

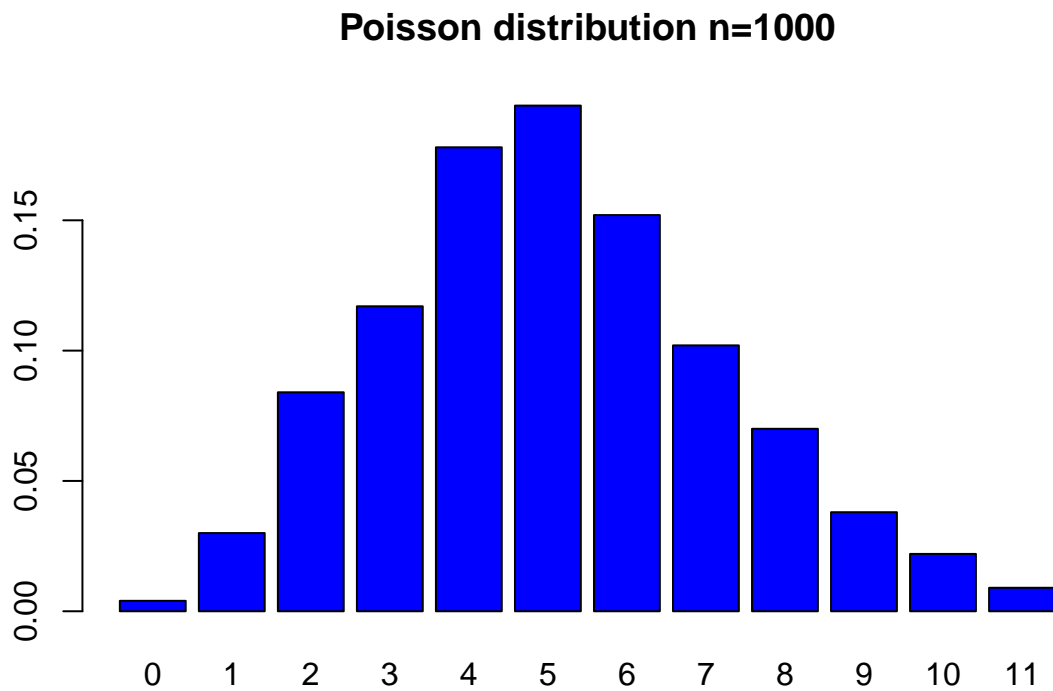
testing 3

```
library(rjags)

## Loading required package: coda
## Linked to JAGS 4.3.0
## Loaded modules: basemod,bugs

library(coda)

set.seed(1999)
n<-1000
lambda <- 5
data<-rpois(n, lambda)
barplot(table(data)/n,col="blue",main="Poisson distribution n=1000")
```



```
y=data
Ntotal = length(y)
dataList = list( y=y, Ntotal = Ntotal)
```

```

modelString = "
  model {
    for (i in 1:Ntotal){
      y[i] ~ dpois(theta)
    }
    theta ~ dgamma(5,1)
  }
"
writeLines(modelString,con="TEMPmodel.txt")

```

MLE value

```

thetaInit = sum(y)/length(y)
initList = list(theta=thetaInit)

```

resample MLE for resampled data (multiple chain)

$$\hat{\lambda}_{\text{MLE}} = \frac{1}{n} \sum_{i=1}^n k_i$$

```

initsList = function(){
  resampledY = sample(y, replace =TRUE)
  thetaInit = sum(resampledY)/length(resampledY)
  thetaInit = 0.001 + 0.998*thetaInit
  return(list(theta=thetaInit))
}

```

```

jagsModel = jags.model(file="TEMPmodel.txt", data=dataList, inits=initsList,n.chains=3,
  n.adapt=500)

```

```

## Compiling model graph
##   Resolving undeclared variables
##   Allocating nodes
## Graph information:
##   Observed stochastic nodes: 1000
##   Unobserved stochastic nodes: 1
##   Total graph size: 1004
##
## Initializing model

```

```

update(jagsModel, n.iter=500)

```

```

codaSamples = coda.samples(jagsModel, variable.names=c("theta"), n.iter=3334)

```

```

setwd("~/Summer_Research/week/week 5/data")
source("DBDA2E-utilities.R")

```

```

##
## *****
## Kruschke, J. K. (2015). Doing Bayesian Data Analysis, Second Edition:
## A Tutorial with R, JAGS, and Stan. Academic Press / Elsevier.
## *****

```

```

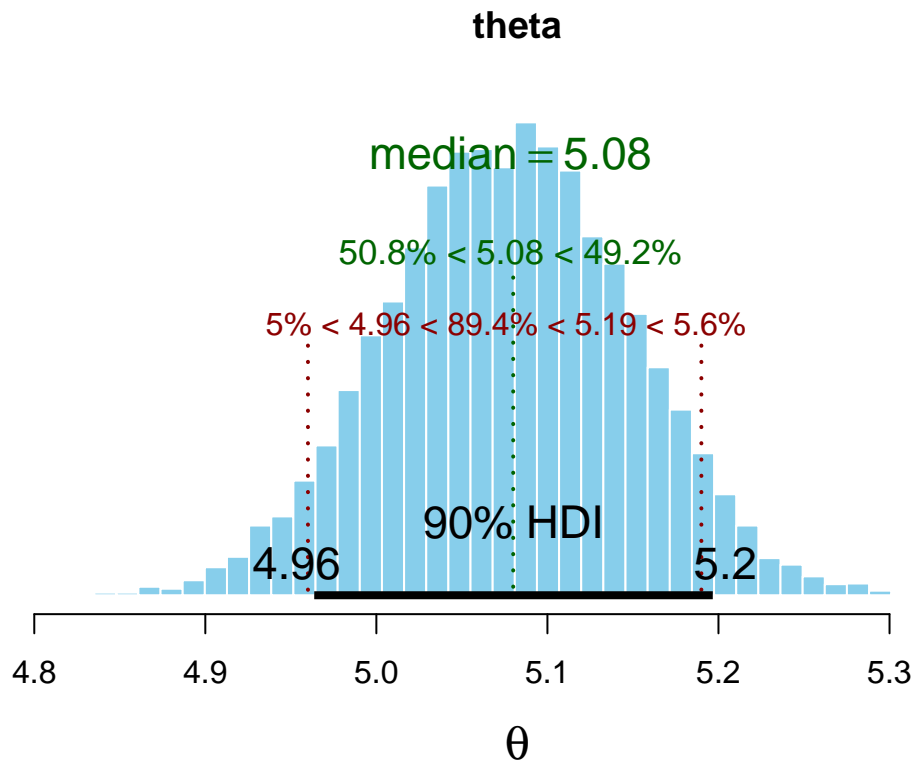
diagMCMC(codaObject = codaSamples,parName="theta")

```

```

plotPost(codaSamples[, "theta"],main="theta",xlab=bquote(theta),cenTend="median",compVal=5.08,ROPE = c(4

```



```
##          ESS      mean  median      mode hdiMass  hdiLow  hdiHigh compVal
## theta 9239.738 5.077582 5.078342 5.087801    0.9 4.963675 5.196671    5.08
##      pGtCompVal ROPElow ROPEhigh    pLtROPE    pInROPE    pGtROPE
## theta  0.4916017   4.96     5.19 0.05008998 0.8935213 0.05638872
```