hw_03.Rmd

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Q1

Solution

```
set.seed(12) # to be reproducible
A = matrix(data = runif(n = 1:500), nrow = 50, ncol = 10)
colnames(A) = paste("lake", 1:10, sep = "_")
```

Using for loop

```
num_lakes <- ncol(A)
average_values1 <- numeric(num_lakes)

for (i in 1:num_lakes) {
  average_values1[i] <- mean(A[, i])
}

print(average_values1)
```

```
##  [1] 0.4601492 0.4992815 0.5987037 0.4580486 0.4719578 0.4965216 0.5110536
##  [8] 0.4577936 0.5193423 0.4856413
```

Using colMeans()

```
average_values2 <- colMeans(A)

print(average_values2)
```

```
##    lake_1    lake_2    lake_3    lake_4    lake_5    lake_6    lake_7    lake_8
## 0.4601492 0.4992815 0.5987037 0.4580486 0.4719578 0.4965216 0.5110536 0.4577936
##    lake_9   lake_10
## 0.5193423 0.4856413
```

Q2

Solution

```r
# checking what's the results are first.
x = array(1:27, dim = c(3, 3, 3))
apply(X = x, MARGIN = c(1, 2),
      FUN = paste, collapse = ", ")
```

```
##      [,1]        [,2]        [,3]
## [1,] "1, 10, 19" "4, 13, 22" "7, 16, 25"
## [2,] "2, 11, 20" "5, 14, 23" "8, 17, 26"
## [3,] "3, 12, 21" "6, 15, 24" "9, 18, 27"
```

Q3

Fibonacci seqeunce

```
##  [1]      0      1      1      2      3      5      8     13     21     34
## [11]     55     89    144    233    377    610    987   1597   2584   4181
## [21]   6765  10946  17711  28657  46368  75025 121393 196418 317811 514229
```