cancer$diagnosis
## F = 0.35905, num df = 356, denom df = 211, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.2809959 0.4553483
## sample estimates:
## ratio of variances
## 0.3590544
```

```
var.test(PC15~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC15 by cancer$diagnosis
## F = 0.82686, num df = 356, denom df = 211, p-value = 0.1169
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.6471009 1.0486142
## sample estimates:
## ratio of variances
## 0.8268605
```

```
var.test(PC16~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC16 by cancer$diagnosis
## F = 0.55218, num df = 356, denom df = 211, p-value = 8.26e-07
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.4321348 0.7002658
## sample estimates:
## ratio of variances
## 0.5521785
```

```
var.test(PC17~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC17 by cancer$diagnosis
## F = 0.74469, num df = 356, denom df = 211, p-value = 0.01494
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.5827968 0.9444106
## sample estimates:
## ratio of variances
## 0.7446933
```

```
var.test(PC18~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC18 by cancer$diagnosis
## F = 0.30502, num df = 356, denom df = 211, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.2387068 0.3868197
## sample estimates:
## ratio of variances
## 0.3050177
```

```
var.test(PC19~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC19 by cancer$diagnosis
## F = 0.32514, num df = 356, denom df = 211, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.2544576 0.4123434
## sample estimates:
## ratio of variances
## 0.3251439
```

```
var.test(PC20~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC20 by cancer$diagnosis
## F = 0.36143, num df = 356, denom df = 211, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.2828534 0.4583583
## sample estimates:
## ratio of variances
## 0.3614279
```

```
var.test(PC21~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC21 by cancer$diagnosis
## F = 0.49785, num df = 356, denom df = 211, p-value = 6.758e-09
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.3896201 0.6313716
## sample estimates:
## ratio of variances
## 0.4978535
```

```
var.test(PC22~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC22 by cancer$diagnosis
## F = 0.68432, num df = 356, denom df = 211, p-value = 0.001709
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.5355451 0.8678402
## sample estimates:
## ratio of variances
## 0.6843154
```

```
var.test(PC23~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC23 by cancer$diagnosis
## F = 0.56038, num df = 356, denom df = 211, p-value = 1.542e-06
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.4385511 0.7106634
## sample estimates:
## ratio of variances
## 0.5603772
```

```
var.test(PC24~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC24 by cancer$diagnosis
## F = 0.37557, num df = 356, denom df = 211, p-value = 3.495e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.2939215 0.4762939
## sample estimates:
## ratio of variances
## 0.3755706
```

```
var.test(PC25~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC25 by cancer$diagnosis
## F = 0.44119, num df = 356, denom df = 211, p-value = 9.824e-12
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.3452756 0.5595122
## sample estimates:
## ratio of variances
## 0.4411905
```

```
var.test(PC26~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC26 by cancer$diagnosis
## F = 0.37798, num df = 356, denom df = 211, p-value = 5.423e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.2958050 0.4793461
## sample estimates:
## ratio of variances
## 0.3779774
```

```
var.test(PC27~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC27 by cancer$diagnosis
## F = 0.39381, num df = 356, denom df = 211, p-value = 8.544e-15
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.3081924 0.4994196
## sample estimates:
## ratio of variances
## 0.3938058
```

```
var.test(PC28~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC28 by cancer$diagnosis
## F = 0.39227, num df = 356, denom df = 211, p-value = 6.601e-15
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.3069894 0.4974701
## sample estimates:
## ratio of variances
## 0.3922686
```

```
var.test(PC29~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC29 by cancer$diagnosis
## F = 0.21294, num df = 356, denom df = 211, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.1666460 0.2700465
## sample estimates:
## ratio of variances
## 0.2129389
```

```
var.test(PC30~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC30 by cancer$diagnosis
## F = 0.23317, num df = 356, denom df = 211, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.1824782 0.2957024
## sample estimates:
## ratio of variances
## 0.2331693
```

```
var.test(PC31~cancer$diagnosis,data=diag_pca)
```

```
##
## F test to compare two variances
##
## data: PC31 by cancer$diagnosis
## F = 0.26577, num df = 356, denom df = 211, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.2079951 0.3370519
## sample estimates:
## ratio of variances
## 0.2657746
```

```
# Levene's tests (one-sided)
library(car)
(LTPC1 <- leveneTest(PC1~cancer$diagnosis,data=diag_pca))
```

```
## Levene's Test for Homogeneity of Variance (center = median)
##      Df F value    Pr(>F)
## group 1  62.132 1.654e-14 ***
##      567
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
(p_PC1_1sided <- LTPC1[[3]][1]/2)
```

```
## [1] 8.268824e-15
```

```
(LTPC2 <- leveneTest(PC2~cancer$diagnosis,data=diag_pca))
```

```
## Levene's Test for Homogeneity of Variance (center = median)
##      Df F value    Pr(>F)
## group 1  18.786 1.73e-05 ***
##      567
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
(p_PC2_1sided=LTPC2[[3]][1]/2)
```

```
## [1] 8.651441e-06
```

```
(LTPC3 <- leveneTest(PC3~cancer$diagnosis,data=diag_pca))
```



```
## Levene's Test for Homogeneity of Variance (center = median)
##           Df F value    Pr(>F)
## group    1   27.65 2.063e-07 ***
##           567
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
(p_PC3_1sided <- LTPC3[[3]][1]/2)
```

```
## [1] 1.031266e-07
```

```
(LTPC4 <- leveneTest(PC4~cancer$diagnosis,data=diag_pca))
```

```
## Levene's Test for Homogeneity of Variance (center = median)
##           Df F value Pr(>F)
## group    1   2e-04  0.989
##           567
```

```
(p_PC4_1sided <- LTPC4[[3]][1]/2)
```

```
## [1] 0.4944984
```

```
(LTPC5 <- leveneTest(PC5~cancer$diagnosis,data=diag_pca))
```

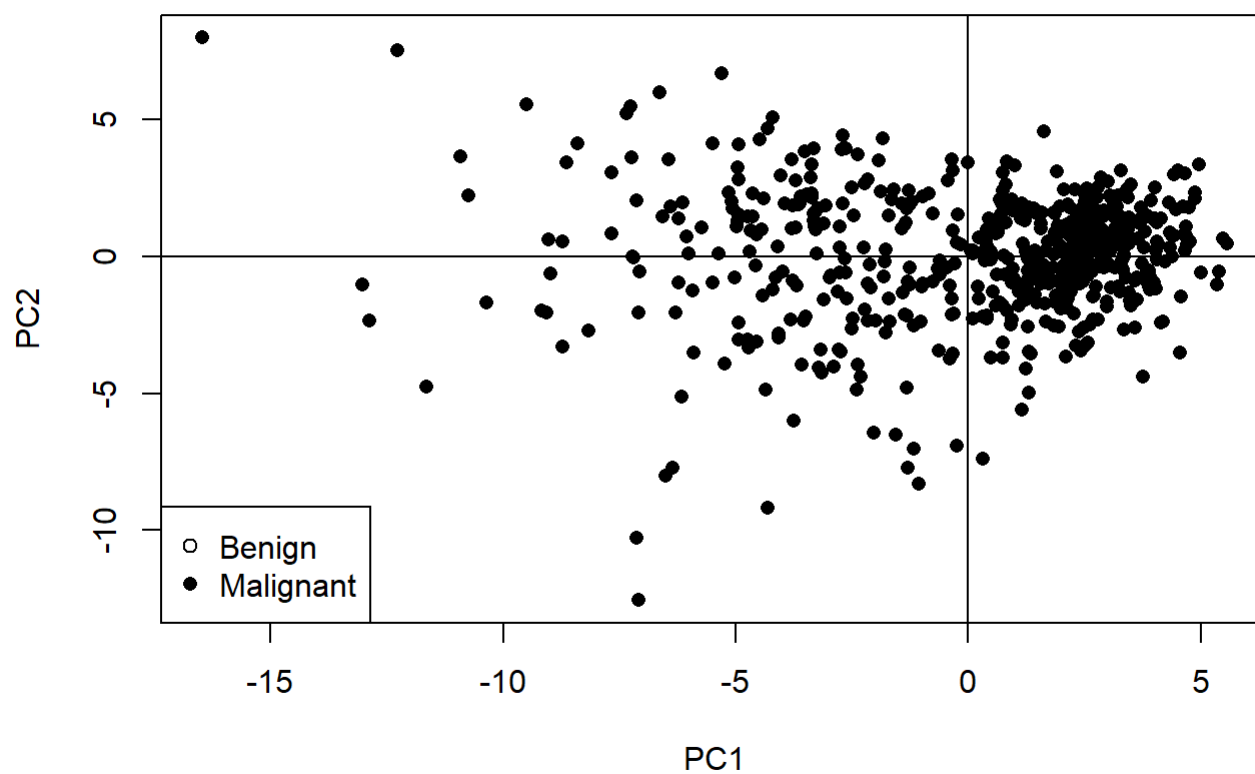
```
## Levene's Test for Homogeneity of Variance (center = median)
##           Df F value    Pr(>F)
## group    1   6.8535 0.009083 **
##           567
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
(p_PC5_1sided <- LTPC5[[3]][1]/2)
```

```
## [1] 0.004541533
```

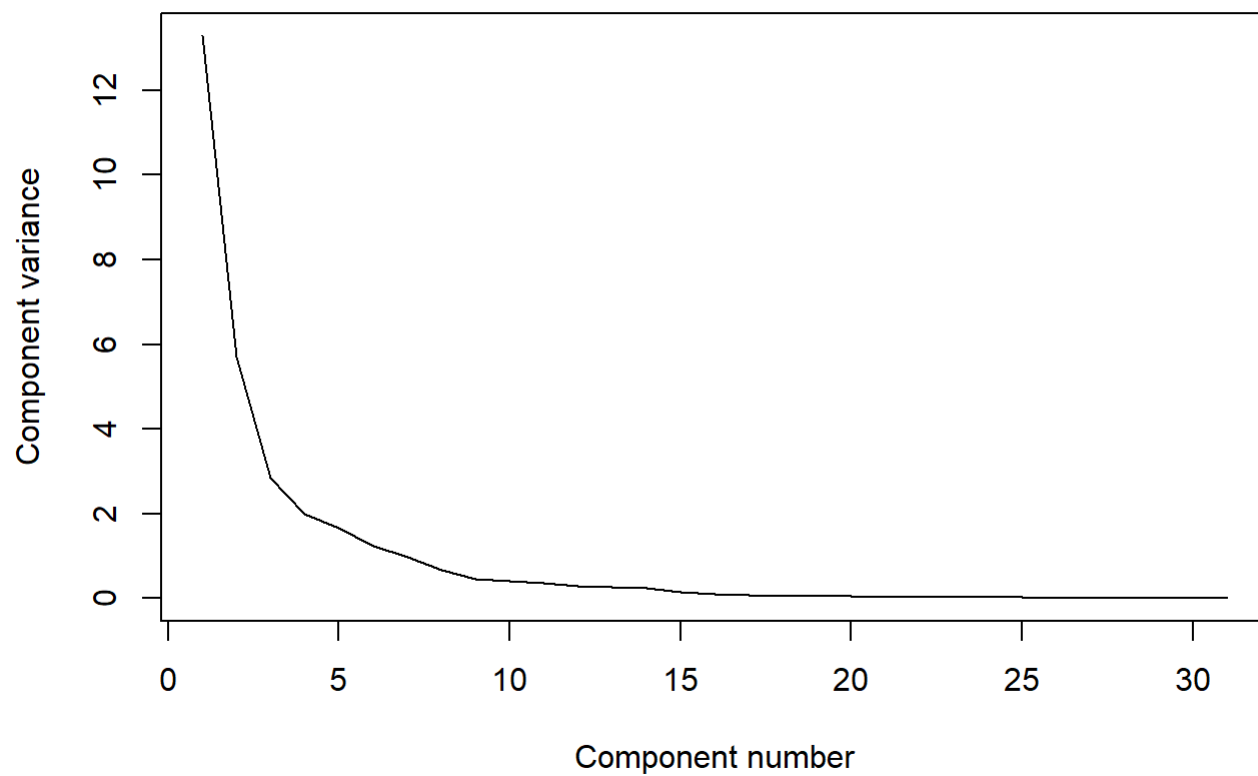
```
# Plotting the scores for the first and second components
plot(diag_pca$PC1, diag_pca$PC2,pch=ifelse(diag_pca$diagnosis == "S",1,16),xlab="PC1", ylab="PC
2", main="569 entries against values for PC1 & PC2")
abline(h=0)
abline(v=0)
legend("bottomleft", legend=c("Benign","Malignant"), pch=c(1,16))
```

## 569 entries against values for PC1 & PC2



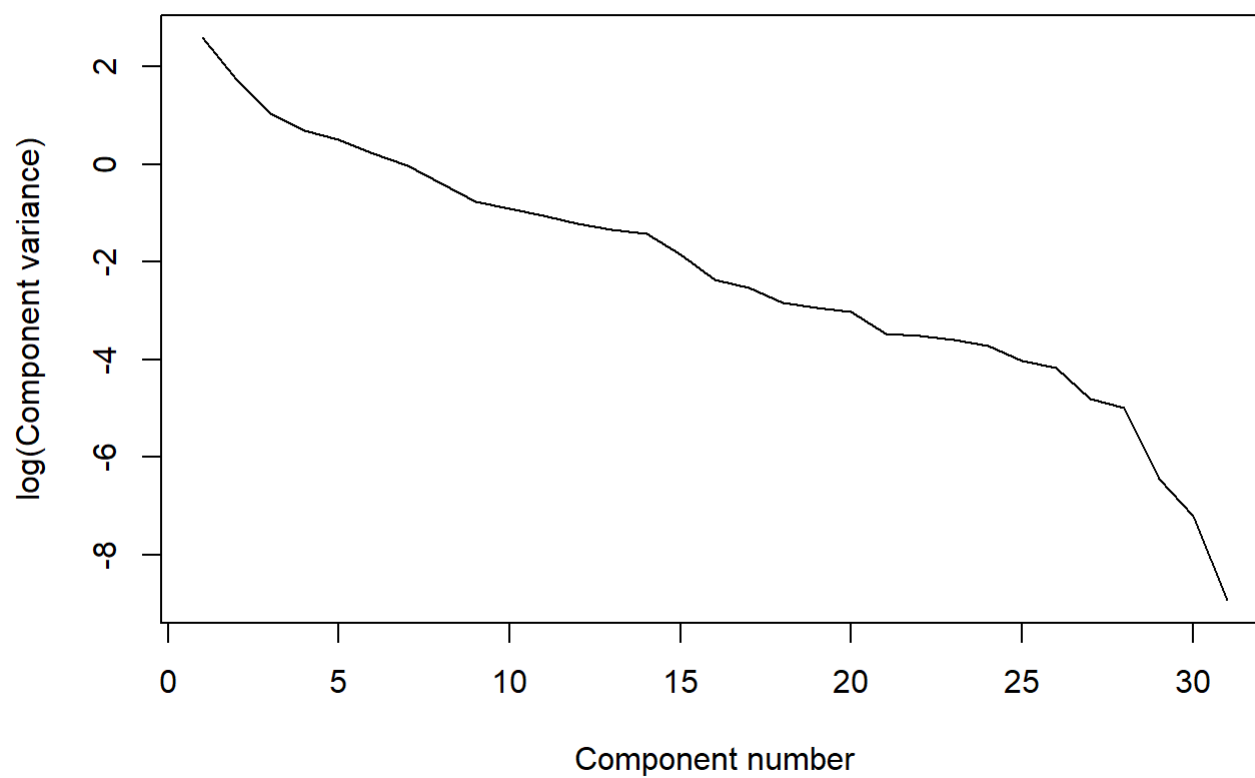
```
plot(eigen_cancer, xlab = "Component number", ylab = "Component variance", type = "l", main = "Scree diagram")
```

## Scree diagram



```
plot(log(eigen_cancer), xlab = "Component number", ylab = "log(Component variance)", type="l", main = "Log(eigenvalue) diagram")
```

## Log(eigenvalue) diagram



```
print(summary(cancer_pca))
```

```
## Importance of components:
##          PC1      PC2      PC3      PC4      PC5      PC6
## Standard deviation  3.6453 2.3868 1.68386 1.40761 1.28406 1.11116
## Proportion of Variance 0.4286 0.1838 0.09146 0.06391 0.05319 0.03983
## Cumulative Proportion 0.4286 0.6124 0.70388 0.76779 0.82098 0.86081
##          PC7      PC8      PC9     PC10     PC11     PC12
## Standard deviation  0.98908 0.81961 0.67882 0.6349 0.59089 0.54212
## Proportion of Variance 0.03156 0.02167 0.01486 0.0130 0.01126 0.00948
## Cumulative Proportion 0.89237 0.91404 0.92890 0.9419 0.95317 0.96265
##          PC13     PC14     PC15     PC16     PC17     PC18
## Standard deviation  0.51103 0.49125 0.39620 0.30680 0.28251 0.2430
## Proportion of Variance 0.00842 0.00778 0.00506 0.00304 0.00257 0.0019
## Cumulative Proportion 0.97107 0.97886 0.98392 0.98696 0.98953 0.9914
##          PC19     PC20     PC21     PC22     PC23     PC24
## Standard deviation  0.2293 0.22163 0.1763 0.17304 0.16562 0.15572
## Proportion of Variance 0.0017 0.00158 0.0010 0.00097 0.00088 0.00078
## Cumulative Proportion 0.9931 0.99472 0.9957 0.99669 0.99757 0.99835
##          PC25     PC26     PC27     PC28     PC29     PC30
## Standard deviation  0.13431 0.1244 0.09040 0.08305 0.03987 0.02736
## Proportion of Variance 0.00058 0.0005 0.00026 0.00022 0.00005 0.00002
## Cumulative Proportion 0.99893 0.9994 0.99970 0.99992 0.99997 1.00000
##          PC31
## Standard deviation  0.01153
## Proportion of Variance 0.00000
## Cumulative Proportion 1.00000
```

```
#View(cancer_pca)
diag(cov(cancer_pca$x))
```

```
##          PC1          PC2          PC3          PC4          PC5
## 1.328806e+01 5.696805e+00 2.835395e+00 1.981357e+00 1.648815e+00
##          PC6          PC7          PC8          PC9          PC10
## 1.234673e+00 9.782732e-01 6.717530e-01 4.607924e-01 4.031331e-01
##          PC11          PC12          PC13          PC14          PC15
## 3.491550e-01 2.938904e-01 2.611469e-01 2.413302e-01 1.569736e-01
##          PC16          PC17          PC18          PC19          PC20
## 9.412853e-02 7.980995e-02 5.904627e-02 5.259119e-02 4.912193e-02
##          PC21          PC22          PC23          PC24          PC25
## 3.107078e-02 2.994121e-02 2.743052e-02 2.424902e-02 1.803936e-02
##          PC26          PC27          PC28          PC29          PC30
## 1.547973e-02 8.171699e-03 6.898103e-03 1.589338e-03 7.483761e-04
##          PC31
## 1.330402e-04
```

```
xlim <- range(cancer_pca$x[,1])
cancer_pca$x[,1]
```

##	[1]	2.50194550	1.46743888	2.92902790	1.99534236	2.50025164
##	[6]	2.01830827	1.09348444	-4.54183732	2.69412302	2.08173487
##	[11]	-5.08416948	2.42030088	0.42109190	3.72127373	-2.50683608
##	[16]	0.10377563	0.71352261	2.87310984	-7.18617681	1.88203558
##	[21]	2.83789903	-0.33608363	2.34862913	-1.40123647	1.35378261
##	[26]	0.36757240	1.96773313	-3.99611352	1.94377603	3.14007439
##	[31]	4.02708469	1.97963602	-5.92051113	1.97245619	1.13538658
##	[36]	1.60653102	-2.69844100	0.73892075	-1.20949419	-2.62903181
##	[41]	-3.37008639	-6.13756604	-7.11812078	2.39686919	3.17370620
##	[46]	-1.27212896	4.64234140	-10.91746308	0.48966745	1.45902605
##	[51]	-1.31071031	0.37899113	2.71068202	0.68520263	-9.02109721
##	[56]	-1.16002006	1.89187412	3.88962340	-12.87573436	-3.77524767
##	[61]	-9.07163621	-5.06161345	-3.52696866	2.15342402	-4.72102980
##	[66]	1.32751070	2.47879771	3.28383340	1.86854679	1.76125095
##	[71]	-0.75772517	3.07004076	-1.56317061	1.63922138	0.75307340
##	[76]	0.93888949	-0.35976583	3.51923913	2.12321200	-2.77132199
##	[81]	1.97882278	3.35841683	2.48784540	-1.25193513	0.93178328
##	[86]	4.31206406	3.14232842	1.85744292	-4.20063730	0.62500097
##	[91]	4.06387726	2.55604475	1.91095867	3.17353516	-6.50582706
##	[96]	-1.77786660	2.00452164	2.87272100	2.97732093	-10.75407134
##	[101]	0.74369721	5.56419667	3.15974344	-0.22502189	3.22993309
##	[106]	2.20667901	0.98492738	1.23832538	2.55333527	3.34331455
##	[111]	0.75467299	-0.23405551	-3.32563601	-4.34396173	3.54319152
##	[116]	-2.46541768	-1.24815169	-4.13838217	-4.93583227	-0.35258994
##	[121]	3.14475887	-4.96178269	3.07589792	-5.30134864	3.32800427
##	[126]	3.05868796	-3.20194758	0.54660499	-1.91347476	-0.54620527
##	[131]	-4.93667851	0.37675040	2.37505453	-6.42967129	1.24613355
##	[136]	-4.93900909	3.59610065	3.65596070	-3.32807721	3.45171557
##	[141]	-3.05717681	-9.17512669	-3.78612656	-4.74708917	-3.49819558
##	[146]	3.31199304	-2.65735509	0.78154772	4.02593835	3.16092338
##	[151]	4.86998090	1.85254735	1.84126494	4.23789740	-3.14113339
##	[156]	3.03053729	3.49122498	0.10005406	3.90121776	1.57070979
##	[161]	2.84805222	-0.39881700	3.19482762	5.38991844	-7.24903297
##	[166]	-9.49848726	0.81398320	-3.27653012	0.97287731	3.05107067
##	[171]	-1.69031709	-0.65718535	-2.14954157	2.01288744	0.95104246
##	[176]	2.02343028	-4.63890499	3.78639838	-5.36869600	3.44899854
##	[181]	1.47712989	-1.42434723	3.31644321	0.22869703	3.21520178
##	[186]	4.76954021	-3.24697650	-2.16481716	-1.82926213	3.63907752
##	[191]	-1.33890020	3.43205704	1.40300774	-4.07859093	-0.75287346
##	[196]	-5.02530634	-2.11291381	1.59095196	0.84859271	2.06227610
##	[201]	0.99867305	2.31709971	-0.14945474	0.10891763	2.16394913
##	[206]	-4.08266081	2.80418141	2.38745622	4.65657121	-8.98977481
##	[211]	1.37464215	-2.16761997	-5.49097769	2.30350465	1.99531958
##	[216]	2.38983518	1.18082935	0.52512860	-2.36906611	-5.48555952
##	[221]	3.36739736	2.92432433	-6.57828205	1.64233904	4.65845853
##	[226]	3.76722342	-1.06673442	-4.53861239	-1.64280677	4.38667569
##	[231]	1.33059112	3.64751113	-3.58009537	-2.24381118	2.89656574
##	[236]	1.73014344	-2.61807263	3.35636470	2.56923218	2.28397274
##	[241]	-0.45393258	2.51450220	3.99722047	0.84277065	-7.07110609
##	[246]	3.83723739	4.70269768	-1.00455722	4.56714653	2.21788936
##	[251]	0.60538839	-8.71810460	0.47808732	-6.29127392	-0.34079274
##	[256]	2.62476369	1.25268973	2.93323571	3.26242254	1.23982397
##	[261]	2.01379503	2.05769335	-1.42498620	2.48275826	-4.55924187

## [266]	-3.16294377	2.75792258	0.31460901	2.87946321	-3.78662739
## [271]	1.89761823	-8.17025666	2.92226541	2.63091502	-3.46446115
## [276]	-12.27538365	1.47792166	-1.25078953	4.69392206	4.19778142
## [281]	-6.21939189	4.42974415	3.36918312	2.21408235	-1.60810402
## [286]	2.28637139	-2.50066195	-3.37037453	-7.13162893	0.23604874
## [291]	4.06322887	2.61604614	-2.48998251	2.22533885	-7.23741109
## [296]	-8.63353979	-5.15473327	-4.93982745	2.46469830	-3.81333242
## [301]	-3.38202580	2.78850338	4.67980735	-2.21728118	-1.79613487
## [306]	-3.32515110	-5.90260783	2.47674615	-0.40293939	0.97099433
## [311]	-4.03668377	-1.30868548	2.23787877	1.27828094	-0.98258973
## [316]	3.06592622	-3.94222512	-8.40721651	2.02880128	1.21063322
## [321]	-2.30766540	-2.75716304	-4.38667401	2.04903657	4.47759348
## [326]	-3.28115594	2.32002306	-4.94412875	1.28699008	-7.34219116
## [331]	5.01541696	2.24368335	4.38751753	4.74646435	-3.77316608
## [336]	2.06024015	4.42549163	-4.31582500	-4.66989046	0.06248385
## [341]	1.14691394	-3.59003122	-2.10000735	-1.31311294	-1.36140479
## [346]	2.49572871	2.99349968	2.45895999	0.72084892	1.25989813
## [351]	3.21178488	-1.70852165	2.15578208	2.23173048	-1.80399835
## [356]	2.78878540	3.45691371	2.99913471	-2.23156326	3.50337548
## [361]	-2.64182063	-0.33748187	3.53454512	3.62918002	2.59461099
## [366]	1.66951097	-4.09294552	4.08548593	4.03955715	-3.70269683
## [371]	1.41360782	2.31800321	3.81037876	2.98734956	2.83865073
## [376]	4.06414082	1.30384281	0.40517343	4.34480772	2.48892114
## [381]	2.61665638	3.39492398	-0.61757370	-2.97464823	2.33684795
## [386]	2.68114201	-7.66552765	3.58030465	0.43685122	1.17007394
## [391]	-3.23818455	4.86780798	3.15904838	-4.95116280	2.66608395
## [396]	3.42501230	1.67399207	-0.24737404	-4.96439202	3.90492025
## [401]	3.25449802	2.20500981	-4.97925718	-3.51135449	-1.36369824
## [406]	-2.72842099	0.10236288	2.96896391	-3.09986006	4.03753336
## [411]	-1.01759526	4.00328560	4.34627532	2.60228779	2.47131113
## [416]	-4.74381108	3.25989047	-0.28873282	-6.21759203	-2.38825669
## [421]	-7.07789490	0.67853348	3.74487498	-1.28796097	2.66132173
## [426]	-1.69886069	1.93311747	2.19720576	3.87799290	-5.24194147
## [431]	0.64371117	-2.68931058	2.17670829	-3.70686636	0.31260041
## [436]	3.15083363	-0.01524751	2.82107844	4.13798735	0.60139962
## [441]	0.53352373	1.93007176	-2.76695531	1.27740734	-3.35826618
## [446]	3.55786464	1.83618421	4.62757459	0.39315730	-3.63473825
## [451]	3.88022769	-1.77103983	-4.69388630	1.08027822	1.93304443
## [456]	0.40183385	0.83838745	-6.62685720	5.35125402	4.97367372
## [461]	-16.46938497	-4.43287778	3.29059930	3.43847027	-7.08380326
## [466]	0.92117411	3.85446131	-0.97691061	1.29999759	2.12740559
## [471]	1.71986719	2.99689351	3.74961031	-4.30662137	2.04159305
## [476]	-1.88824118	1.55874214	-4.48999960	0.42300838	-2.77998463
## [481]	0.77614055	-0.60979819	-6.04737544	-1.16246198	4.04176095
## [486]	-6.16693990	2.68517460	-13.03506747	2.79463414	-3.75325184
## [491]	-3.09556060	-10.35592316	-2.80883133	2.13976976	2.58210428
## [496]	0.20588012	2.11977193	0.28415442	-6.39728226	-3.69647780
## [501]	0.74620212	0.81368970	-4.42147784	-2.03452475	-0.63831360
## [506]	3.66054805	4.50412687	2.76873417	-8.72659351	-6.00904695
## [511]	1.58160293	-0.33466018	-2.89047627	2.37505103	-4.19709874
## [516]	-2.74460834	-2.38120246	-5.73742406	-3.29377188	-0.30821634
## [521]	1.28839449	0.78632237	0.93673811	5.47344760	4.55695054
## [526]	2.28611591	1.44511948	-0.84527881	2.98947391	3.83781210
## [531]	0.69043773	1.14834301	3.92661587	-2.96250508	-4.63303653

```
## [536]  2.00189285  2.84469305  3.34962817  1.66922234  2.82110178
## [541] -0.44201240  1.29865971  4.13725536 -7.22128200 -11.64894933
## [546]  1.42496615  2.09990574  2.39991037  0.48590718  2.13997388
## [551]  1.35404318  3.01378035 -6.34937295  1.53390730  2.80247498
## [556] -7.65724966  3.01791604 -1.97984933  3.48514918  1.55955384
## [561] -1.28833307  3.13117092  2.55960867  1.81436070  2.59208254
## [566]  2.43449839  0.39541303  1.17806944 -3.62685594
```

```
cancer_pca$x
```



##		PC1	PC2	PC3	PC4	PC5
##	[1,]	2.50194550	-0.096948052	-0.4489597008	2.334117555	0.697715477
##	[2,]	1.46743888	-1.686300588	1.1542038774	0.336210935	0.459625382
##	[3,]	2.92902790	-0.383199241	-0.8955890691	-0.116482776	0.984413772
##	[4,]	1.99534236	-1.330465924	1.1172875551	2.050276131	0.253038461
##	[5,]	2.50025164	2.010350968	-0.7584034865	1.986216853	-1.135370958
##	[6,]	2.01830827	-0.782420945	0.1125197163	-0.653227961	0.018415769
##	[7,]	1.09348444	-1.293936715	1.4189069050	-3.356740242	-0.951965047
##	[8,]	-4.54183732	-3.099372405	-2.2612175075	-2.200950296	3.459973177
##	[9,]	2.69412302	-1.421092569	0.9516155379	0.007476733	1.250335936
##	[10,]	2.08173487	-1.812218651	-1.1720406658	1.137014305	0.414757427
##	[11,]	-5.08416948	2.000137924	-0.7512306390	-0.076186113	-0.385543991
##	[12,]	2.42030088	-0.010337119	-0.8066693631	-0.070644793	0.075814497
##	[13,]	0.42109190	-0.121776139	-0.5410059634	-0.365041743	-1.511092195
##	[14,]	3.72127373	1.784296564	1.2485358731	0.129289545	0.520260616
##	[15,]	-2.50683608	2.519115720	0.7679362671	-0.814023090	0.426551810
##	[16,]	0.10377563	0.205899348	0.3621314863	-1.000054021	-2.991100602
##	[17,]	0.71352261	1.556166034	-0.7062636839	1.691564007	-0.340941385
##	[18,]	2.87310984	0.482741343	-0.4233003513	0.743662891	0.860313171
##	[19,]	-7.18617681	-0.044244030	2.0258549210	0.087485348	0.664035557
##	[20,]	1.88203558	-1.429919420	-1.0832586631	1.705943528	0.884175937
##	[21,]	2.83789903	0.393325503	-0.3614479874	0.812880484	0.040063252
##	[22,]	-0.33608363	-3.535859467	0.0806908813	-1.552997026	1.956881414
##	[23,]	2.34862913	-0.683708564	1.1197182845	-0.295906284	0.539770064
##	[24,]	-1.40123647	-1.312422336	0.6099807955	1.894731466	0.034197398
##	[25,]	1.35378261	-3.553367632	1.7257338713	-0.038167893	0.343071810
##	[26,]	0.36757240	-0.131511726	-2.0517854155	1.050460940	-0.752865683
##	[27,]	1.96773313	0.957849703	-0.1042456721	-0.088392018	0.547006886
##	[28,]	-3.99611352	-0.554685751	-2.7691318844	-1.904122982	0.524809460
##	[29,]	1.94377603	-2.549019049	-1.0010501923	0.023504095	-1.204979082
##	[30,]	3.14007439	1.481392013	-1.2100992985	0.450805086	-0.839570619
##	[31,]	4.02708469	2.536551854	0.3201023892	1.521284235	-0.668651573
##	[32,]	1.97963602	0.413646828	-0.3874100402	-1.737038268	0.307044021
##	[33,]	-5.92051113	-1.235591140	1.6913474333	-0.457479353	-2.884900796
##	[34,]	1.97245619	0.170054921	0.3939115987	-0.773371688	0.853191162
##	[35,]	1.13538658	1.400448882	-0.5969586419	1.997234324	-0.528505811
##	[36,]	1.60653102	-0.299793694	-1.5936523874	0.905026936	-1.233932411
##	[37,]	-2.69844100	4.420137831	0.2529603192	0.501660080	-0.376615080
##	[38,]	0.73892075	-3.702602060	0.6503933965	2.236743562	0.337401750
##	[39,]	-1.20949419	2.030094176	0.9393311840	0.254246634	-0.091939830
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##	[44,]	2.39686919	-0.995805736	-0.7705310186	1.553017799	-1.428655251
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##	[46,]	-1.27212896	2.434528242	2.4069357804	-0.101418611	-2.164134739
##	[47,]	4.64234140	0.803512818	0.2422677400	0.480313638	-0.529696031
##	[48,]	-10.91746308	3.672587536	-0.9712242881	2.355734704	0.483077938
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##	[50,]	1.45902605	-0.595347371	1.1194916680	0.093040615	-1.092491404
##	[51,]	-1.31071031	-2.163284902	-1.7896139702	-0.014878073	-0.166863596
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##	[53,]	2.71068202	0.214197953	-0.3290871583	0.057868635	0.046815390
##	[54,]	0.68520263	1.130602189	1.2114889784	-3.846059245	-1.434177469
##	[55,]	-9.02109721	0.634635478	0.1673933507	-0.747308053	-0.571766253
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##	[57,]	1.89187412	-1.675750393	0.1045973919	1.222231193	-2.566361316
##	[58,]	3.88962340	-0.814349374	1.0112433799	0.825915255	2.132628805
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##	[65,]	-4.72102980	-3.317643560	-1.4912712243	2.043051365	0.022275985
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## [460,] 0.972213346 0.0613577634 4.641145e-01 -0.1709756089 -0.114056320
## [461,] -3.138991938 6.1311682143 4.212975e+00 0.8601656824 2.757609500
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## [463,] 1.445997891 0.4287780163 9.970134e-02 0.3863305176 0.235660245
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## [467,] 0.270345397 0.1120956238 1.051918e+00 -0.0680618115 -0.378687088
## [468,] 0.169231598 -0.1294319171 -4.302984e-01 -0.0555307911 -0.441822136
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## [471,] 1.152198677 -0.2111267799 1.069001e+00 0.9298893016 0.075861642
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## [473,] 0.527308405 -0.7900417316 -6.515414e-01 1.3311120113 -1.128311638
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## [563,] 0.508360818 0.0978379328 -7.479209e-02 -0.3961000621 0.435258402
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## [2,] 0.4564028530 1.193575663 0.018074243 -0.2824291530 -0.2048588880
## [3,] 0.4208601858 -0.066872858 0.374354577 0.2585457288 -0.3302742156
## [4,] -0.0691645986 0.970824091 -0.909683790 0.2179116906 -0.6658256690
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## [17,] -0.2042292754 0.106942718 -0.218718022 0.2454187079 0.1128562649
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## [491,] -0.5907924683 0.087623999 0.155268650 0.2476222682 0.0399800883
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## [493,] 0.6835385782 -0.370074047 0.484113528 -0.5352987174 0.3191900071
## [494,] 0.3490728194 0.025921407 -0.705914180 0.0896497788 -0.2496802869
## [495,] 0.8939116523 0.340800050 0.376665201 -0.1598795044 -1.1895464097
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## [537,] -0.0900544184 0.197491977 0.539853412 -0.0589354306 0.1418115391
## [538,] -0.2253451505 -0.319599761 0.048737275 0.1798857962 0.1167628839
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## [546,] 0.0652336911 -0.179453643 0.595783184 0.5462903907 0.2011325764
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## [1,] 0.166377231 -4.286656e-02 -1.045428e-01 -3.484189e-02
## [2,] -0.070679588 3.088787e-02 -4.055342e-01 -2.886103e-02
## [3,] -0.130001895 -2.461609e-01 3.277113e-01 1.593779e-01
## [4,] 0.102133866 -1.028945e-01 1.970852e-01 3.625177e-01
## [5,] -0.064958814 2.227331e-01 -1.291292e-01 -3.587705e-01
## [6,] -0.201610826 1.492042e-01 -2.229379e-03 -8.178568e-02
## [7,] -0.135598898 -2.788628e-01 2.228275e-01 6.739350e-02
## [8,] -0.533193146 -7.829331e-01 -8.384985e-02 -1.569704e-01
## [9,] -0.108850944 3.750538e-01 -2.511901e-01 -6.940402e-02
## [10,] -0.189682612 1.493665e-02 2.734799e-01 -2.998938e-03
## [11,] 0.040151422 1.190263e-01 -8.933002e-03 -1.286008e-01
## [12,] -0.056886087 1.086718e-02 9.370142e-02 -1.415268e-01
## [13,] 0.090378647 -2.390835e-02 -2.427080e-01 -4.482260e-02
## [14,] 0.343637180 2.063596e-01 -1.858051e-01 1.213888e-01
## [15,] 0.086836682 2.119048e-01 6.508138e-02 -1.448205e-01
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## [17,] 0.130234432 -1.261238e-01 1.382616e-02 -5.094564e-02
## [18,] -0.070022741 8.093517e-02 -7.033761e-02 -8.395862e-02
## [19,] -0.569253541 1.036564e-01 2.835675e-01 -9.017732e-02
## [20,] 0.094090139 3.112346e-02 1.817905e-01 -1.864672e-02
## [21,] 0.082523144 -1.237892e-01 1.579260e-02 5.933084e-02
## [22,] -0.298916941 1.844051e-01 2.587069e-01 -2.211982e-01
## [23,] -0.212830498 -6.229868e-02 -2.717846e-02 1.218820e-01
## [24,] 0.052680902 -1.495457e-01 3.095900e-02 -6.934114e-02
## [25,] -0.592719681 3.595383e-01 2.336257e-01 2.706467e-01
## [26,] 0.059778364 2.323086e-01 -1.084881e-01 -4.270176e-02
## [27,] -0.101721236 -6.246379e-02 3.644114e-02 4.855680e-02
## [28,] -0.174272716 -3.466604e-01 -1.891704e-01 5.124000e-01
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## [30,] -0.035264653 -5.636630e-02 2.947379e-02 -2.661072e-01
## [31,] 0.216369579 5.541341e-03 -8.719242e-02 2.221158e-01
## [32,] -0.025354521 -1.495302e-01 1.596027e-01 -1.733590e-01
## [33,] 0.292036732 -1.729689e-01 -3.171784e-02 2.893805e-02
## [34,] 0.008156900 -4.414144e-01 6.028979e-02 -1.211665e-01
## [35,] 0.166555572 -3.037006e-02 -1.028303e-01 2.777077e-01
## [36,] 0.427685230 -3.470538e-03 2.101913e-01 -2.076874e-01
## [37,] -0.289484970 -6.548585e-02 -3.232965e-01 3.558403e-01
## [38,] -0.108652538 2.852529e-01 -2.966173e-01 -1.116214e-01
## [39,] 0.213031719 -3.190089e-02 -1.007190e-01 2.525017e-03
## [40,] 0.213901668 9.520973e-02 -1.633312e-02 7.186205e-02
## [41,] -0.128650796 -8.231716e-02 -1.097702e-02 -1.979734e-01
## [42,] 0.081202851 -1.972840e-01 -3.179374e-01 7.591987e-01
## [43,] -0.172079352 -6.241070e-02 4.630782e-01 3.452129e-02
## [44,] -0.333009658 4.986805e-01 2.761034e-01 -6.990563e-02
## [45,] 0.095351175 1.721466e-01 -9.280238e-03 -1.272046e-01
## [46,] 0.027241062 -4.783811e-02 3.647888e-02 -1.705672e-01
## [47,] 0.026833779 -4.734618e-02 5.843090e-02 4.947846e-02
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## [53,] 0.069750673 -7.866944e-02 1.405715e-02 3.218193e-02
## [54,] -0.218941828 -2.562217e-01 1.920552e-01 1.194130e-01
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## [56,] 0.153030859 -1.522467e-01 4.169582e-02 8.696207e-02
## [57,] 0.199017477 2.379359e-02 1.181418e-01 9.812868e-05
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## [60,] -0.343578522 -3.229187e-01 1.379908e-01 2.472202e-02
## [61,] -0.218198246 1.259744e-01 -5.190770e-01 -3.811198e-02
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## [70,] -0.118651380 -6.978776e-02 -1.337332e-02 -2.180062e-01

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## [71,] 0.668556185 2.521189e-01 -3.799022e-01 -3.964538e-01
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## [81,] -0.055601789 6.495184e-02 9.386670e-02 -6.039542e-02
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## [85,] 0.181428902 -2.392292e-01 1.130391e-01 7.235949e-02
## [86,] 0.068145730 -1.181127e-01 3.362285e-02 -1.718386e-02
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## [92,] -0.194657396 -3.040978e-01 1.749788e-01 -4.769003e-05
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## [96,] 0.201266790 -3.899332e-03 -1.476732e-01 -9.979733e-02
## [97,] -0.307271309 -1.855001e-01 4.826845e-02 -1.295130e-01
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## [99,] -0.051107570 1.105994e-01 3.119691e-02 -7.838595e-02
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## [116,] 0.090257808 3.699896e-03 -2.253735e-01 -3.251814e-01
## [117,] -0.209278525 -4.937788e-01 5.749773e-01 4.020940e-01
## [118,] 0.006895812 -3.255664e-02 -4.477846e-01 2.787354e-01
## [119,] -0.014564471 2.565753e-01 -2.989123e-01 -1.799367e-02
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## [121,] -0.304304754 2.149320e-01 2.884342e-02 -5.140805e-02
## [122,] 0.073917507 1.795720e-01 -9.951138e-04 -1.040315e-01
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## [127,] 0.864995458 3.422789e-01 3.831675e-02 3.113535e-01
## [128,] 0.521981738 -2.438699e-01 5.268949e-03 -1.352151e-01
## [129,] 0.059396119 4.126106e-01 -8.728869e-02 3.473966e-02
## [130,] 0.382658056 -1.505340e-01 3.043896e-02 -7.379857e-02
## [131,] 0.520403647 1.734497e-01 -3.462492e-01 -3.649636e-02
## [132,] 0.290047022 3.434603e-02 -5.264320e-02 -8.671717e-04
## [133,] -0.118462619 -1.227311e-01 1.859024e-01 3.728351e-02
## [134,] 0.654516751 -1.417697e-01 3.629542e-01 1.913907e-01
## [135,] 0.222896409 4.414003e-01 1.946630e-01 -1.851684e-01
## [136,] -0.619142149 -2.147856e-01 -9.241954e-01 4.404488e-01
## [137,] 0.121655250 -1.438718e-01 -1.122009e-01 4.914709e-01
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## [140,] 0.078806363 1.480172e-01 -4.151660e-02 -7.168650e-02
## [141,] 0.237458055 2.698676e-01 3.180084e-03 -6.618046e-02
## [142,] -0.599892317 -7.428710e-01 -2.604877e-01 5.508211e-01
## [143,] -0.069873842 1.377389e-01 2.961188e-01 1.078979e-01
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## [145,] 0.382555413 -3.335702e-02 4.485951e-01 1.574132e-01
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## [191,] -0.187431094 1.202845e-01 -1.148853e-01 1.424007e-01
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## [343,] 0.478466057 1.478706e-01 -3.733253e-01 -5.722234e-02
## [344,] 0.082189512 5.630190e-01 5.180442e-02 -1.114611e-02
## [345,] -0.258738222 -1.917233e-01 -5.001360e-03 7.110563e-02
## [346,] -0.192851387 1.196403e-01 -2.330033e-01 1.145020e-01
## [347,] 0.024418836 -7.216368e-02 -2.670418e-01 3.197165e-01
## [348,] -0.227759352 5.846881e-02 2.768598e-02 -9.418455e-02
## [349,] -0.287035295 -4.639251e-02 -1.209508e-01 3.015901e-02
## [350,] -0.035575165 2.073875e-01 1.472417e-01 -5.449475e-02
## [351,] 0.111374664 3.757800e-02 5.287154e-02 -1.231141e-01
## [352,] -0.090777432 -5.125469e-02 7.145752e-02 5.743147e-02
## [353,] 0.137187460 5.602576e-04 -1.841035e-02 -9.205115e-02
## [354,] -0.212567470 -2.236327e-01 -1.937286e-01 -5.608869e-01
## [355,] 0.009094894 -4.712064e-01 1.002230e-01 -5.179746e-02
## [356,] -0.137095594 -7.263589e-02 2.309984e-01 -1.476059e-01
## [357,] 0.107410473 -1.158821e-01 1.754548e-01 1.845983e-01
## [358,] -0.009856887 -8.608752e-02 -5.753796e-02 -1.244839e-01
## [359,] -0.059704730 3.212869e-02 -3.153155e-01 -1.202578e-01
## [360,] 0.141773206 4.369307e-01 -1.936947e-01 1.674626e-01
## [361,] -0.105055196 4.977194e-01 6.243493e-03 -3.249411e-02
## [362,] 0.152553871 2.039966e-01 2.325330e-02 -9.945205e-02
## [363,] 0.147353308 3.123028e-01 -1.606919e-01 6.741521e-02
## [364,] -0.176741048 -2.268899e-01 -4.534887e-02 -5.780982e-02
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## [366,] -0.533655813 5.537424e-02 1.696970e-01 1.071847e-02
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## [368,] 0.106350413 -2.780040e-01 2.847962e-02 -3.764573e-02
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## [371,] -0.291373314 2.472193e-01 2.212320e-03 -1.367801e-01
## [372,] -0.139951597 8.275514e-02 -3.569917e-01 -2.734532e-01
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## [375,] 0.050212157 -2.127425e-01 1.006147e-01 -1.544342e-02
## [376,] 0.315426854 1.735040e-01 -1.342114e-01 1.561435e-01
## [377,] 0.092035196 2.197425e-01 3.046653e-02 -7.750701e-02
## [378,] 0.340959318 4.125716e-01 -3.143900e-02 1.567002e-02
## [379,] 0.010021418 1.300154e-01 -1.584255e-01 -6.262367e-02
## [380,] 0.225622976 -3.500360e-02 -1.186832e-01 -1.394552e-01
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## [382,] -0.055402327 7.104193e-01 -1.921920e-01 1.067923e-01
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## [406,] -0.429656209 2.191828e-01 -3.042748e-02 -1.748831e-01
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## [409,] 0.122447443 -3.748250e-01 -3.265878e-01 -2.857256e-01
## [410,] 0.201847992 -3.191753e-01 -1.390881e-01 -3.551229e-01
## [411,] 0.739142178 4.659218e-01 -2.738244e-01 2.451110e-01
## [412,] 0.063594198 -1.344329e-01 8.246452e-02 -2.968042e-02
## [413,] -0.050658461 -4.029063e-01 -1.859617e-02 1.817664e-01
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## [465,] 0.284431074 -5.373005e-01 -2.197313e-01 9.126616e-02
## [466,] -0.387817362 3.272425e-01 3.568318e-02 -2.214587e-01
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## [474,] -0.793888072 9.113932e-02 -6.231881e-01 1.802401e-01
## [475,] 0.490390249 4.206388e-02 1.444518e-03 3.732401e-01
## [476,] 0.194558951 1.065368e-01 -2.703042e-01 -1.832076e-01
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## [481,] 0.035489310 7.554027e-02 1.064340e-01 2.369870e-02
## [482,] 0.075341273 -2.679651e-02 7.012865e-02 -2.191363e-01
## [483,] 0.378214785 -2.994907e-01 -1.718938e-01 1.884331e-01
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## [486,] 0.160793835 -6.273395e-02 -3.355876e-01 -2.163270e-01
## [487,] 0.135816514 -4.255877e-02 1.036395e-02 6.282936e-03
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## [489,] -0.207794417 -2.662606e-02 2.779920e-02 -1.687871e-01
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## [559,] 0.097891170 5.724399e-01 -1.890217e-03 1.941505e-01
## [560,] -0.264277825 1.267142e-01 2.571626e-01 5.585308e-02
## [561,] 0.480265871 1.380471e-01 1.471092e-01 1.122127e-01
## [562,] -0.220393540 -9.813933e-02 3.902463e-02 -4.018143e-02
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## [564,] -0.083489849 7.184560e-03 7.199413e-02 -1.846356e-01
## [565,] 0.058856156 -4.695702e-01 -4.501508e-01 -3.471412e-01
## [566,] -0.214182122 5.780081e-02 -4.559676e-02 1.528344e-01
## [567,] -0.092989166 4.923031e-01 1.781862e-01 3.839729e-03
## [568,] 0.445170663 -4.445366e-02 1.158968e-02 1.025494e-01
## [569,] 0.231756423 -3.548587e-05 2.473740e-01 -2.592611e-01
##
##          PC20          PC21          PC22          PC23
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## [2,] -5.262226e-02 -5.987170e-02 5.868642e-02 0.0709786126
## [3,] -1.380489e-01 -1.348974e-01 1.008003e-01 0.0539090082
## [4,] -4.001824e-01 -1.030209e-01 -2.882171e-01 0.1820459068
## [5,] 8.515543e-02 -8.500541e-02 -6.332008e-02 0.0435910301
## [6,] 1.897094e-01 -6.872875e-02 9.669594e-02 -0.0014580538
## [7,] -2.937883e-02 -1.475160e-01 -1.731877e-02 -0.0108743761
## [8,] 3.024854e-01 -3.099751e-02 9.995874e-02 -0.0072754677
## [9,] -3.919811e-02 -5.436148e-02 -7.930105e-02 0.1166388585
## [10,] -2.211534e-01 1.244503e-01 2.906959e-03 -0.0958436133
## [11,] 1.932840e-03 -1.077269e-01 3.219922e-01 -0.0207780502
## [12,] -1.206356e-01 5.042482e-02 1.573921e-01 -0.0222931936
## [13,] 1.515462e-01 -6.981790e-02 -1.931869e-01 -0.2024735878
## [14,] 2.401749e-01 -5.455272e-02 -4.795192e-02 -0.0424807415
## [15,] 1.270436e-01 1.373108e-01 -3.501457e-02 -0.0602123244
## [16,] 5.353835e-02 -5.469285e-02 -1.008057e-01 -0.0522950385
## [17,] -6.569926e-02 -1.493094e-01 1.716667e-02 0.0597777408
## [18,] 1.634152e-01 -3.505539e-02 -1.464825e-01 -0.0039775402
## [19,] 2.239174e-01 5.765831e-01 1.983251e-01 -0.1213930293
## [20,] 4.683065e-02 6.678614e-02 6.078671e-03 0.1437547933
## [21,] -2.227016e-01 5.752789e-02 -2.271678e-02 -0.0993528734
## [22,] -1.446453e-03 -1.498505e-01 -2.707121e-01 -0.1656619655
## [23,] -5.508613e-02 1.981001e-01 1.483337e-01 -0.0618197083
## [24,] -4.532253e-02 -2.759078e-01 -3.047715e-01 0.2331576854
## [25,] -1.764213e-01 6.727165e-03 -2.542099e-01 -0.2043585353
## [26,] 3.859665e-02 -9.409569e-02 -8.135817e-02 0.2831371452
## [27,] 1.156892e-01 -1.749649e-01 -3.564202e-02 -0.0021298665
## [28,] 1.635999e-01 -1.848541e-01 -6.633801e-02 -0.2971181506
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## [31,] 1.932421e-01 -2.564502e-02 4.135938e-02 0.0759173497
## [32,] -2.004161e-02 -1.317350e-02 1.869560e-01 0.0006658619
## [33,] -8.026859e-02 9.746735e-02 -6.751488e-02 0.1257145839
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## [37,] -4.197287e-02 2.687950e-02 -5.888385e-02 -0.0859464734
## [38,] 1.940495e-02 1.230285e-01 3.737305e-01 -0.1400014645
## [39,] -1.021625e-01 -8.007357e-02 1.273240e-01 0.0428784496
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## [42,] -3.661367e-01 -2.251888e-02 -4.545154e-02  0.0014049365
## [43,] -2.551570e-02  4.871783e-01 -4.105041e-01  0.2049395102
## [44,] -4.464008e-02 -1.383938e-02  1.263177e-02  0.0731473296
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## [46,] -6.757124e-02  5.126289e-01  1.365662e-02  0.1544413525
## [47,] -2.387263e-01  2.589452e-02 -2.408946e-02  0.0129381577
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## [55,] -1.572611e-01  3.299894e-01  1.889017e-02 -0.1873737113
## [56,] -3.741426e-02 -1.043469e-01 -1.405715e-01 -0.1367940210
## [57,] -3.218577e-01 -7.521182e-02 -2.059829e-02 -0.0401296842
## [58,]  4.480643e-01 -1.985189e-02  4.734385e-02  0.1577233862
## [59,] -2.216465e-01  1.803297e-01 -1.893444e-01  0.1820445696
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## [64,] -2.090100e-01 -1.657851e-01  1.484928e-01 -0.1907336224
## [65,] -2.400854e-01 -2.771342e-01 -1.369491e-01 -0.2089155797
## [66,]  4.014291e-02  2.160654e-05 -7.557324e-02 -0.0038943873
## [67,]  8.480001e-02  2.445064e-02  9.166255e-02  0.0541509910
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## [80,] -5.768723e-02  1.500129e-01 -2.184574e-01 -0.1091813960
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## [415,] -6.899704e-02 1.742320e-01 1.857182e-01 0.0354193694
## [416,] -1.892464e-01 1.605080e-01 2.633204e-01 0.0920018880
## [417,] -3.493251e-01 -9.081572e-02 4.821092e-02 -0.0381418140
## [418,] -4.259076e-02 5.630923e-02 5.328247e-02 -0.2719220301
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## [421,] 7.737662e-01 -7.888964e-01 -7.840523e-01 0.3665653526
## [422,] -6.236693e-02 -8.097566e-02 2.183312e-01 -0.1869762394
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## [431,] 6.875126e-02 5.410363e-02 8.036884e-02 -0.5468071267
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## [560,]  2.390668e-01 -1.545367e-01 -8.989027e-02 -0.2173223496
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## [2,] -3.082234e-02 -0.0167415796  4.173030e-02 -5.933300e-02
## [3,]  8.548436e-02  0.0382776645 -4.151896e-02 -3.554641e-02
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## [21,] -8.267351e-02 0.0553391154 -1.075298e-01 -2.250015e-03
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## [23,] -2.100676e-02 0.0507842783 7.119412e-02 7.321933e-02
## [24,] 1.453243e-01 -0.1788807166 -8.480195e-02 -1.183986e-01
## [25,] -9.270941e-02 -0.0926433708 2.229218e-02 3.239943e-02
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## [29,] -4.576235e-03 -0.0969571997 2.177043e-01 -8.187578e-02
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## [34,] -5.417455e-02 -0.0892776751 -1.181234e-02 -2.728450e-02
## [35,] -1.375531e-02 -0.0527567526 -5.676271e-02 1.130212e-02
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## [37,] -2.035974e-01 0.1011202827 -3.357129e-02 6.766046e-02
## [38,] -1.340131e-01 0.0111714403 4.503495e-02 2.602385e-02
## [39,] -7.150104e-02 -0.0387415011 -2.464867e-02 -1.087789e-02
## [40,] 5.291070e-02 0.0943461369 -4.286375e-02 1.438983e-01
## [41,] 9.392111e-02 0.0651897641 1.877662e-01 7.902163e-04
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## [472,] 1.106353e-01 0.0086903590 -3.979714e-02 1.921079e-02
## [473,] 1.156047e-01 0.0204351424 1.382429e-01 8.694220e-02
## [474,] 1.636058e-01 0.0222534819 2.541725e-01 2.616667e-02
## [475,] -1.937208e-02 0.0701987815 -6.269821e-02 -7.223097e-02
## [476,] -6.653984e-02 -0.0486359495 -7.940201e-02 -1.033892e-01
## [477,] 1.768399e-01 0.0977800935 1.559091e-02 5.383030e-02
## [478,] -4.245996e-01 -0.0672201583 2.300266e-01 -2.195817e-01
## [479,] -2.944903e-01 0.1504171965 5.956351e-02 7.463761e-02
## [480,] 1.387290e-01 -0.1207552203 -1.003155e-01 9.732683e-02
## [481,] -7.652837e-03 -0.0971818089 -9.058913e-02 -4.255461e-02
## [482,] -1.585424e-01 0.0595731478 -9.892174e-02 2.573106e-02
## [483,] 1.093098e-01 -0.0516506187 -1.664118e-01 -1.965537e-01
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## [485,] 1.727004e-02 0.0095680412 -5.628061e-04 2.437322e-02
## [486,] -3.473205e-02 -0.2194664094 -5.595537e-02 1.398728e-01
## [487,] -7.262895e-02 0.0633645767 1.057460e-02 -9.000800e-02
## [488,] 3.678154e-01 0.1684645347 8.086259e-02 3.288541e-01
## [489,] -7.765397e-02 -0.0218059838 9.897151e-02 9.022658e-02
## [490,] -3.033027e-01 -0.0315015164 7.740000e-01 1.061184e-02
## [491,] -1.028325e-01 -0.0095917254 -7.979974e-02 2.537323e-02
## [492,] 1.672875e-01 0.1958059904 3.779788e-01 1.984649e-01
## [493,] 1.869292e-01 -0.0977761344 2.105302e-02 1.941376e-02
## [494,] -1.430047e-01 0.0415984336 -3.018059e-02 -7.205679e-02
## [495,] 8.309457e-02 0.1237101412 -2.058553e-02 -7.747679e-02
## [496,] -2.097327e-01 -0.0727297134 -1.926371e-02 -1.586551e-01
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## [499,] -1.374692e-01 0.4482243112 -4.149636e-02 -1.706264e-01
## [500,] 5.290057e-02 0.0615256107 1.915674e-01 9.056549e-02
## [501,] 2.343868e-01 0.0071166260 5.636578e-02 -7.471219e-03
## [502,] 2.160374e-03 -0.0646281937 -1.790944e-01 1.729615e-03
## [503,] -1.080534e-01 -0.1885617602 -2.220419e-01 -1.023354e-01
## [504,] 1.187616e-01 0.3390310112 -1.469435e-01 1.272002e-01
## [505,] -1.305941e-01 -0.0190997798 -8.314814e-02 -9.512168e-02
## [506,] 4.252903e-02 0.1052195938 -7.206779e-02 1.789455e-02
## [507,] 7.363093e-02 -0.0534314442 1.542172e-02 9.869219e-02
## [508,] 7.960295e-02 0.0573483878 -3.739942e-03 9.932959e-02
## [509,] 2.974784e-01 0.3991686469 -1.332545e-01 7.451008e-02
## [510,] -2.088765e-01 -0.0411747484 -2.095715e-01 2.349710e-01
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## [512,] -7.535287e-02 -0.0415105267 -2.867793e-02 -8.501377e-03
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## [514,] -5.178154e-02 -0.0026125977 4.363071e-02 9.561801e-02
## [515,] 6.960137e-02 -0.1787769557 -1.360944e-01 -1.313356e-01
## [516,] 9.718294e-02 -0.0625470816 -1.250628e-01 4.320560e-02
## [517,] -2.137369e-01 -0.0103590513 -1.700607e-01 4.238230e-02
## [518,] -7.407946e-02 -0.1037424981 1.705991e-01 -5.061262e-03
## [519,] -1.152769e-01 -0.2396806345 -1.919486e-02 5.973932e-02
## [520,] 1.763112e-02 -0.0139416206 1.544461e-01 -2.671602e-02
## [521,] -1.478086e-01 0.0464131501 -9.303540e-03 -2.553099e-02
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## [535,] 1.672791e-01 -0.2420968173 2.023490e-01 1.712906e-01
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## [537,] 6.224695e-02 0.0868122627 -6.467720e-02 5.160785e-03
## [538,] 1.528724e-01 -0.0283542060 2.922468e-02 7.240449e-02
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## [548,] -2.330586e-02 -0.0680147980 5.920108e-02 7.765521e-02
## [549,] 4.875478e-02 0.0870067368 -6.462833e-02 -9.551934e-02
## [550,] 3.106254e-01 -0.0397824677 -8.452481e-02 -1.321395e-01
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## [569,] -1.465535e-01 -0.0395651763 2.851123e-02 -1.446121e-01
##
##          PC28          PC29          PC30          PC31
## [1,] 0.0535613058 0.0151848822 1.598541e-02 1.396101e-03
## [2,] -0.1869655269 0.0270113107 -8.033300e-04 8.096490e-03
## [3,] -0.0765306661 -0.0146403879 1.030789e-02 9.074601e-03
## [4,] -0.0171166487 -0.0478284944 2.386299e-02 2.650750e-04
## [5,] 0.0383536434 0.0324507997 -2.312178e-03 -2.563269e-03
## [6,] 0.0095543400 -0.0044034309 3.869919e-03 -2.931194e-03
## [7,] 0.0378787886 0.0203768196 4.010932e-04 -1.269166e-02
## [8,] 0.1590301296 0.0211851026 2.063600e-02 -1.136547e-03
## [9,] -0.0586366278 -0.0157101706 1.578442e-02 8.784686e-03
## [10,] 0.0208900863 -0.0229256417 -3.656928e-02 3.436465e-03
## [11,] -0.1836996047 -0.0702399725 -1.960853e-02 1.499158e-02
## [12,] 0.0313667590 0.0214758148 -5.815388e-03 2.101407e-03
## [13,] -0.0115189160 -0.0236487859 -1.336927e-02 -9.541018e-04
## [14,] -0.0001342391 0.0262774321 -4.354456e-03 -6.766971e-03
## [15,] 0.0526092277 -0.0106431857 1.382817e-02 -1.138219e-02
## [16,] -0.0395565231 -0.0113053550 -3.940202e-03 6.933750e-03
## [17,] 0.0118991338 -0.0219583607 1.264325e-02 4.760172e-03
## [18,] 0.0091836992 0.0184535080 3.004816e-03 -8.284949e-03
## [19,] 0.2263597091 0.0319045180 -5.109774e-02 1.888498e-02
## [20,] 0.0030067774 -0.0211027308 -1.938230e-02 9.852988e-04
## [21,] -0.0198932675 -0.0136803305 -8.551012e-03 -1.325546e-03
## [22,] 0.0187612193 -0.0216819855 2.411236e-02 -8.858584e-03
## [23,] -0.0246700231 -0.0128612569 -4.467560e-03 3.629728e-03
## [24,] 0.0901569755 -0.0098411879 2.301966e-02 -2.374885e-02
## [25,] 0.0109952266 -0.0379124107 4.791318e-03 8.663743e-03
## [26,] 0.0315139751 -0.0401102951 4.734871e-02 9.919702e-03
## [27,] -0.0247139379 0.0219728384 1.146276e-02 1.347780e-03
## [28,] 0.2407008095 -0.1852027901 1.514934e-02 -9.338919e-04
## [29,] 0.0814109162 -0.0090939596 2.163938e-02 -1.755034e-03
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## [34,] -0.0590833361 0.0130416480 7.452318e-03 9.309105e-03

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## [35,] -0.0252578940 0.0047644298 1.129211e-02 -7.572504e-04
## [36,] -0.0136113786 -0.0323834364 -5.070655e-02 3.761900e-03
## [37,] 0.0145404352 -0.0403402638 4.594615e-02 4.646818e-05
## [38,] 0.0620363491 0.0259186233 -1.038252e-02 1.782104e-02
## [39,] 0.0551020192 0.0091668531 1.530145e-02 1.309894e-02
## [40,] -0.0360424650 0.0146077001 1.910994e-02 2.733524e-03
## [41,] -0.0507089905 -0.0501071660 -7.727756e-03 -1.182598e-02
## [42,] -0.0446278063 0.0911078308 -1.362661e-03 1.313363e-02
## [43,] -0.1841875377 0.0424279229 6.857974e-02 -1.998307e-02
## [44,] 0.0855229177 -0.0160270811 -2.834893e-02 1.060561e-02
## [45,] 0.0328784540 -0.0146923196 -7.281896e-03 -5.593681e-03
## [46,] 0.0511279444 -0.0069384905 -1.819427e-03 -7.746198e-03
## [47,] 0.0547823196 -0.0023206355 -8.758586e-03 3.372264e-03
## [48,] -0.2137482100 -0.0381373067 -2.763514e-02 4.146805e-03
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## [52,] 0.0297321325 -0.0331236455 -1.219745e-02 -1.497444e-02
## [53,] -0.0402841172 0.0107722059 -1.137519e-02 3.710160e-03
## [54,] 0.0411842454 -0.0065017458 2.731969e-03 -7.122045e-03
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## [57,] -0.0655979733 -0.0067404314 -1.509246e-02 1.220346e-02
## [58,] -0.0723397173 0.0078063902 -4.017460e-03 6.460942e-03
## [59,] 0.0259482166 -0.1009891889 -4.066243e-02 2.482287e-04
## [60,] -0.1472098173 0.0646962815 6.432846e-02 3.686692e-03
## [61,] 0.0247950621 -0.0709616241 1.160058e-02 -1.588803e-02
## [62,] -0.0428475099 -0.0022463043 5.168838e-03 -7.379388e-03
## [63,] 0.0773552872 -0.0035421174 1.873981e-02 2.154060e-02
## [64,] -0.0695511185 0.0115904549 2.266887e-02 1.568908e-02
## [65,] 0.0225291261 0.0010160584 1.636328e-02 -1.872231e-02
## [66,] 0.0155835137 0.0132711018 -4.069241e-03 3.713134e-03
## [67,] 0.0063615856 -0.0200441666 -7.372887e-03 -4.932517e-03
## [68,] 0.0090042996 0.0268352584 1.231880e-02 -1.881063e-03
## [69,] 0.0008812426 -0.0057755937 -1.340533e-03 -5.150721e-03
## [70,] 0.0355147201 0.0043148745 -4.507685e-03 1.070424e-03
## [71,] -0.1283744567 -0.0742747228 -2.933480e-02 -2.136442e-03
## [72,] -0.0877352341 -0.0180453170 3.308265e-03 1.065749e-02
## [73,] -0.2556893106 0.0202584002 4.385842e-02 -3.848263e-02
## [74,] -0.0235123863 0.0065685994 4.674044e-03 -1.181389e-02
## [75,] -0.1048133481 -0.0187357842 -2.052335e-02 -1.339569e-02
## [76,] 0.0058851872 -0.0156305323 -1.011894e-02 -6.699865e-03
## [77,] -0.0431265122 0.0255737824 -3.463985e-03 -4.223548e-03
## [78,] 0.0099252444 0.0360829529 -1.616924e-02 -3.198251e-03
## [79,] -0.0029162883 0.0269282854 -1.470512e-02 1.065629e-02
## [80,] 0.0456480058 0.0399893607 3.123969e-03 3.045911e-03
## [81,] 0.0471852749 0.0094077473 -3.761305e-03 -5.470391e-03
## [82,] -0.0243818933 0.0177535238 1.031865e-02 -8.368126e-03
## [83,] 0.0582247814 0.0209370866 -2.321229e-02 -5.350306e-03
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## [85,] -0.0262027019 -0.0252608854 1.722162e-02 1.680226e-03
## [86,] 0.0148952545 0.0195915284 -1.846289e-02 -2.144185e-03
## [87,] -0.0438845496 0.0303948560 -1.552890e-02 7.282629e-03
## [88,] 0.0202943160 -0.0054566694 -1.198632e-02 9.897334e-03
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## [89,] -0.1463380961 0.0686806867 -1.759236e-02 -1.384178e-02
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## [99,] -0.0327142984 -0.0275644972 1.513022e-03 -7.353861e-04
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## [101,] -0.1105311481 -0.0013877012 1.828318e-02 -9.785484e-03
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## [108,] -0.0547154320 -0.0165025183 1.460897e-02 2.125402e-03
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## [111,] -0.1260690549 0.0102767042 -1.020759e-02 -2.783172e-03
## [112,] -0.1059939623 0.0209075529 1.090913e-02 -1.406150e-02
## [113,] 0.0608933628 0.0347631876 -9.269839e-03 -2.181715e-02
## [114,] -0.1688223678 -0.0124969057 -5.504330e-02 -2.805491e-03
## [115,] -0.0609383834 -0.0095368814 -1.942903e-02 -4.551720e-04
## [116,] -0.0079588418 0.0138315864 1.380669e-02 -3.357869e-03
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## [126,] -0.0787976846 0.0187022302 -5.421734e-03 -2.581661e-04
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## [133,] 0.0787434612 -0.0116143645 -3.288555e-03 6.144041e-03
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## [139,] 0.1548661527 -0.0396956918 -2.163775e-02 -5.416209e-03
## [140,] 0.0189329208 0.0047664647 5.579590e-04 -1.613120e-03
## [141,] -0.0740378147 -0.0175467891 -2.181434e-02 8.579655e-03
## [142,] 0.2529700286 -0.0338815826 -4.553172e-02 -4.712428e-02
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## [149,] 0.1056232897 -0.0076881080 5.237851e-03 -4.690007e-03
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## [151,] -0.0105248347 0.0052661208 5.770369e-04 -1.275559e-03
## [152,] -0.1021820958 0.0090077426 -3.473715e-02 -5.352769e-04
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## [157,] 0.0150952486 -0.0038538689 2.906355e-02 -3.245762e-03
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## [351,] 0.0115041906 0.0077300569 -6.720115e-03 -6.440452e-03
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## [354,] 0.1101326435 0.0015752777 -1.830675e-02 -2.207541e-03
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## [356,] -0.0914259451 -0.0197470545 -9.061937e-03 -5.537131e-03
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## [366,] 0.0089628645 -0.0087916906 2.625904e-03 -7.413677e-05
## [367,] 0.0802383432 0.1053502697 -1.079133e-02 1.897916e-03
## [368,] -0.0543618416 -0.0066350256 1.139638e-02 3.470732e-03
## [369,] -0.0256447404 -0.0024317643 -1.266621e-02 3.835731e-03
## [370,] -0.1196782708 0.1049666235 4.902632e-02 -4.083695e-03
## [371,] 0.0113167225 0.0087292708 -4.540859e-03 1.090400e-03
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## [559,] 0.2118838404 -0.0181142975 3.600294e-02 2.217638e-04
## [560,] -0.0265311428 0.0214659480 -5.356050e-03 9.112897e-03
## [561,] 0.0612930701 -0.1122543797 -6.714921e-02 -1.368662e-02
## [562,] 0.0536497985 -0.0177312339 -1.023821e-02 -3.139075e-03
## [563,] 0.0572798895 0.0130302469 -1.209907e-02 -5.552985e-03
## [564,] -0.0318972163 -0.0229019521 -3.253642e-02 -9.340876e-04
## [565,] 0.0048045501 0.0281111851 4.728344e-03 -5.899725e-04
## [566,] 0.0068911201 -0.0175118860 -2.580188e-04 5.826148e-03
## [567,] 0.0471706437 0.0507946253 1.250840e-03 3.425887e-03
## [568,] 0.1477176175 0.0013794388 -1.939084e-03 -1.131610e-02
## [569,] -0.0426995400 -0.0728970801 3.245528e-02 -6.532395e-03
```

```
plot(cancer_pca$x,xlim=xlim,ylim=xlim)
```

