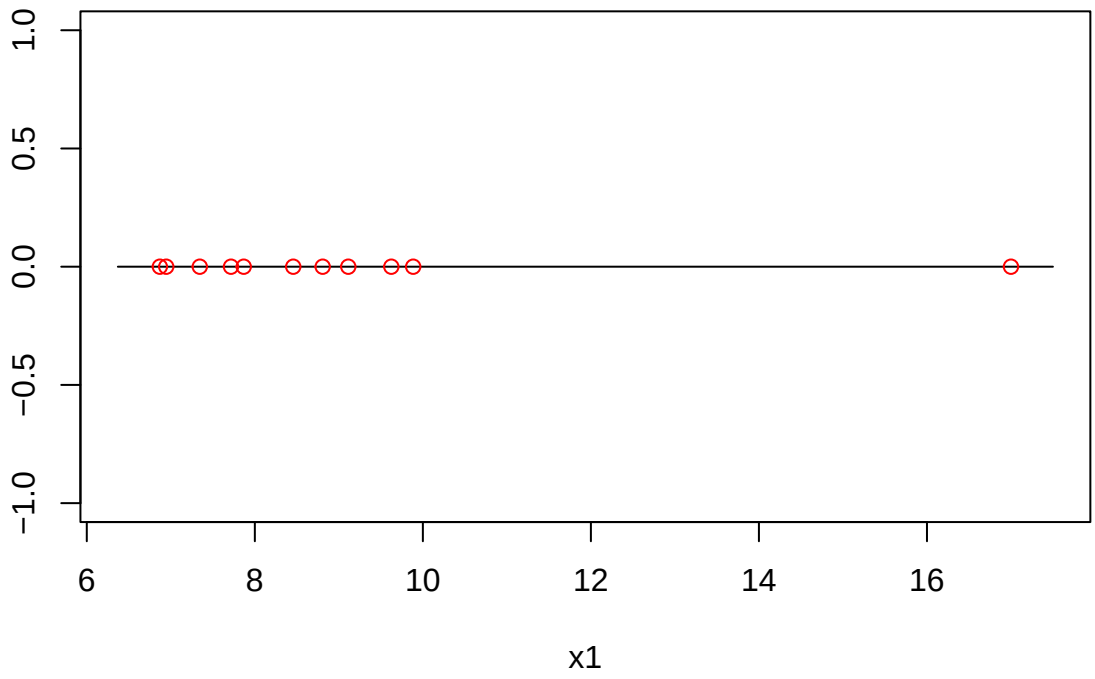
DQF_Anomaly_Demo

2022-10-26

Initializing the plotting data

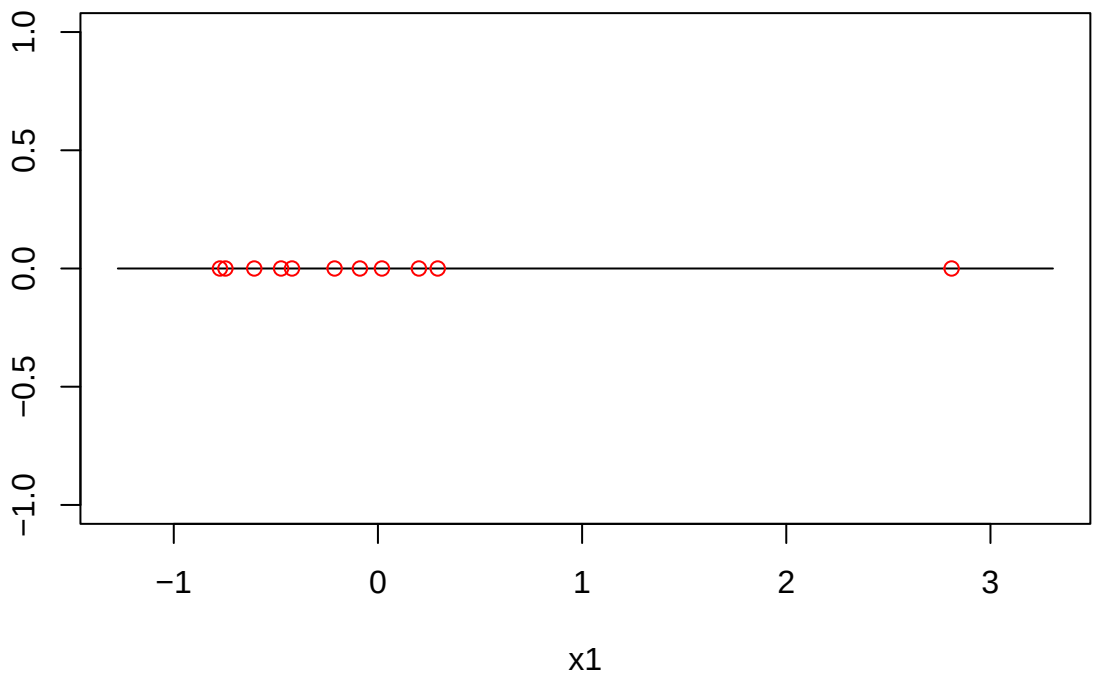
```
set.seed(47)
x <- append(runif(10,5,10),17)
y <- rep(0,length(x))
data <- data.frame(x,y)

plot.data <- function(data){
  plot.x <- seq(min(data[,1]-.5),max(data[,1]+.5),.01)
  plot(plot.x,rep(0,length(plot.x)),t='l',
     xlab="x1",
     ylab="")
  points(data,col='red')
}

plot.data(data)
```



```
data
```

```
##            x y
## 1   9.884810 0
## 2   6.869580 0
## 3   8.807510 0
## 4   9.112458 0
## 5   7.867722 0
## 6   8.457062 0
## 7   6.945309 0
## 8   7.344730 0
## 9   7.716549 0
## 10  9.624460 0
## 11 17.000000 0
```

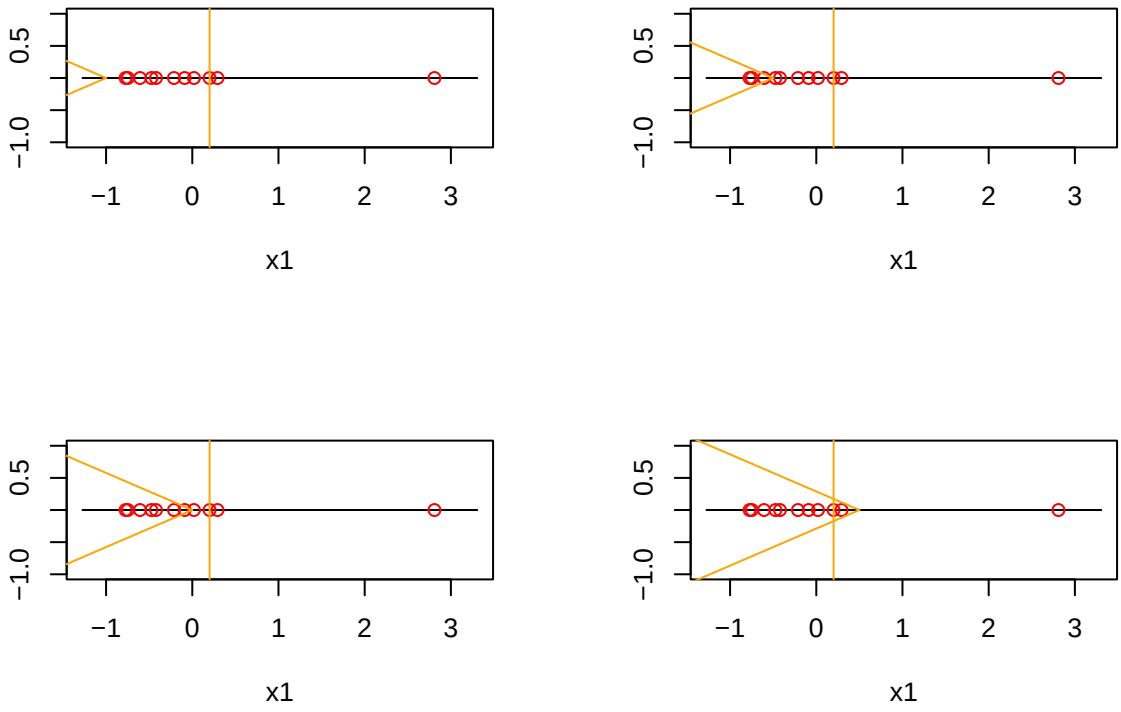
```
data[1] <- apply(data[1], 2, scale)
plot.data(data)
```

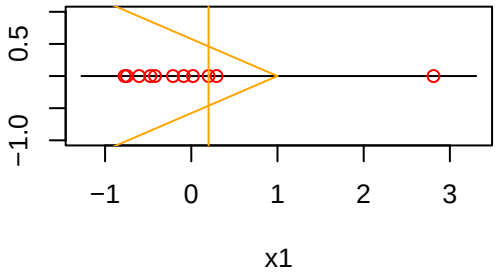


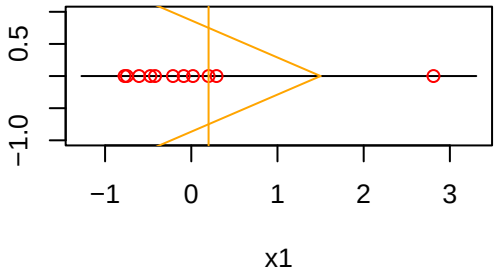

```
draw.cone.1D <- function(conetip, point, angle, x.lim,direction){
  conetip <- as.numeric(conetip)
  slope <- tan(angle*(pi/180))

  if(direction == 1) x <- seq(conetip,x.lim[2])
  else if(direction == -1) x <- seq(conetip,x.lim[1])

  y.upper <- slope*(x-conetip)
  y.lower <- -slope*(x-conetip)
```

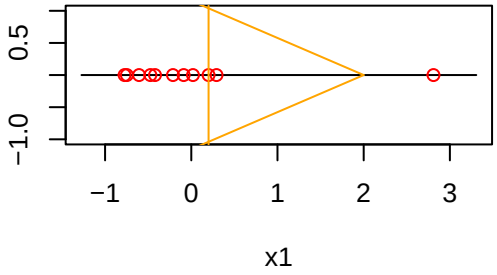
```
  lines(x,y.upper,col='orange')
  lines(x,y.lower,col='orange')
  abline(v=point[1],col='orange')
}
```

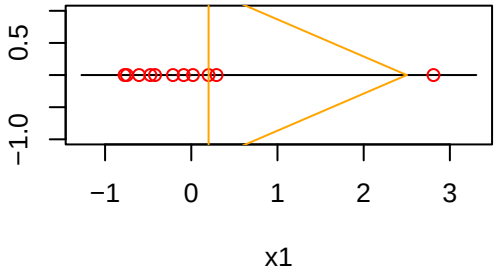
```
par(mfrow=c(2,2))
for(i in seq(-1,3,.5)){
  plot.data(data)
  draw.cone.1D(i,data[10,],30,c(-2,4),-1)
}
```

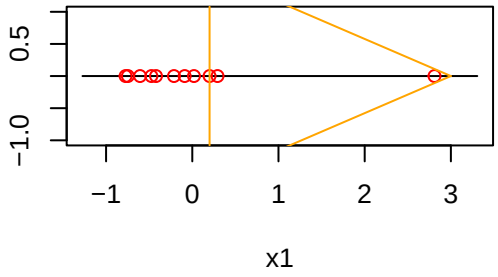



0.5
−1.0
−1
0
1
2
3
x1


0.5
−1.0
−1
0
1
2
3
x1


0.5
−1.0
−1
0
1
2
3
x1


0.5
−1.0
−1
0
1
2
3
x1



for(i in seq(-1,3,.1)){ draw.cone.1D(i,data[10,],30,c(-2,4),-1) }

```r
length(which(data[,1]>0))
```

```
## [1] 4
```