Test

2023-04-30

```
# load required libraries
library(parallel)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(stats)
library(knitr)
library(caret)
```

```
## Loading required package: ggplot2
```

```
## Loading required package: lattice
```

```
library(ggplot2)
library(foreach)
```

Load RDAs

```
#load(file = file.path(root_dir,"R_data","X_wm.Rda"))
#load(file = file.path(root_dir,"R_data","X_gm.Rda"))
load(file = file.path(root_dir,"R_data","X_cb.Rda"))
```

PCA

```
# fnto perform PCA and save output
pca_cb <- perform_pca(X_cb)
```

```
## [1] "n components: 157"
```

```
save(pca_cb, file = file.path(root_dir, "R_data", "pca_cb.Rda"))


# standard deviations
head(pca_cb$sdev)
```

```
## [1] 485.2559 304.0095 199.2652 191.7705 178.2952 165.0646
```

```
head(pca_cb$X_train_pca[,1:5])
```

```
##          PC1        PC2        PC3       PC4        PC5
## 1 -114.18682  523.84040  26.181038 -27.37599  17.509051
## 2 -358.21861  -21.44335 -25.158355 -10.21506 -31.227806
## 3 -315.67104  -46.49937  90.412849 120.22603  79.089700
## 4  -38.66789 -197.48038   8.814655  55.17534  30.499092
## 5 -327.88877  -13.17917  40.870160  15.82580  -5.651047
## 6   -1.34017 -143.26736  -5.248153 -25.98287 -59.045410
```

```
dim(pca_cb$X_train_pca)
```

```
## [1] 347 157
```

```
head(pca_cb$y_train)
```

```
## [1] 1 2 1 1 1 1
```

```
length(pca_cb$y_train)
```

```
## [1] 347
```

```
length(pca_cb$y_test)
```

```
## [1] 87
```

```
head(pca_cb$X_test_pca[,1:5])
```

```
##          PC1        PC2        PC3        PC4       PC5
## 7  -201.6172 -103.24586  -39.94229  36.454802  52.67558
## 8  1249.5829  598.64258  628.31596 -47.216813 294.78513
## 14 1531.1578  332.88833  -94.18102 292.676271 454.68711
## 21 -122.1722 -168.93622   17.39956  52.061105  70.86663
## 27  584.3440 -474.41773 -162.02958 -70.620365  60.58990
## 34 -562.9449   97.98284   40.33345   2.735382 -31.14871
```

```
dim(pca_cb$X_test_pca)
```

```
## [1]  87 157
```