**INPUT:**

#sample data (20 lifetimes in ours)

data <- c(125,150,170,180,200,220,240,260,280,300,330,360,380,400,420,440,460,480,500,520)

#define parameters for weibull distribution

lambda <- 250 #Scale Parameter

k <- 1.5 #Shape Parameter

#Calculate Mean and Variance

mean <- lambda \* gamma(1+1/k)

variance <- (lambda^2)\*(gamma(1+2/k)-gamma(1+1/k))^2

#Generate random numbers from te weibull distribution

num\_samples <- 1000 #no of samples to generate

weibull\_samples <- rweibull(num\_samples, shape=k, scale=lambda)

#Calculate Mean and Variance of the generated samples

mean\_weibull <- mean(weibull\_samples)

variance\_weibull <- var(weibull\_samples)

#create a histogran

hist(data, breaks=6, prob=TRUE, main="Histograms of lifetimes")

#Print Mean and Variance

cat("Mean :",mean\_weibull,"\n")

cat("Variance :",variance\_weibull,"\n")

**OUTPUT:**

> cat("Mean :",mean\_weibull,"\n")

Mean : 232.7036

> cat("Variance :",variance\_weibull,"\n")

Variance : 26189.32

