

Weighted Dice Simulation

데이터과학융합스쿨 이기원

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Simulation

```
source("./roll.R")  
ls()
```

```
## [1] "roll" "roll2"
```

```
replicate(20, roll())
```

```
## [1] 11 9 6 11 11 8 8 4 7 11 5 2 5 11 7 9 7 3 7 12
```

```
N <- 10000  
rolls <- replicate(N, roll())  
table(rolls)
```

```
## rolls  
##      2      3      4      5      6      7      8      9     10     11     12  
## 271  600  835 1064 1414 1651 1349 1098  870  578  270
```

```
options("digits")
```

```
## $digits  
## [1] 7
```

```
options(digits = 2)  
table(rolls)/N
```

```
## rolls  
##      2      3      4      5      6      7      8      9     10     11     12  
## 0.027 0.060 0.084 0.106 0.141 0.165 0.135 0.110 0.087 0.058 0.027
```

```
table(rolls)/N * 36
```

```
## rolls  
##      2      3      4      5      6      7      8      9     10     11     12  
## 0.98 2.16 3.01 3.83 5.09 5.94 4.86 3.95 3.13 2.08 0.97
```

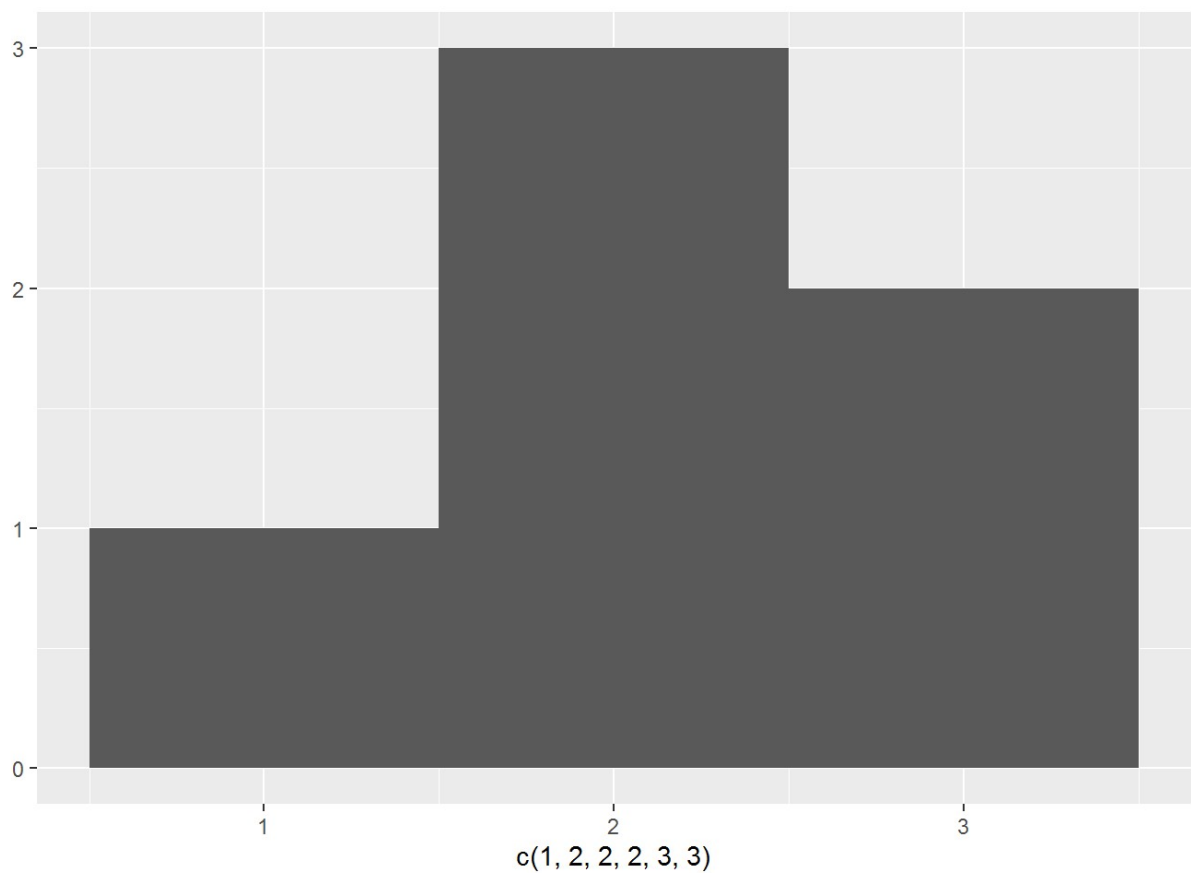
```
options(digits = 1)
table(rolls)/N * 36
```

```
## rolls
##  2  3  4  5  6  7  8  9 10 11 12
##  1  2  3  4  5  6  5  4  3  2  1
```

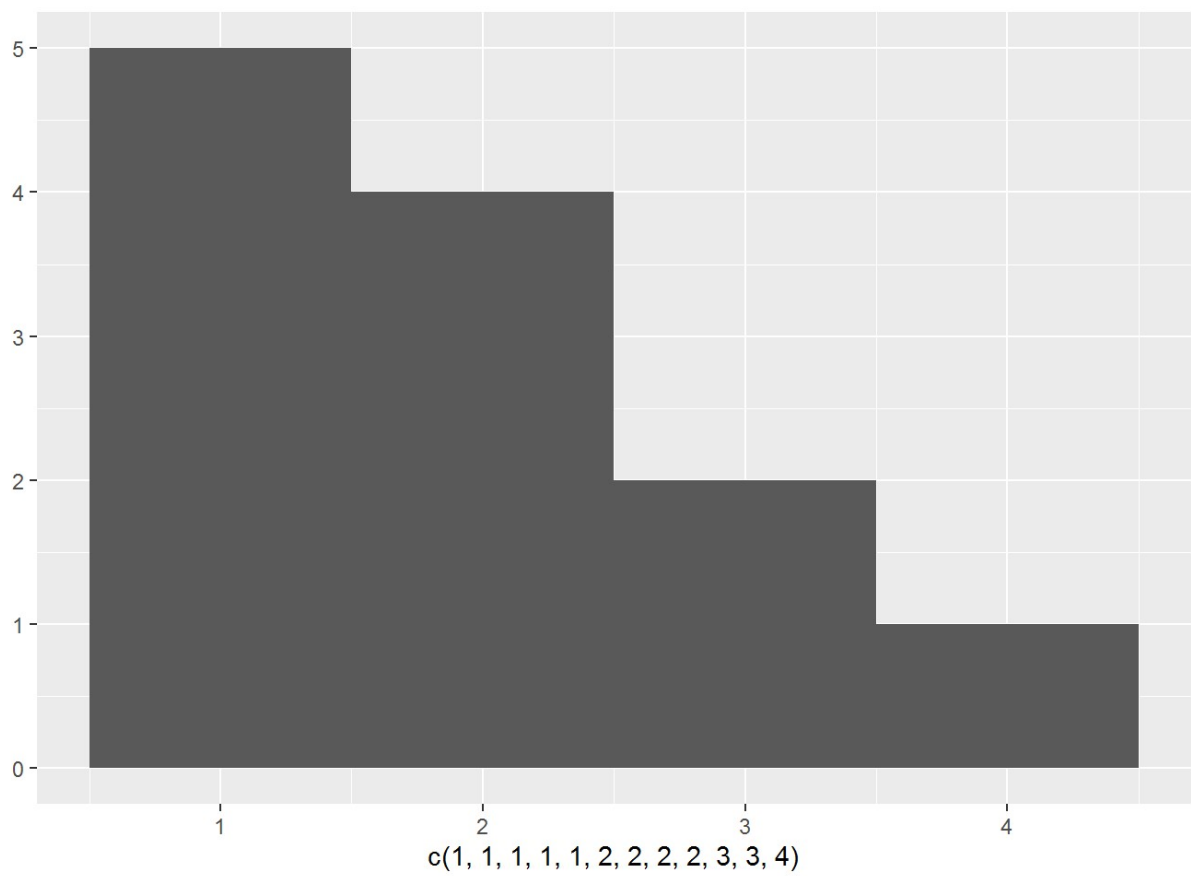
```
options(digits = 7)
```

histogram

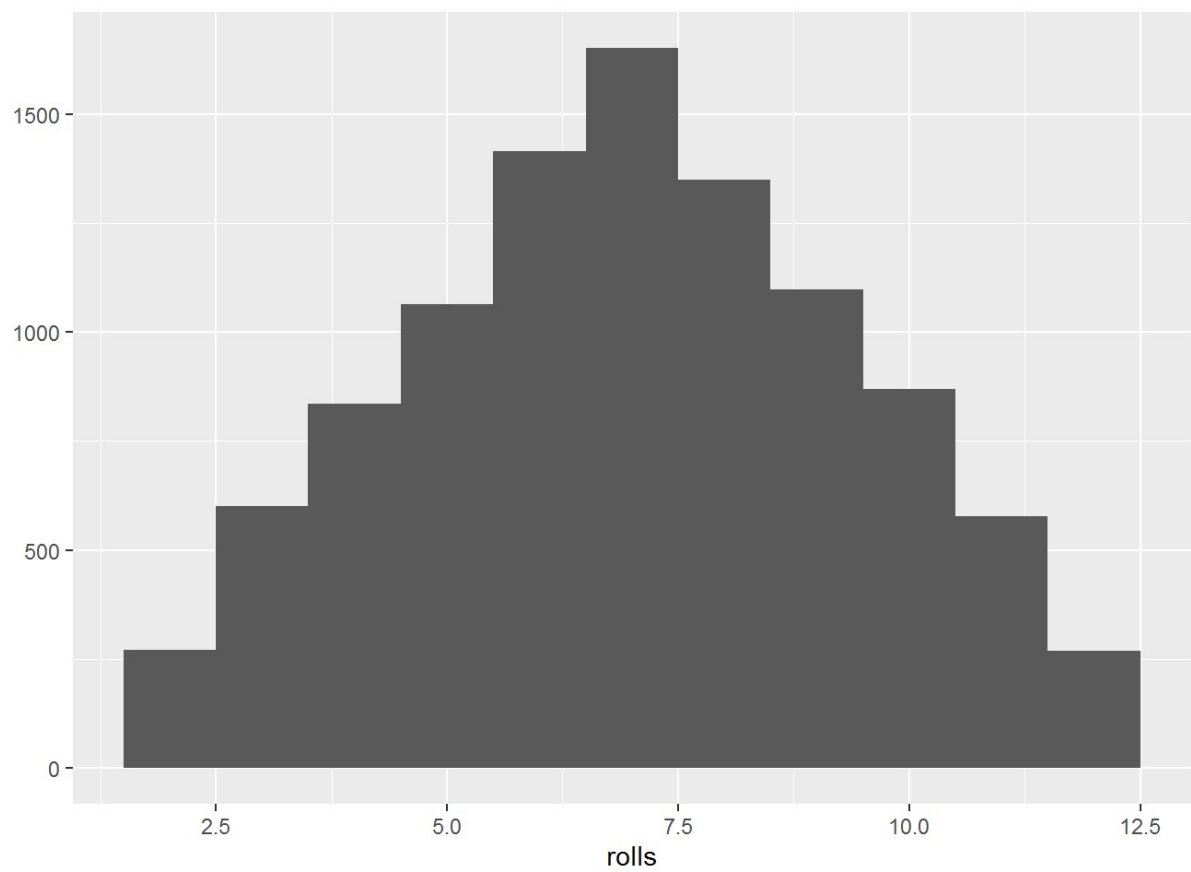
```
library(ggplot2)
qplot(c(1, 2, 2, 2, 3, 3), binwidth = 1)
```



```
qplot(c(1, 1, 1, 1, 1, 2, 2, 2, 2, 3, 3, 4), binwidth = 1)
```



```
qplot(rolls, binwidth = 1)
```



Weighted Dice

```
# roll_w <- roll
# fix(roll.w)
roll_w <-
function() {
  die <- 1:6
  dice <- sample(die, size = 2, replace = TRUE, prob = c(rep(1/8, 5), 3/8))
  sum(dice)
}
roll_w
```

```
## function() {
## die <- 1:6
## dice <- sample(die, size = 2, replace = TRUE, prob = c(rep(1/8, 5), 3/8))
## sum(dice)
## }
```

```
replicate(20, roll_w())
```

```
## [1] 3 4 8 7 6 9 12 10 10 9 10 12 10 8 9 7 8 8 12 11
```

```
N <- 10000
rolls_w <- replicate(N, roll_w())
table(rolls_w)
```

```
## rolls_w
##      2      3      4      5      6      7      8      9      10     11     12
##  149   305   476   625   807 1616 1323 1256 1108   926 1409
```

```
options("digits")
```

```
## $digits
## [1] 7
```

```
options(digits = 2)
table(rolls_w)/N
```

```
## rolls_w
##      2      3      4      5      6      7      8      9      10     11     12
## 0.015 0.030 0.048 0.062 0.081 0.162 0.132 0.126 0.111 0.093 0.141
```

```
table(rolls_w)/N * 64
```

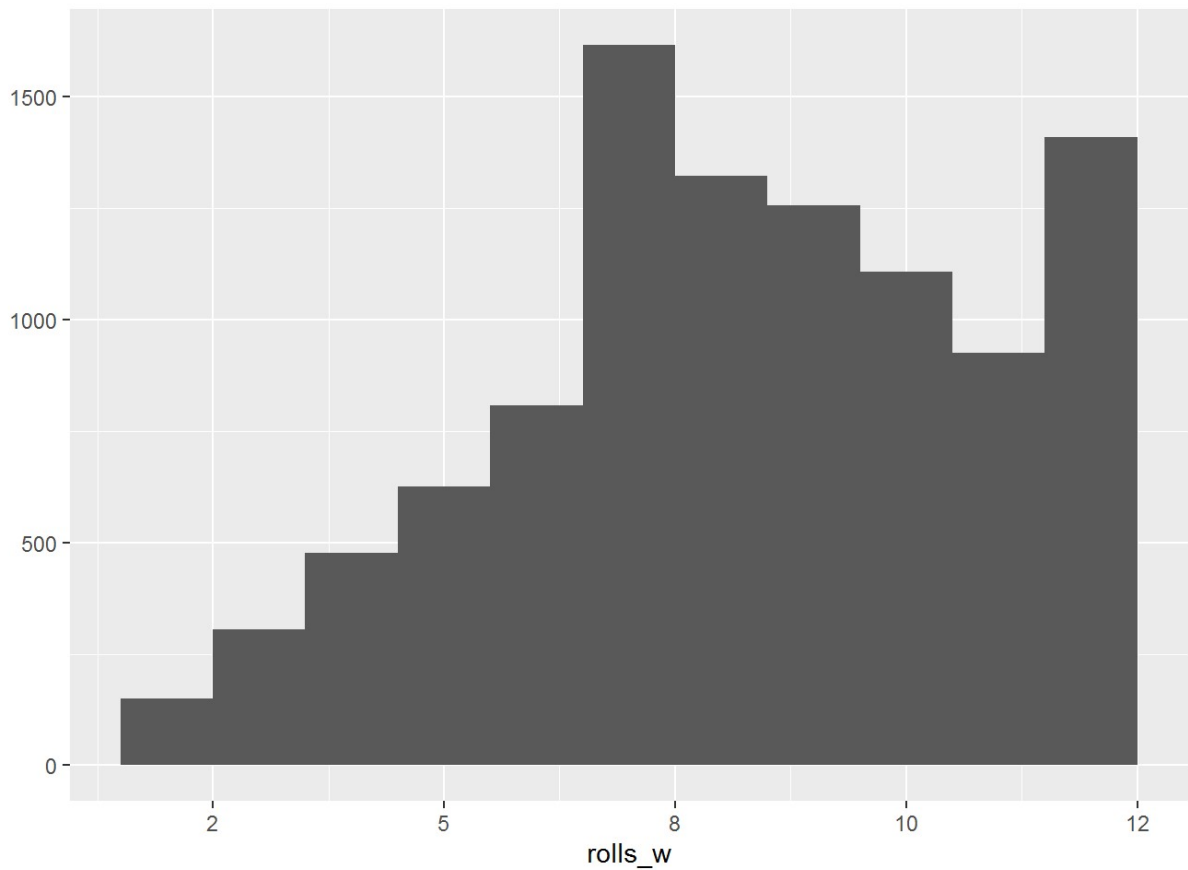
```
## rolls_w
##      2      3      4      5      6      7      8      9     10     11     12
##  0.95  1.95  3.05  4.00  5.16 10.34  8.47  8.04  7.09  5.93  9.02
```

```
options(digits = 1)
table(rolls_w)/N * 64
```

```
## rolls_w
##  2  3  4  5  6  7  8  9 10 11 12
##  1  2  3  4  5 10  8  8  7  6  9
```

histogram

```
qplot(rolls_w, binwidth = 1)
```



dump

```
dump(list = "roll_w", file = "./roll_w.R")
```