

# lab09

sl

2022-10-26

## Problem 2.

Create a  $n \times k$  dataset with all its entries distributed poisson with mean  $\lambda$

```
set.seed(1235)
fun1 <- function(n = 100, k = 4, lambda = 4) {
  x <- NULL

  for (i in 1:n)
    x <- rbind(x, rpois(k, lambda))

  return(x)
}
f1 <- fun1(1000,4)
mean(f1)
```

```
## [1] 4.03725
```

```
#f1 <- fun1(10000,4)
#f1 <- fun1(50000,4)

fun1alt <- function(n = 100, k = 4, lambda = 4) {
  # YOUR CODE HERE

  x <- matrix( rpois(n*k, lambda), ncol = 4)

  return(x)
}
f1 <- fun1alt(50000,4)

# Benchmarking
microbenchmark::microbenchmark(
  fun1(),
  fun1alt()
)
```

```
## Unit: microseconds
##      expr      min       lq      mean    median       uq      max neval
##   fun1() 707.753 1119.8590 2294.1098 1421.0350 2712.7885 12563.57   100
## fun1alt()  33.018   42.5175  396.3775   48.3565   55.4745 32668.27   100
```

```
d <- matrix(1:16, ncol = 4)
d
```

```
##      [,1] [,2] [,3] [,4]
## [1,]    1    5    9   13
## [2,]    2    6   10   14
## [3,]    3    7   11   15
## [4,]    4    8   12   16
```