Speciality Toys Managerial Report

Speciality Toys Managerial Report

This report helps the higher management to forecast the inventory for the Teddy Toy

The management team members have suggested order quantities 15k,18k,24k,28k

Senior forecaster has predicted an expected demand of 20k

Demand would be between 10 and 30k with confindence interval of 95%

95% Confidence interval in normal distribution has a Z score of 1.96

Calculating Std Deviation using the formula = (x-mean)sd

```
z=1.96
```

```
x=30000
```

```
mean= 20000
```

```
sd= (x-mean)/z
```

Generating a normal distribution using mean = 20000 and SD =5102

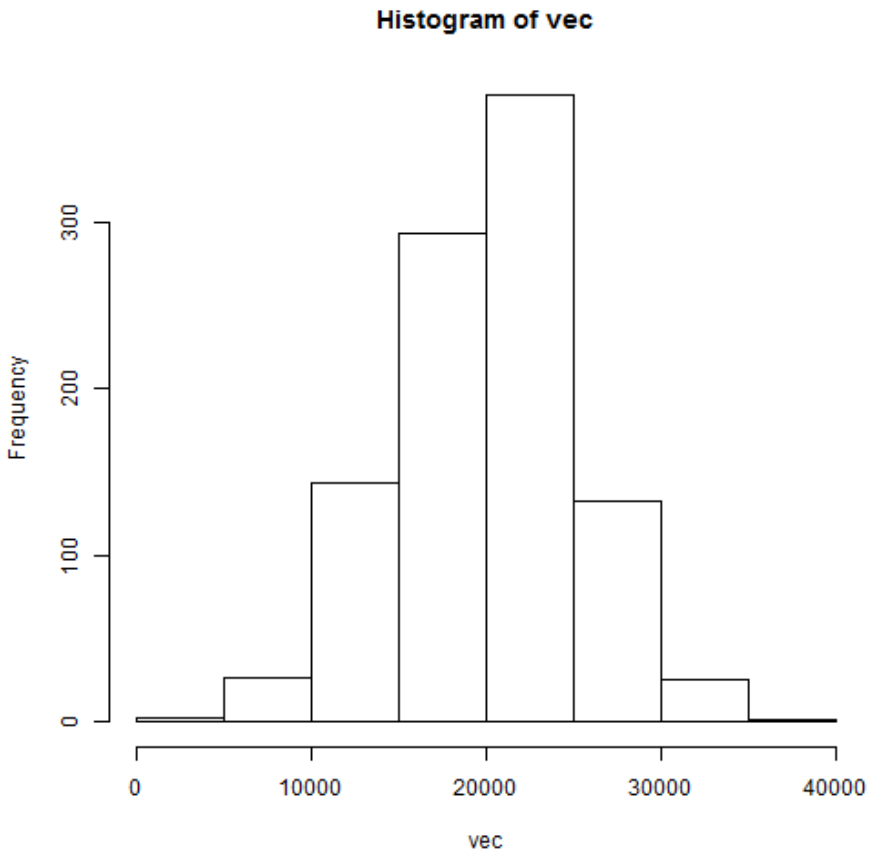
```
vec=rnorm(1000,20000,sd)
```

```
density=dnorm(vec,mean,sd)
```

```
df=data.frame(vec)
```

Plotting Distribution

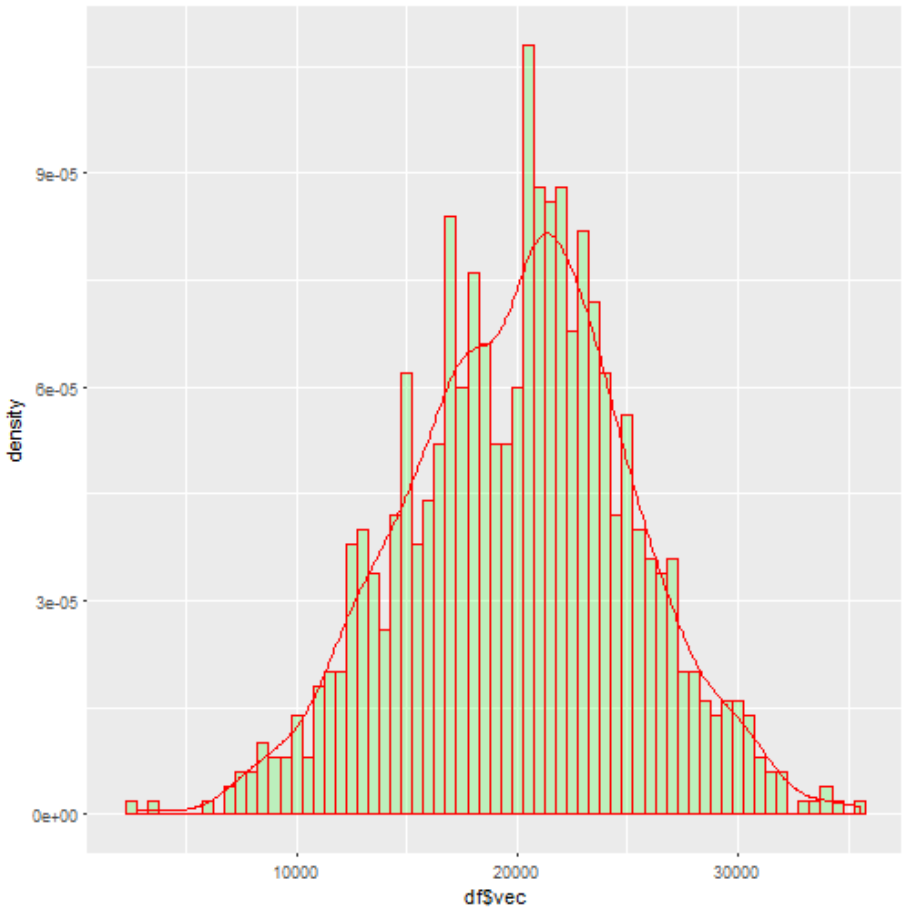
```
hist(vec)
```




```
library(ggplot2)

ggplot(df,aes(df$vec))+geom_histogram( aes(y =..density..),

                                       col="red",
                                       fill="green",
                                       alpha = .2,binwidth = 500)+ geom_density(col=2)
```

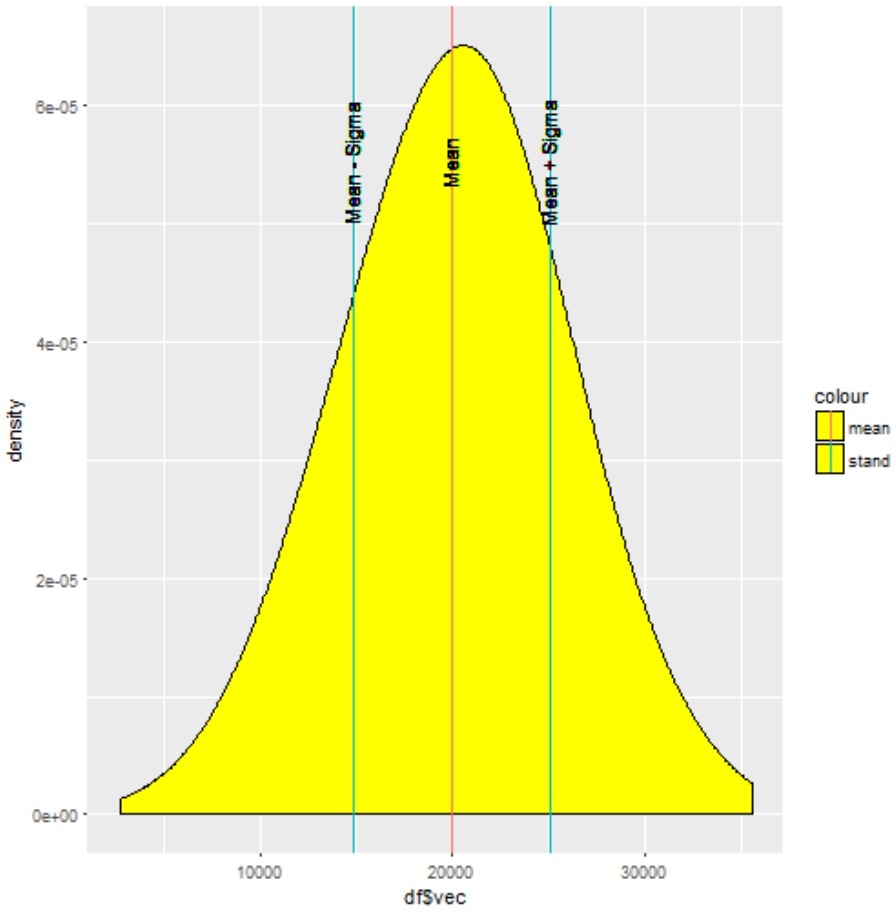



```
myplot = ggplot(df,aes(df$vec))
myplot = myplot + geom_density(fill="yellow",inherit.aes = TRUE,adjust=3,show.legend = TRUE)
 myplot = myplot+ geom_vline(aes(xintercept = mean,colour="mean"))
myplot = myplot +geom_vline(aes(xintercept = mean-sd,colour="stand"))
myplot = myplot +geom_vline(aes(xintercept = mean+sd,colour="stand"))
myplot=myplot+  geom_text(aes(x=mean-200, label="Mean",y= mean(density)),angle=90)

myplot=myplot+  geom_text(aes(x=(mean-sd)-200, label="Mean - Sigma",y= mean(density)),angle=
myplot=myplot+  geom_text(aes(x=(mean+sd)-200, label="Mean + Sigma",y= mean(density)),angle=



myplot
```



Probailitiy for Stock Out order quantities

```
orderQty=c(15000,18000,24000,28000)
probs=1-pnorm(orderQty,mean,sd)

probqty=cbind(orderQty,probs)

probqty
```

```
##      orderQty      probs
## [1,]    15000 0.83645694
## [2,]    18000 0.65247089
## [3,]    24000 0.21652006
## [4,]    28000 0.05844057
```

Profit Calculation for Management Order Quantities

```
itemcost=16
sellprice=24
lossprice=5

cost_incurred=orderQty*itemcost
sales=c(10000,20000,30000)
profit=sellprice-itemcost

loss=lossprice-itemcost

for(qty in orderQty)
{
  print(paste("Profit for  Order Quantity =",qty))
  for(sale in sales)
  {
    if(sale > qty)
    {
      profitamt = qty * profit
    }
    else
    {
      profitamt = sale * profit + loss * (qty-sale)
    }
    print(paste("       sale = ",sale , " profit =",profitamt))
  }
}
```

```
## [1] "Profit for  Order Quantity = 15000"
## [1] "       sale =  10000  profit = 25000"
## [1] "       sale =  20000  profit = 120000"
## [1] "       sale =  30000  profit = 120000"
## [1] "Profit for  Order Quantity = 18000"
## [1] "       sale =  10000  profit = -8000"
## [1] "       sale =  20000  profit = 144000"
## [1] "       sale =  30000  profit = 144000"
## [1] "Profit for  Order Quantity = 24000"
## [1] "       sale =  10000  profit = -74000"
## [1] "       sale =  20000  profit = 116000"
## [1] "       sale =  30000  profit = 192000"
## [1] "Profit for  Order Quantity = 28000"
## [1] "       sale =  10000  profit = -118000"
## [1] "       sale =  20000  profit = 72000"
## [1] "       sale =  30000  profit = 224000"
```