Lab 2

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Task 1.

```
mySeq <- seq(1:25)
mySeq
```

```
##  [1]  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
## [24] 24 25
```

Task 2.

```
# sample 5 instances from mySeq with replacement and store them in vector sampleSeq
sampleSeq <- sample(mySeq, size=5, replace=TRUE)
sampleSeq
```

```
## [1]  9 24 18 23 22
```

Task 3 and 4.

```
set.seed(1)
myData <- rnorm(n=100, mean=0, sd=1)
myData
```

```
##   [1] -0.626453811  0.183643324 -0.835628612  1.595280802  0.329507772
##   [6] -0.820468384  0.487429052  0.738324705  0.575781352 -0.305388387
##  [11]  1.511781168  0.389843236 -0.621240581 -2.214699887  1.124930918
##  [16] -0.044933609 -0.016190263  0.943836211  0.821221195  0.593901321
##  [21]  0.918977372  0.782136301  0.074564983 -1.989351696  0.619825748
##  [26] -0.056128740 -0.155795507 -1.470752384 -0.478150055  0.417941560
##  [31]  1.358679552 -0.102787727  0.387671612 -0.053805041 -1.377059557
##  [36] -0.414994563 -0.394289954 -0.059313397  1.100025372  0.763175748
##  [41] -0.164523596 -0.253361680  0.696963375  0.556663199 -0.688755695
##  [46] -0.707495157  0.364581962  0.768532925 -0.112346212  0.881107726
##  [51]  0.398105880 -0.612026393  0.341119691 -1.129363096  1.433023702
##  [56]  1.980399899 -0.367221476 -1.044134626  0.569719627 -0.135054604
##  [61]  2.401617761 -0.039240003  0.689739362  0.028002159 -0.743273209
##  [66]  0.188792300 -1.804958629  1.465554862  0.153253338  2.172611670
##  [71]  0.475509529 -0.709946431  0.610726353 -0.934097632 -1.253633400
##  [76]  0.291446236 -0.443291873  0.001105352  0.074341324 -0.589520946
##  [81] -0.568668733 -0.135178615  1.178086997 -1.523566800  0.593946188
##  [86]  0.332950371  1.063099837 -0.304183924  0.370018810  0.267098791
##  [91] -0.542520031  1.207867806  1.160402616  0.700213650  1.586833455
##  [96]  0.558486426 -1.276592208 -0.573265414 -1.224612615 -0.473400636
```

Task 5.

```r
anotherTrivialFunction <- function(x) {
  # tranform vector into 10*10 matrix
  myMatrix <- matrix(x, 10, 10, byrow=TRUE)
  # create an empty list of length 5
  myList <- vector("list", length=5)
  # iterate over the list and assign each element a sampled matrix
  for(i in 1:5) {
    # sampling 10 rows basically means sampling row indexes
    sampleRowIndex <- sample(1:10, size=10, replace=TRUE)
    myList[[i]] <- myMatrix[sampleRowIndex, ]
  }
  return(myList)
}
matrix(myData, 10, 10, byrow=T)
```

```
##             [,1]       [,2]        [,3]        [,4]       [,5]        [,6]
##  [1,] -0.6264538  0.1836433 -0.83562861  1.59528080  0.3295078 -0.82046838
##  [2,]  1.5117812  0.3898432 -0.62124058 -2.21469989  1.1249309 -0.04493361
##  [3,]  0.9189774  0.7821363  0.07456498 -1.98935170  0.6198257 -0.05612874
##  [4,]  1.3586796 -0.1027877  0.38767161 -0.05380504 -1.3770596 -0.41499456
##  [5,] -0.1645236 -0.2533617  0.69696338  0.55666320 -0.6887557 -0.70749516
##  [6,]  0.3981059 -0.6120264  0.34111969 -1.12936310  1.4330237  1.98039990
##  [7,]  2.4016178 -0.0392400  0.68973936  0.02800216 -0.7432732  0.18879230
##  [8,]  0.4755095 -0.7099464  0.61072635 -0.93409763 -1.2536334  0.29144624
##  [9,] -0.5686687 -0.1351786  1.17808700 -1.52356680  0.5939462  0.33295037
## [10,] -0.5425200  1.2078678  1.16040262  0.70021365  1.5868335  0.55848643
##              [,7]         [,8]        [,9]       [,10]
##  [1,]  0.48742905  0.738324705  0.57578135 -0.3053884
##  [2,] -0.01619026  0.943836211  0.82122120  0.5939013
##  [3,] -0.15579551 -1.470752384 -0.47815006  0.4179416
##  [4,] -0.39428995 -0.059313397  1.10002537  0.7631757
##  [5,]  0.36458196  0.768532925 -0.11234621  0.8811077
##  [6,] -0.36722148 -1.044134626  0.56971963 -0.1350546
##  [7,] -1.80495863  1.465554862  0.15325334  2.1726117
##  [8,] -0.44329187  0.001105352  0.07434132 -0.5895209
##  [9,]  1.06309984 -0.304183924  0.37001881  0.2670988
## [10,] -1.27659221 -0.573265414 -1.22461261 -0.4734006
```

```r
anotherTrivialFunction(myData)
```

```
## [[1]]
##            [,1]       [,2]        [,3]       [,4]       [,5]        [,6]
##  [1,] 0.9189774  0.7821363  0.07456498 -1.9893517  0.6198257 -0.05612874
##  [2,] 0.9189774  0.7821363  0.07456498 -1.9893517  0.6198257 -0.05612874
##  [3,] 0.3981059 -0.6120264  0.34111969 -1.1293631  1.4330237  1.98039990
##  [4,] 0.9189774  0.7821363  0.07456498 -1.9893517  0.6198257 -0.05612874
##  [5,] 1.5117812  0.3898432 -0.62124058 -2.2146999  1.1249309 -0.04493361
##  [6,] 0.3981059 -0.6120264  0.34111969 -1.1293631  1.4330237  1.98039990
##  [7,] 0.3981059 -0.6120264  0.34111969 -1.1293631  1.4330237  1.98039990
##  [8,] 1.5117812  0.3898432 -0.62124058 -2.2146999  1.1249309 -0.04493361
##  [9,] 0.9189774  0.7821363  0.07456498 -1.9893517  0.6198257 -0.05612874
## [10,] 0.4755095 -0.7099464  0.61072635 -0.9340976 -1.2536334  0.29144624
```

```
##              [,7]         [,8]        [,9]      [,10]
##  [1,] -0.15579551 -1.470752384 -0.47815006  0.4179416
##  [2,] -0.15579551 -1.470752384 -0.47815006  0.4179416
##  [3,] -0.36722148 -1.044134626  0.56971963 -0.1350546
##  [4,] -0.15579551 -1.470752384 -0.47815006  0.4179416
##  [5,] -0.01619026  0.943836211  0.82122120  0.5939013
##  [6,] -0.36722148 -1.044134626  0.56971963 -0.1350546
##  [7,] -0.36722148 -1.044134626  0.56971963 -0.1350546
##  [8,] -0.01619026  0.943836211  0.82122120  0.5939013
##  [9,] -0.15579551 -1.470752384 -0.47815006  0.4179416
## [10,] -0.44329187  0.001105352  0.07434132 -0.5895209
##
## [[2]]
##             [,1]       [,2]       [,3]        [,4]       [,5]        [,6]
##  [1,] -0.5425200  1.2078678  1.1604026  0.70021365  1.5868335  0.55848643
##  [2,]  1.5117812  0.3898432 -0.6212406 -2.21469989  1.1249309 -0.04493361
##  [3,]  0.4755095 -0.7099464  0.6107264 -0.93409763 -1.2536334  0.29144624
##  [4,] -0.5425200  1.2078678  1.1604026  0.70021365  1.5868335  0.55848643
##  [5,] -0.5686687 -0.1351786  1.1780870 -1.52356680  0.5939462  0.33295037
##  [6,]  1.3586796 -0.1027877  0.3876716 -0.05380504 -1.3770596 -0.41499456
##  [7,]  2.4016178 -0.0392400  0.6897394  0.02800216 -0.7432732  0.18879230
##  [8,] -0.5425200  1.2078678  1.1604026  0.70021365  1.5868335  0.55848643
##  [9,] -0.5425200  1.2078678  1.1604026  0.70021365  1.5868335  0.55848643
## [10,]  1.3586796 -0.1027877  0.3876716 -0.05380504 -1.3770596 -0.41499456
##              [,7]         [,8]        [,9]      [,10]
##  [1,] -1.27659221 -0.573265414 -1.22461261 -0.4734006
##  [2,] -0.01619026  0.943836211  0.82122120  0.5939013
##  [3,] -0.44329187  0.001105352  0.07434132 -0.5895209
##  [4,] -1.27659221 -0.573265414 -1.22461261 -0.4734006
##  [5,]  1.06309984 -0.304183924  0.37001881  0.2670988
##  [6,] -0.39428995 -0.059313397  1.10002537  0.7631757
##  [7,] -1.80495863  1.465554862  0.15325334  2.1726117
##  [8,] -1.27659221 -0.573265414 -1.22461261 -0.4734006
##  [9,] -1.27659221 -0.573265414 -1.22461261 -0.4734006
## [10,] -0.39428995 -0.059313397  1.10002537  0.7631757
##
## [[3]]
##             [,1]       [,2]        [,3]        [,4]       [,5]        [,6]
##  [1,]  0.9189774  0.7821363  0.07456498 -1.98935170  0.6198257 -0.05612874
##  [2,]  1.5117812  0.3898432 -0.62124058 -2.21469989  1.1249309 -0.04493361
##  [3,]  1.3586796 -0.1027877  0.38767161 -0.05380504 -1.3770596 -0.41499456
##  [4,]  0.3981059 -0.6120264  0.34111969 -1.12936310  1.4330237  1.98039990
##  [5,] -0.5425200  1.2078678  1.16040262  0.70021365  1.5868335  0.55848643
##  [6,]  0.3981059 -0.6120264  0.34111969 -1.12936310  1.4330237  1.98039990
##  [7,]  0.9189774  0.7821363  0.07456498 -1.98935170  0.6198257 -0.05612874
##  [8,] -0.6264538  0.1836433 -0.83562861  1.59528080  0.3295078 -0.82046838
##  [9,] -0.1645236 -0.2533617  0.69696338  0.55666320 -0.6887557 -0.70749516
## [10,] -0.5686687 -0.1351786  1.17808700 -1.52356680  0.5939462  0.33295037
##              [,7]       [,8]       [,9]      [,10]
##  [1,] -0.15579551 -1.4707524 -0.4781501  0.4179416
##  [2,] -0.01619026  0.9438362  0.8212212  0.5939013
##  [3,] -0.39428995 -0.0593134  1.1000254  0.7631757
##  [4,] -0.36722148 -1.0441346  0.5697196 -0.1350546
##  [5,] -1.27659221 -0.5732654 -1.2246126 -0.4734006
```

```
##  [6,] -0.36722148 -1.0441346  0.5697196 -0.1350546
##  [7,] -0.15579551 -1.4707524 -0.4781501  0.4179416
##  [8,]  0.48742905  0.7383247  0.5757814 -0.3053884
##  [9,]  0.36458196  0.7685329 -0.1123462  0.8811077
## [10,]  1.06309984 -0.3041839  0.3700188  0.2670988
##
## [[4]]
##             [,1]       [,2]       [,3]        [,4]       [,5]        [,6]
##  [1,]  1.3586796 -0.1027877  0.3876716 -0.05380504 -1.3770596 -0.41499456
##  [2,]  1.5117812  0.3898432 -0.6212406 -2.21469989  1.1249309 -0.04493361
##  [3,]  1.3586796 -0.1027877  0.3876716 -0.05380504 -1.3770596 -0.41499456
##  [4,]  2.4016178 -0.0392400  0.6897394  0.02800216 -0.7432732  0.18879230
##  [5,]  1.3586796 -0.1027877  0.3876716 -0.05380504 -1.3770596 -0.41499456
##  [6,]  2.4016178 -0.0392400  0.6897394  0.02800216 -0.7432732  0.18879230
##  [7,]  2.4016178 -0.0392400  0.6897394  0.02800216 -0.7432732  0.18879230
##  [8,]  0.3981059 -0.6120264  0.3411197 -1.12936310  1.4330237  1.98039990
##  [9,] -0.1645236 -0.2533617  0.6969634  0.55666320 -0.6887557 -0.70749516
## [10,] -0.1645236 -0.2533617  0.6969634  0.55666320 -0.6887557 -0.70749516
##              [,7]       [,8]       [,9]      [,10]
##  [1,] -0.39428995 -0.0593134  1.1000254  0.7631757
##  [2,] -0.01619026  0.9438362  0.8212212  0.5939013
##  [3,] -0.39428995 -0.0593134  1.1000254  0.7631757
##  [4,] -1.80495863  1.4655549  0.1532533  2.1726117
##  [5,] -0.39428995 -0.0593134  1.1000254  0.7631757
##  [6,] -1.80495863  1.4655549  0.1532533  2.1726117
##  [7,] -1.80495863  1.4655549  0.1532533  2.1726117
##  [8,] -0.36722148 -1.0441346  0.5697196 -0.1350546
##  [9,]  0.36458196  0.7685329 -0.1123462  0.8811077
## [10,]  0.36458196  0.7685329 -0.1123462  0.8811077
##
## [[5]]
##             [,1]       [,2]        [,3]        [,4]       [,5]        [,6]
##  [1,]  1.3586796 -0.1027877  0.38767161 -0.05380504 -1.3770596 -0.41499456
##  [2,]  0.3981059 -0.6120264  0.34111969 -1.12936310  1.4330237  1.98039990
##  [3,] -0.5425200  1.2078678  1.16040262  0.70021365  1.5868335  0.55848643
##  [4,]  1.5117812  0.3898432 -0.62124058 -2.21469989  1.1249309 -0.04493361
##  [5,] -0.1645236 -0.2533617  0.69696338  0.55666320 -0.6887557 -0.70749516
##  [6,]  0.9189774  0.7821363  0.07456498 -1.98935170  0.6198257 -0.05612874
##  [7,] -0.1645236 -0.2533617  0.69696338  0.55666320 -0.6887557 -0.70749516
##  [8,]  1.5117812  0.3898432 -0.62124058 -2.21469989  1.1249309 -0.04493361
##  [9,] -0.1645236 -0.2533617  0.69696338  0.55666320 -0.6887557 -0.70749516
## [10,] -0.5425200  1.2078678  1.16040262  0.70021365  1.5868335  0.55848643
##              [,7]       [,8]       [,9]      [,10]
##  [1,] -0.39428995 -0.0593134  1.1000254  0.7631757
##  [2,] -0.36722148 -1.0441346  0.5697196 -0.1350546
##  [3,] -1.27659221 -0.5732654 -1.2246126 -0.4734006
##  [4,] -0.01619026  0.9438362  0.8212212  0.5939013
##  [5,]  0.36458196  0.7685329 -0.1123462  0.8811077
##  [6,] -0.15579551 -1.4707524 -0.4781501  0.4179416
##  [7,]  0.36458196  0.7685329 -0.1123462  0.8811077
##  [8,] -0.01619026  0.9438362  0.8212212  0.5939013
##  [9,]  0.36458196  0.7685329 -0.1123462  0.8811077
## [10,] -1.27659221 -0.5732654 -1.2246126 -0.4734006
```