### GROWING LIST ###

base\_lst1 <- function(df) {

l <- list()

for (i in seq(nrow(df))) l[[i]] <- as.list(df[i, ])

return(l)

}

### PRE-ALLOCATING LIST ###

base\_lst2 <- function(df) {

l <- vector(mode = "list", length = nrow(df))

for (i in seq(nrow(df))) l[[i]] <- as.list(df[i, ])

return(l)

}

### DEQUER PACKAGE ###

dequer\_queue <- function(df) {

q <- dequer::queue()

for (i in seq(nrow(df))) dequer::pushback(q, as.list(df[i, ]))

return(as.list(q))

}

### LIQUEUER PACKAGE ###

liqueuer\_queue <- function(df) {

q <- liqueueR::Queue$new()

for (i in seq(nrow(df))) q$push(as.list(df[i, ]))

return(q$data)

}

### COLLECTIONS PACKAGE ###

collections\_queue <- function(df) {

q <- collections::Queue$new()

for (i in seq(nrow(df))) q$push(as.list(df[i, ]))

return(q$as\_list())

}

### RSTACKDEQUE PACKAGE ###

rstackdeque\_queue <- function(df) {

q <- rstackdeque::rpqueue()

for (i in seq(nrow(df))) q <- rstackdeque::insert\_back(q, as.list(df[i, ]))

return(as.list(q))

}

nyc <- read.csv("Downloads/nycflights.csv")

compare <- function(ds) {

tests <- c("dequer\_queue(ds)",

"base\_lst2(ds)",

"liqueuer\_queue(ds)",

"collections\_queue(ds)",

"rstackdeque\_queue(ds)")

for (t in tests) print(identical(base\_lst1(ds), eval(parse(text = t))))

}

compare(nyc[1:10, ])

#[1] TRUE

#[1] TRUE

#[1] TRUE

#[1] TRUE

#[1] TRUE

### BENCHMARKS ###

bm <- function(ds) {

rbenchmark::benchmark(replications = 5, order = "elapsed", relative = "elapsed",

columns = c("test", "replications", "elapsed", "relative"),

"GROWING LIST" = base\_lst1(ds),

"PRE-ALLOCATING LIST" = base\_lst2(ds),

"DEQUER::QUEUE" = dequer\_queue(ds),

"LIQUEUER::QUEUE" = liqueuer\_queue(ds),

"COLLECTIONS::QUEUE" = collections\_queue(ds),

"RSTACKDEQUE::RPQUEUE" = rstackdeque\_queue(ds)

)

}

bm(nyc[1:1000, ])

test replications elapsed relative

#1 GROWING LIST 5 0.808 1.000

#2 PRE-ALLOCATING LIST 5 0.839 1.038

#5 COLLECTIONS::QUEUE 5 0.842 1.042

#4 LIQUEUER::QUEUE 5 1.091 1.350

#3 DEQUER::QUEUE 5 1.375 1.702

#6 RSTACKDEQUE::RPQUEUE 5 1.901 2.353

bm(nyc[1:10000, ])

# test replications elapsed relative

#5 COLLECTIONS::QUEUE 5 8.175 1.000

#1 GROWING LIST 5 8.505 1.040

#2 PRE-ALLOCATING LIST 5 12.554 1.536

#4 LIQUEUER::QUEUE 5 17.325 2.119

#6 RSTACKDEQUE::RPQUEUE 5 21.785 2.665

#3 DEQUER::QUEUE 5 22.030 2.695

bm(nyc[1:20000, ])

# test replications elapsed relative

#5 COLLECTIONS::QUEUE 5 16.730 1.000

#2 PRE-ALLOCATING LIST 5 17.134 1.024

#1 GROWING LIST 5 17.342 1.037

#4 LIQUEUER::QUEUE 5 48.359 2.891

#6 RSTACKDEQUE::RPQUEUE 5 52.420 3.133

#3 DEQUER::QUEUE 5 79.938 4.778

bm(nyc[1:30000, ])

# test replications elapsed relative

#2 PRE-ALLOCATING LIST 5 24.600 1.000

#5 COLLECTIONS::QUEUE 5 24.797 1.008

#1 GROWING LIST 5 25.600 1.041

#6 RSTACKDEQUE::RPQUEUE 5 60.908 2.476

#4 LIQUEUER::QUEUE 5 102.482 4.166

#3 DEQUER::QUEUE 5 182.039 7.400