

Practical 15

Obtain the MLE for the parameters of given weibull distribution

workout

```
x=runif(50);x
```

```
## [1] 0.84547383 0.17655426 0.87167599 0.57901926 0.49376640 0.69296788
## [7] 0.91041526 0.33254985 0.18409204 0.46166684 0.33838264 0.16979180
## [13] 0.57052943 0.75579995 0.02653218 0.70639534 0.86786919 0.02530358
## [19] 0.97275787 0.23197115 0.81981067 0.72190111 0.40079840 0.76010386
## [25] 0.99342551 0.37942691 0.78338791 0.17798471 0.61338911 0.48569126
## [31] 0.36323853 0.36567908 0.82888180 0.56926487 0.08431294 0.08088265
## [37] 0.59383434 0.80038192 0.76560890 0.29010890 0.12347712 0.72781525
## [43] 0.26644285 0.22887389 0.43299773 0.79772538 0.01335437 0.39470897
## [49] 0.78693941 0.60699032
```

```
y=exp((1/2)*log(-log(1-x))+(log(5)/2));
y;
```

```
## [1] 3.0556438 0.9855395 3.2040575 2.0798656 1.8449350 2.4298178 3.4731616
## [8] 1.4217781 1.0085974 1.7596557 1.4371289 0.9645692 2.0557262 2.6549647
## [15] 0.3666777 2.4754001 3.1811656 0.3579750 4.2444025 1.1487558 2.9272403
## [22] 2.5296032 1.6002456 2.6716560 5.0122639 1.5445256 2.7655444 0.9899401
## [29] 2.1798355 1.8233644 1.5022652 1.5086422 2.9710274 2.0521476 0.6636287
## [36] 0.6493900 2.1224917 2.8384409 2.6932918 1.3088997 0.8117649 2.5507589
## [43] 1.2446883 1.1399635 1.6843277 2.8267729 0.2592715 1.5843704 2.7804484
## [50] 2.1609269
```

```
m=5 #initialization
w<-function(a){
  s=0
  s=((50/a)+sum(log(y))-(50*sum((y^x)*log(y))/sum(y^x)));
}

z<-function(x){
  t=0
  t=((-50/x^2)-50*((sum(y^x)*sum((y^x)*(log(y))^2)-(sum((y^x)*(log(y))))^2)/(sum(y^x)^2));
}
m=as.numeric(m)

if(w(m)==0)
{
  print(m)
}else
{
  while(abs(w(m))>0.001)
```

```
{  
  m=m-(w(m)/z(m))  
}  
m
```

```
## [1] 4.349885
```

```
print(w(m))
```

```
## [1] -0.0009114831
```