Arrays in R

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```
#An Array with one dimension has 32 values.
Anarray <- c(1:32)
Anarray
```

```
##  [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 25
## [26] 26 27 28 29 30 31 32
```

```
# An array with multiple dimensions
mdarray <- array(Anarray, dim = c(8, 6, 4))
mdarray
```

```
## , , 1
##
##      [,1] [,2] [,3] [,4] [,5] [,6]
## [1,]    1    9   17   25    1    9
## [2,]    2   10   18   26    2   10
## [3,]    3   11   19   27    3   11
## [4,]    4   12   20   28    4   12
## [5,]    5   13   21   29    5   13
## [6,]    6   14   22   30    6   14
## [7,]    7   15   23   31    7   15
## [8,]    8   16   24   32    8   16
##
## , , 2
##
##      [,1] [,2] [,3] [,4] [,5] [,6]
## [1,]   17   25    1    9   17   25
## [2,]   18   26    2   10   18   26
## [3,]   19   27    3   11   19   27
## [4,]   20   28    4   12   20   28
## [5,]   21   29    5   13   21   29
## [6,]   22   30    6   14   22   30
## [7,]   23   31    7   15   23   31
## [8,]   24   32    8   16   24   32
##
## , , 3
##
##      [,1] [,2] [,3] [,4] [,5] [,6]
## [1,]    1    9   17   25    1    9
## [2,]    2   10   18   26    2   10
## [3,]    3   11   19   27    3   11
```

```
## [4,]    4   12   20   28    4   12
## [5,]    5   13   21   29    5   13
## [6,]    6   14   22   30    6   14
## [7,]    7   15   23   31    7   15
## [8,]    8   16   24   32    8   16
##
## , , 4
##
##      [,1] [,2] [,3] [,4] [,5] [,6]
## [1,]   17   25    1    9   17   25
## [2,]   18   26    2   10   18   26
## [3,]   19   27    3   11   19   27
## [4,]   20   28    4   12   20   28
## [5,]   21   29    5   13   21   29
## [6,]   22   30    6   14   22   30
## [7,]   23   31    7   15   23   31
## [8,]   24   32    8   16   24   32
```

```
Anarray <- c(1:32)
mdarray <- array(Anarray, dim = c(8, 6, 4))
mdarray[2, 5, 3]
```

```
## [1] 2
```

```
# All the values from the four row from matrix second
Anarray <- c(1:32)
mdarray <- array(Anarray, dim = c(8, 6, 4))
mdarray[c(4),,2]
```

```
## [1] 20 28  4 12 20 28
```

```
# All the values from the four column from matrix second
Anarray <- c(1:32)
mdarray <- array(Anarray, dim = c(8, 6, 4))
mdarray[,c(4),2]
```

```
## [1]  9 10 11 12 13 14 15 16
```

```
#length of an Array
Anarray <- c(1:32)
mdarray <- array(Anarray, dim = c(8, 6, 4))
length(mdarray)
```

```
## [1] 192
```

```
#No of rows & columns of an Array
Anarray <- c(1:32)
mdarray <- array(Anarray, dim = c(8, 6, 4))
dim(mdarray)
```

```
## [1] 8 6 4
```

```r
#The element 5 exists in an Array
Anarray <- c(1:32)
mdarray <- array(Anarray, dim = c(8, 6, 4))
5 %in% mdarray
```

```
## [1] TRUE
```

```r
#loop of an Array
Anarray <- c(1:32)
mdarray <- array(Anarray, dim = c(3,3, 2))
for (x in mdarray){
  print(x)
}
```

```
## [1] 1
## [1] 2
## [1] 3
## [1] 4
## [1] 5
## [1] 6
## [1] 7
## [1] 8
## [1] 9
## [1] 10
## [1] 11
## [1] 12
## [1] 13
## [1] 14
## [1] 15
## [1] 16
## [1] 17
## [1] 18
```

```r
#3*3 matrix in array R
Anarray <- c(1:32)
mdarray <- array(Anarray, dim = c(3, 3, 4))
mdarray
```

```
## , , 1
##
##      [,1] [,2] [,3]
## [1,]    1    4    7
## [2,]    2    5    8
## [3,]    3    6    9
##
## , , 2
##
##      [,1] [,2] [,3]
## [1,]   10   13   16
## [2,]   11   14   17
## [3,]   12   15   18
##
```

```
## , , 3
##
##      [,1] [,2] [,3]
## [1,]   19   22   25
## [2,]   20   23   26
## [3,]   21   24   27
##
## , , 4
##
##      [,1] [,2] [,3]
## [1,]   28   31    2
## [2,]   29   32    3
## [3,]   30    1    4
```

```
# Create two vectors of different lengths.
v1 <- c(21,22,23)
v2 <- c(12,13,14,15)
col_name <- c("C1","C2","C3")
row_name <- c("R1","R2","R3")
mat_name <- c("M1","M2")
mdarray <- array(c(v1,v2), dim = c(3, 3, 2),dimnames = list(row_name,col_name,
   mat_name))
mdarray
```

```
## , , M1
##
##    C1 C2 C3
## R1 21 12 15
## R2 22 13 21
## R3 23 14 22
##
## , , M2
##
##    C1 C2 C3
## R1 23 14 22
## R2 12 15 23
## R3 13 21 12
```