

benchmarks

Benchmarks for IREGNET

Loading the required packages

```
library(iregnetoptim)
library(iregnet)
library(glmnet)
library(survival)
library(directlabels)
library(ggplot2)
library(microbenchmark)
library(dplyr)
```

Uncensored Data

- Random Dataset Packages: Iregnet, Iregnet Optimised, Glmnet

```
## Randomly generated data
X <- rnorm(500000, 1, 1.5) %>% matrix(nrow = 100000, ncol = 5)
Y <- rnorm(100000, 1, 1.5) %>% matrix(nrow = 100000, ncol = 1)
Y = matrix(c(Y, Y), nrow = 100000, ncol = 2)
res <- data.frame()
for(i in c(1:10)*10000)
{
  evaltime <- microbenchmark(iregnet(X[1:i,], Y[1:i,]), iregnetoptim(X[1:i,], Y[1:i,]), glmnet(X[1:i,],
  res <- bind_rows(res, data.frame(i, list(summary(evaltime)[,c('min', 'mean', 'max')])))
}

res <- cbind.data.frame(c("Iregnet", "Iregnet_Optimised", "Glmnet"), res)
names(res) <- c("expr", names(res)[2:5])
p <- ggplot(res, aes(x = i))+
  geom_ribbon(aes(ymin = min, ymax = max, fill = expr, group = expr), alpha = 1/2)+
  geom_line(aes(y = mean, group = expr, colour = expr))+
  ggtitle('Runtime(in milliseconds) vs Dataset Size') +
  xlab('Dataset Size') +
  ylab('Runtime (in milliseconds)')
direct.label(p, "angled.bboxes")
```

– Prostate Dataset Packages: Iregnet, Iregnet Optimised, Glmnet

```
res <- data.frame() #Result data frame
for(i in c(4:(nrow(X)/5))*5)
{
  evaltime <- microbenchmark(iregnet(X[1:i,], Y[1:i,]), iregnetoptim(X[1:i,], Y[1:i,]), glmnet(X[1:i,],
  res <- bind_rows(res, data.frame(i, list(summary(evaltime)[,c('min', 'mean', 'max')])))
}

res <- cbind.data.frame(c("IREGNET", "Iregnet Optimization", "GLMNET"), res)
names(res) <- c("expr", names(res)[2:5])
p <- ggplot(res, aes(x = i))+
  geom_ribbon(aes(ymin = min, ymax = max, fill = expr, group = expr), alpha = 1/2)+
  geom_line(aes(y = mean, group = expr, colour = expr))+
  ggtitle('Runtime(in milliseconds) vs Dataset Size') +
```

```
xlab('Dataset Size') +  
ylab('Runtime (in milliseconds)')  
direct.label(p,"angled.bboxes")
```