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_wm <- perform_pca(X_wm)
```

```
## [1] "n components: 160"
```

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

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

```
## [1] 452.1510 296.7593 259.9965 218.5165 207.4727 183.9062
```

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

```
##          PC1       PC2        PC3        PC4        PC5
## 1 -331.60784  253.9999  -42.86449  61.869432 -258.23420
## 2 -611.41059 -405.4906 -110.03088  54.062859   31.21172
## 3 -335.55910 -508.4191   40.49457  59.216882  -46.53551
## 4   80.50403  132.8430  -58.04074   7.065234 -204.16960
## 5 -202.27335  281.5298  -17.69568 -18.866968 -129.23912
## 6  117.75161  154.7128  117.73830  16.155097 -123.74314
```

```
dim(pca_wm$X_train_pca)
```

```
## [1] 347 160
```

```
head(pca_wm$y_train)
```

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

```
length(pca_wm$y_train)
```

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

```
length(pca_wm$y_test)
```

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

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

```
##          PC1         PC2        PC3        PC4        PC5
## 7  -284.8903  186.533812  278.16458 -171.06059  341.53506
## 8   686.8895 -157.785680 -458.71621  123.15851  127.85765
## 14  635.7469 -103.616903   51.07927   13.91173 -106.82024
## 21 -120.4196  407.075525 -105.11470  -19.89997   15.58869
## 27  412.7549   -7.265505  355.03562 -165.28468  593.66012
## 34 -557.9561  420.840469  -42.88878   19.05460 -110.99656
```

```
dim(pca_wm$X_test_pca)
```

```
## [1]  87 160
```