```
#Ryan Allison
#Assignment 2
```

## **INPUT**

```
#Problem 1
a<-5:8
a[2]
a[4]
a[2]*a[4]
b < -c(3,4)
a[b]
a[c(-2)]
a[-b]
#Problem 2
a<-1:9
\dim(a) < -c(3,3)
matrix(a,3,3,byrow=TRUE)
a[2,2]
a[2,]
a[,3]
t(a)
a*t(a)
t(a)*a
det(a)
diag(a)
#Problem 3
SALARY<-c(23,23,25,27,25,24,24,31)
SALARY
barplot(SALARY)
mean(SALARY)
abline(h=mean(SALARY))
median(SALARY)
abline(h=median(SALARY), col='red')
stdev<-sd(SALARY)
abline(h=mean(SALARY)-2*stdev, col='blue')
abline(h=mean(SALARY)+2*stdev, col='blue')
#Problem 4
x<-rnorm(10000, mean=200, sd=15)
head(x)
mean(x)+2*sd(x)
mean(x)-2*sd(x)
hist(rnorm(10000, mean=200, sd=15), main="Normal")
mean(x)
abline(v=mean(x), col='red')
stdev < -sd(x)
stdev
```

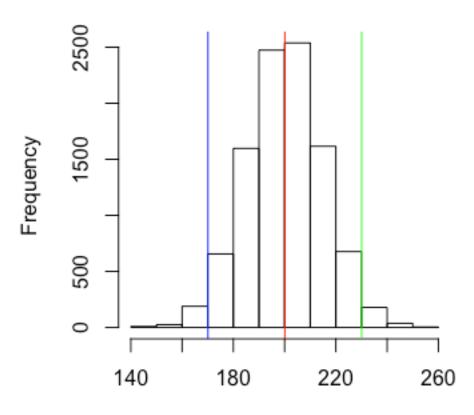
```
abline(v=mean(x)-2*stdev, col='blue')
abline(v=mean(x)+2*stdev, col='green')
```

## **OUTPUT**

```
> #Ryan Allison
> #Assignment 2
> #Problem 1
> a<-5:8
> a
[1] 5 6 7 8
> a[2]
[1] 6
> a[4]
[1] 8
> a[2]*a[4]
[1] 48
> b < -c(3,4)
> a[b]
[1] 78
> a[c(-2)]
[1] 5 7 8
> a[-b]
[1] 5 6
>
> #Problem 2
> a<-1:9
> dim(a) < -c(3,3)
> matrix(a,3,3,byrow=TRUE)
  [,1] [,2] [,3]
[1,] 1 2 3
[2,] 4 5 6
[3,] 7 8 9
> a[2,2]
[1] 5
> a[2,]
[1] 2 5 8
> a[,3]
[1] 789
> t(a)
  [,1] [,2] [,3]
[1,] 1 2 3
[2,] 4 5 6
[3,] 7 8 9
> a*t(a)
  [,1] [,2] [,3]
[1,] 1 8 21
[2,] 8 25 48
[3,] 21 48 81
```

```
> t(a)*a
  [,1] [,2] [,3]
[1,] 1 8 21
[2,] 8 25 48
[3,] 21 48 81
> det(a)
[1]0
> diag(a)
[1] 159
> #Problem 3
> SALARY<-c(23,23,25,27,25,24,24,31)
> SALARY
[1] 23 23 25 27 25 24 24 31
> barplot(SALARY)
> mean(SALARY)
[1] 25.25
> abline(h=mean(SALARY))
> median(SALARY)
[1] 24.5
> abline(h=median(SALARY), col='red')
> stdev<-sd(SALARY)
> abline(h=mean(SALARY)-2*stdev, col='blue')
> abline(h=mean(SALARY)+2*stdev, col='blue')
> #Problem 4
> x<-rnorm(10000, mean=200, sd=15)
> head(x)
[1] 211.2338 194.3379 207.3101 194.7738 188.3128 166.5227
> mean(x)+2*sd(x)
[1] 230.063
> mean(x)-2*sd(x)
[1] 170.0931
> hist(rnorm(10000, mean=200, sd=15), main="Normal")
> mean(x)
[1] 200.0781
> abline(v=mean(x), col='red')
> stdev < -sd(x)
> stdev
[1] 14.99249
> abline(v=mean(x)-2*stdev, col='blue')
> abline(v=mean(x)+2*stdev, col='green')
```

## Normal



rnorm(10000, mean = 200, sd = 15)