

# Homework 7

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A bag contains one red, two blue, three green, and four yellow balls. A sample of three balls is taken without replacement. Let upper B be the number of blue balls and Y the number of yellow balls in the sample.

Simulate the mean and variance of the total number of blue and yellow balls in the sample.

```
bag=c("R","B","B","G","G","G","G",replicate(4,"Y"))
simulation=function() {
  pull=sample(bag, 3, replace=FALSE)
  B=sum(pull=="B")
  Y=sum(pull=="Y")
  return(c(B,Y))
}
n=10000
sims=replicate(n, simulation())
meanB=mean(sims[,1])
meanY=mean(sims[,2])
varB=var(sims[,1])
varY=var(sims[,2])
print(sprintf("Mean of blues: %.2f, mean of yellows: %.2f", meanB, meanY))
```

```
## [1] "Mean of blues: 0.54, mean of yellows: 1.08"
```

```
print(sprintf("Variance of blues: %.2f, variance of yellows: %.2f", varB, varY))
```

```
## [1] "Variance of blues: 0.35, variance of yellows: 0.56"
```