```
#class vector
lb<-NULL
for(i in 1:length(rownames(iris)))
{
  if(iris[i,5]=="setosa")
    lb[i]=1
  else
    lb[i]=0
}

#this consists of the feature vector
feat<-NULL
feat<-iris[,1:4]


#sigmoid function
sig<-function(i)
{
  x=1/(1+exp((t(theta)%*%(as.numeric(feat[i,])))))
  return(x)
}
alpha=0.004

#performing the gradient descent
theta<-c(0,0,0,0)
J<-NULL
for(i in 1:150)
{
  J[i]<-(1/150)*sum((-lb*log(sig(i))) - ((1-lb)*log(1-sig(i))))

  #Calculating the new value of parameters
  theta[1]=theta[1]-alpha*(1/150)*sum((lb-sig(i))*feat[,1])
  theta[2]=theta[2]-alpha*(1/150)*sum((lb-sig(i))*feat[,2])
  theta[3]=theta[3]-alpha*(1/150)*sum((lb-sig(i))*feat[,3])
  theta[4]=theta[4]-alpha*(1/150)*sum((lb-sig(i))*feat[,4])

  #printing the log likelihood on every iteration.
  print(paste("Log Likelihood:",J[i]))

}

count=0
vv<-NULL
for(i in 1:150)
{
  vv[i]<-sig(i)
}
```