03

SAJIAN SEBUAH PEUBAH KONTINU

Metode Grafik untuk Analisis dan Penyajian Data

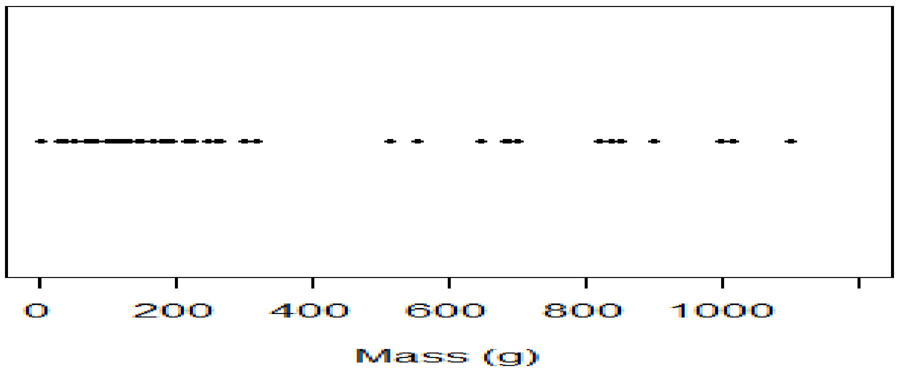
1) DOT PLOT

Data

Mass (gram)							
5.9	32	40	51.5	70	100	78	80
85	85	110	115	125	130	120	120
130	135	110	130	150	145	150	170
225	145	188	180	197	218	300	260
265	250	250	300	320	514	556	840
685	700	700	690	900	650	820	850
900	1015	820	1100	1000	1100	1000	1000

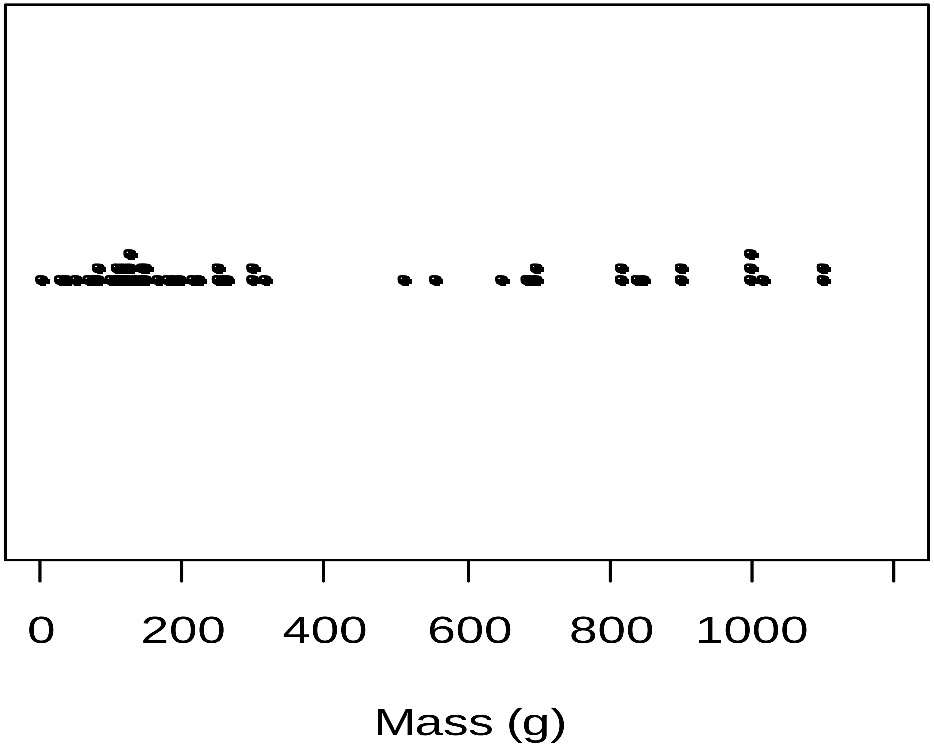
Single Dot

```
mass<-c(5.9,32.0,40.0,51.5,70.0,100.0,78.0,80.0,85.0,85.0,
110.0,115.0,125.0,130.0,120.0,120.0,130.0,135.0,110.0,130.0,
150.0,145.0,150.0,170.0,225.0,145.0,188.0,180.0,197.0,218.0,
300.0,260.0,265.0,250.0,250.0,300.0,320.0,514.0,556.0,840.0,
685.0,700.0,700.0,690.0,900.0,650.0,820.0,850.0,900.0,1015.0,
820.0,1100.0,1000.0,1100.0,1000.0,1000.0)
#
stripchart(mass,method="overplot",xlab="Mass (g)",pch=19,cex=0.5,
xlim=c(0.,1200.))
```



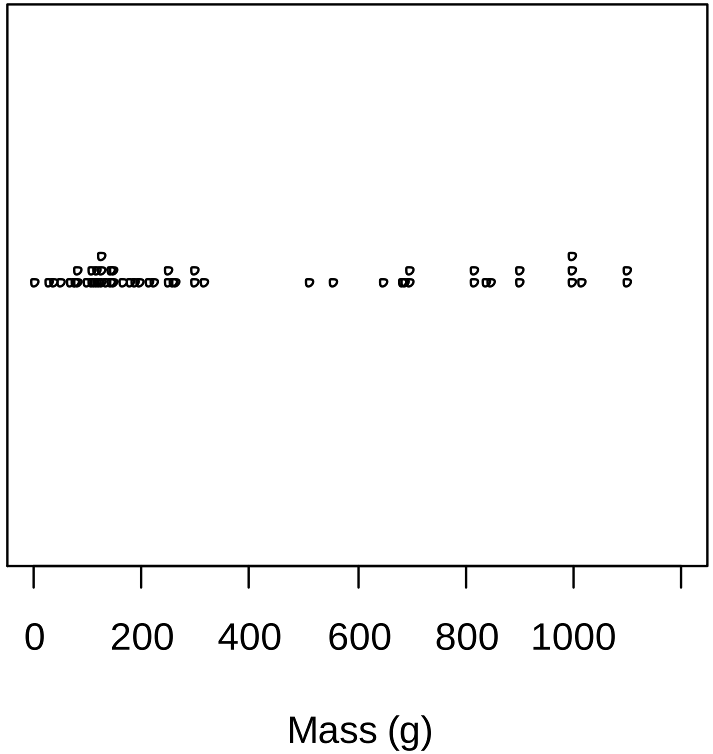
Stacked Dot Plot

stripchart(mass,method="stack",
offset=0.6,xlab="Mass
(g)",pch=19,cex=0.5,
xlim=c(0.,1200.))



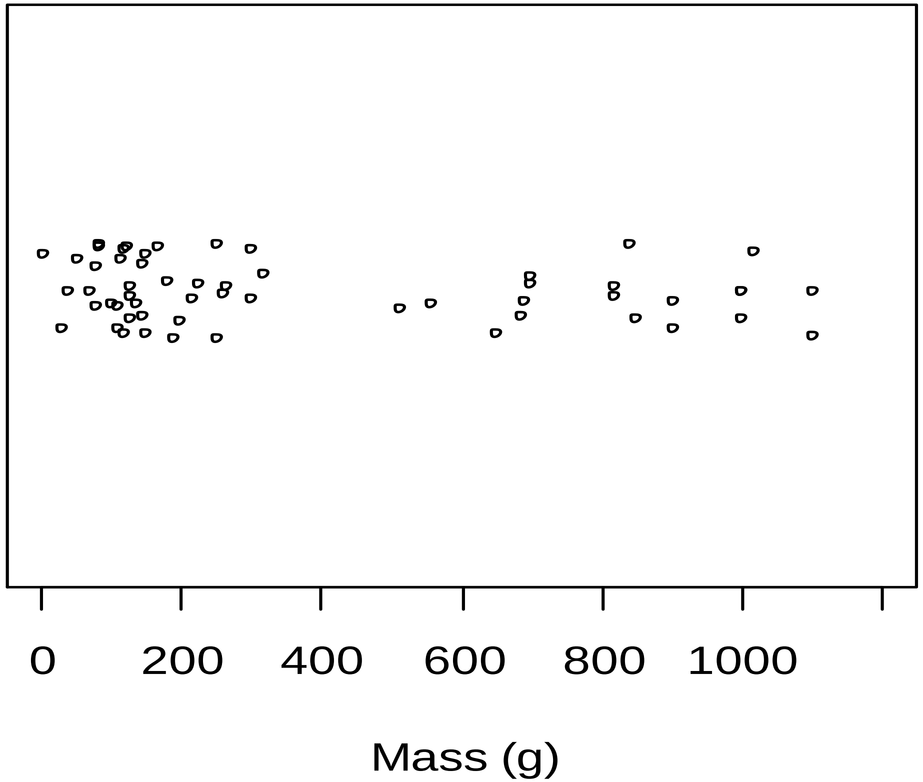
Stacked Dot Plot with Open Circle Replacing Dots

```
stripchart(mass,method="stack",
offset=0.6,xlab="Mass
(g)",pch=21,cex=0.5,
xlim=c(0.,1200.))
```



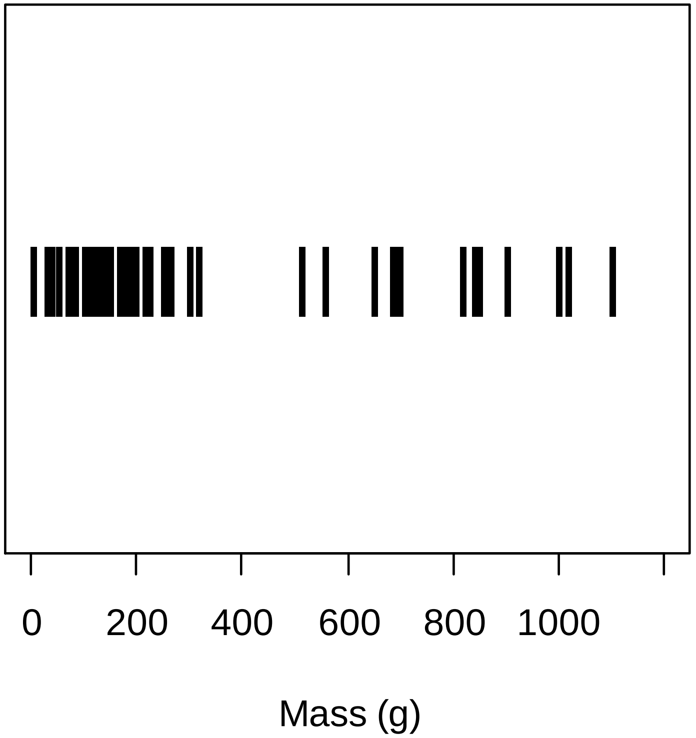
Jittered Dot Plot

```
stripchart(mass,method="jitter",jitter=0.2,xlab="Mass (g)",pch=21,cex=0.5, xlim=c(0.,1200.))
```



Barcode Plot

stripchart(mass,method="overplot",xlab="Mass (g)",pch="|",cex=2,xlim=c(0.,1200.))



2) STEM PLOT (STEM – AND LEAF PLOT)

The stemplot has three distinct features:

1) For data sets of reasonable size, each observed value of the quantitative variable can be listed thereby giving a complete picture of all the individual data points as well as a picture of the distribution
2) The stem can be prepared quickly and easily by hand for small data sets
3) It is useful for hand calculation of quantiles and thus is useful in preparing another well-known EDA plot

Stem Plot – 1 Dahan

```
plot.new()
sink("test")
stem(mass,scale=2)
sink()
zz<-readLines("test")
text(rep(0,length(zz)),sort(1:length(zz),
decreasing=TRUE)/(length(zz)),zz,pos
=4,font=1,offset=0)
```

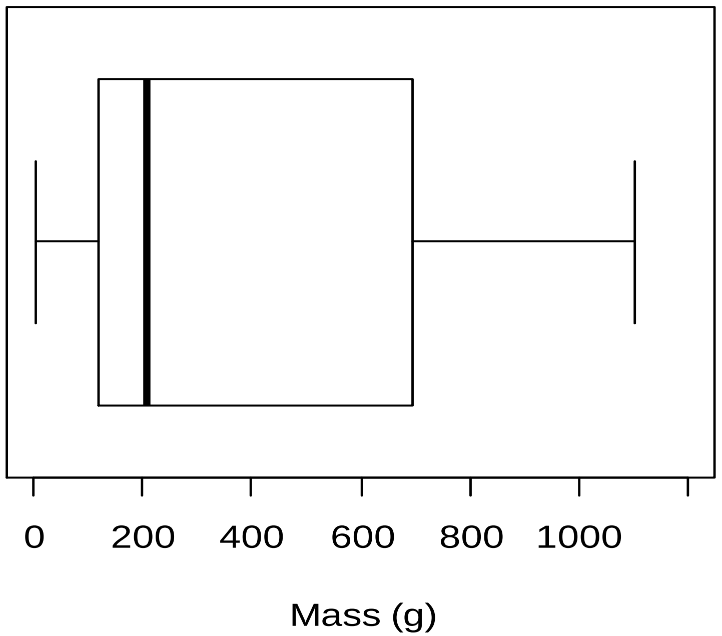
```
The decimal point is 2 digit(s) to the righ

 0 | 134578899
 1 | 0112223333345555789
 2 | 0235567
 3 | 002
 4 |
 5 | 16
 6 | 599
 7 | 00
 8 | 2245
 9 | 00
10 | 0002
11 | 00
```

3) BOX PLOT

Boxplot-Tipe 1

Masih menggunakan data “mass”

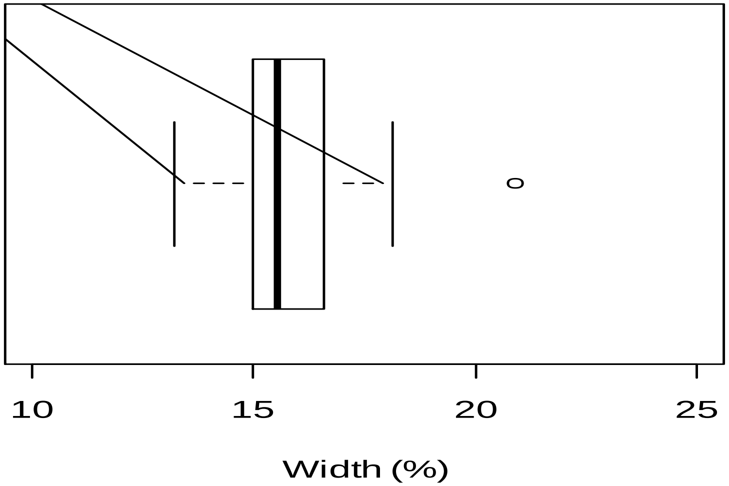
```
boxplot(mass,range=1.5,horizontal=TRUE,xlab="Mass (g)",pars=list(boxwex=1.5), lty=1,ylim=c(0.,1200.),yaxp=c(0.,1200.,6),outline=FALSE)
```



Boxplot-Tipe 2

Menggunakan data "width"

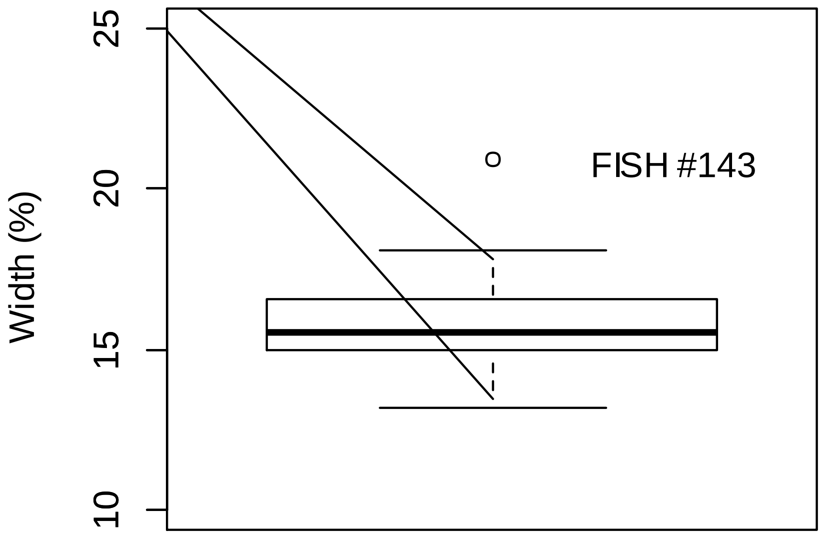
```
width<-
c(16.0,13.6,15.2,15.3,15.9,17.3,16.1,15.1,
14.6,13.2,
15.8,14.7,16.3,15.5,14.5,15.0,15.0,15.0,17
.0,15.1,15.1,15.0,
14.8,14.9,14.6,15.0,15.9,13.9,15.7,14.8,17
.9,15.0,15.0,15.8,
14.3,15.4,15.1,17.7,17.5,20.9,17.6,17.6,15
.9,16.2,18.1,14.5,
17.8,16.8,17.0,17.6,15.6,15.4,16.1,16.3,17
.7,16.3)
boxplot(width,range=1.5,horizontal=TRUE,
pars=list(boxwex=1.5),xlab="Width (%)",
cex=1.0,ylim=c(10.,25.),yaxp=c(10.,25.,3),
outline=TRUE)
```



Boxplot-Tipe 3

Menggunakan data
"width"

```
boxplot(width,range=1.5,horizontal=FAL
SE,pars=list(boxwex=1.5),ylab="Width
(%)",
cex=1.0,ylim=c(10.,25.),yaxp=c(10.,25.,3
),outline=TRUE,
xaxt="n",mfg=c(3,1))
#
text(1.3,20.9,"FISH #143")
#
axis(2,c(10.,15.,20.,25))
```



4) EDF PLOT

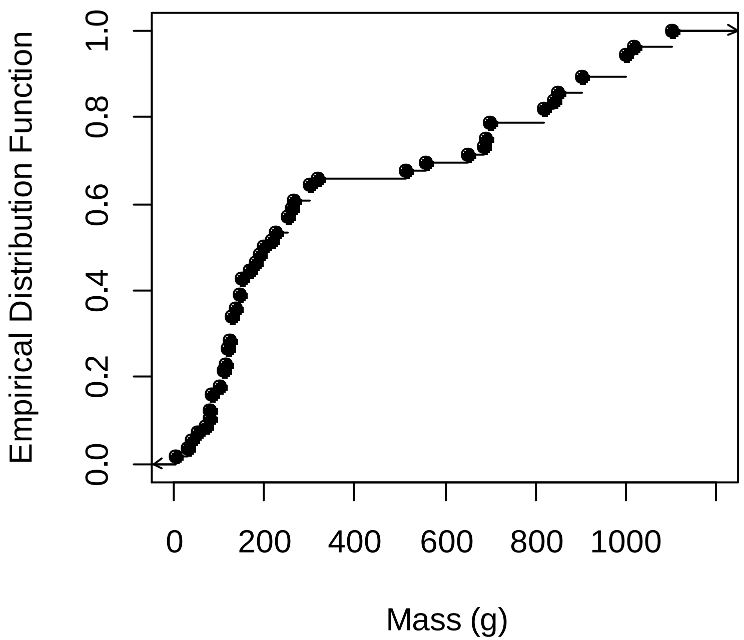
Poin penting

- EDF : Empirical Distribution Function
- EDF is an approximation to the cumulative distribution function of the random variable
- EDF disebut juga dengan empirical cumulative distribution function (ECDF).
- An EDF plot is useful for looking for groups of observations separated by gaps.
- The EDF plot or step plot can be used as a visual check for goodness-of-fit
- to a distribution by adding a theoretical curve of the distribution to the EDF Plot

EDF Plot

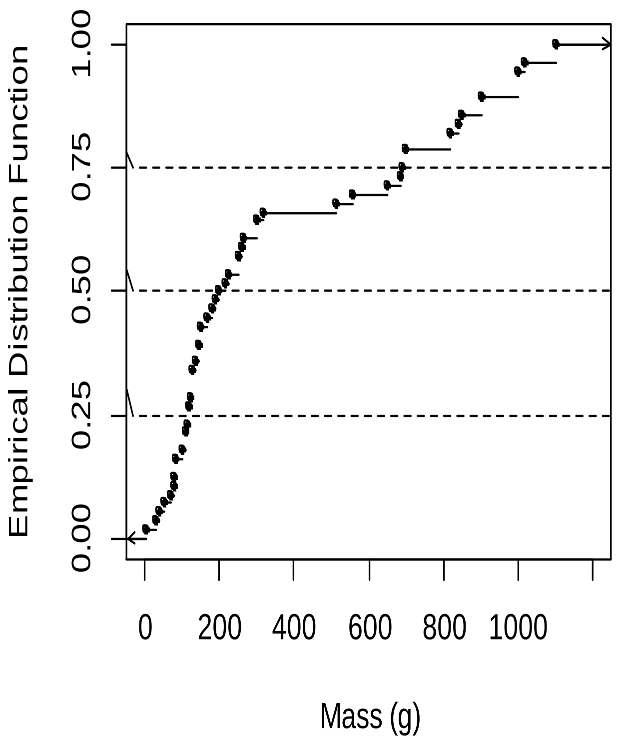
Masih menggunakan data “mass”

```
ecdfmass<-ecdf(mass)
plot.stepfun(ecdfmass,xlab="Mass (g)",ylab="Empirical Distribution Function",
main=NULL,verticals=FALSE,do.points=TRUE,pch=19,xlim=c(0,1200))
#
arrows(max(mass),1.0,1245,1.0,code=2,length=0.05)
arrows(-45.,0.0,min(mass),0.0,code=1,length=0.05)
```



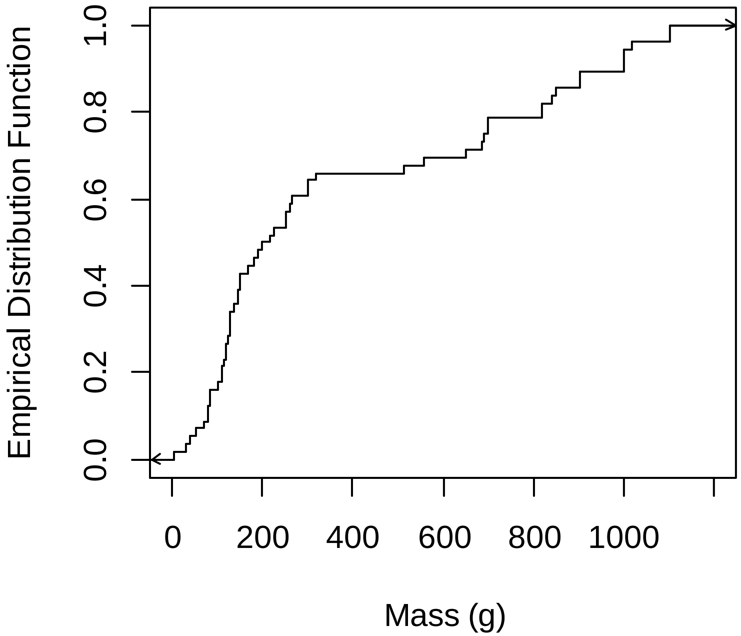
EDF Plot with reference lines for estimation of quartiles

```
ecdfmass<-ecdf(mass)
plot.stepfun(ecdfmass,xlab="Mass
(g)",ylab="Empirical Distribution Function",
main=NULL,verticals=FALSE,do.points=TRU
E,pch=19,cex=0.5,xlim=c(0,1200),
yaxp=c(0.,1.,4),lwd=1.75)
#
arrows(max(mass),1.0,1245,1.0,code=2,leng
th=0.05)
arrows(-
45.,0.0,min(mass),0.0,code=1,length=0.05)
#
abline(h=c(0.25,0.5,0.75),lty=2)
```



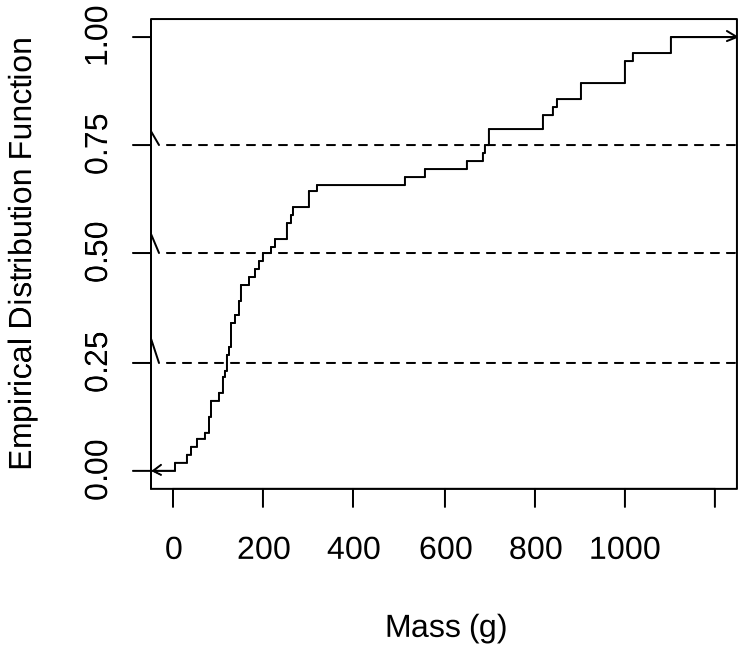
Step plot version of the EDF plot

```
ecdfmass<-ecdf(mass)
plot.stepfun(ecdfmass,xlab="Mass
(g)",ylab="Empirical Distribution
Function",
main=NULL,verticals=TRUE,do.points
=FALSE,pch=16,xlim=c(0,1200))
#
arrows(max(mass),1.0,1245,1.0,code=
2,length=0.05)
arrows(-
45.,0.0,min(mass),0.0,code=1,length=
0.05)
```



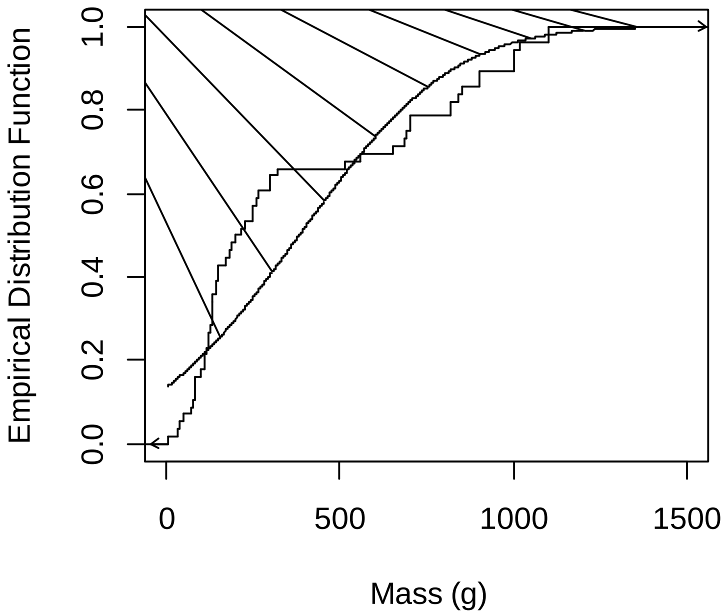
Step plot version of the EDF plot with reference lines for estimation of quartile

```
ecdfmass<-ecdf(mass)
plot.stepfun(ecdfmass,xlab="Mass
(g)",ylab="Empirical Distribution Function",
main=NULL,verticals=TRUE,do.points=FA
LSE,pch=16,xlim=c(0,1200),
yaxp=c(0.,1.,4))
#
arrows(max(mass),1.0,1245,1.0,code=2,le
ngth=0.05)
arrows(-
45.,0.0,min(mass),0.0,code=1,length=0.05)
#
abline(h=c(0.25,0.5,0.75),lty=2)
```



Step plot version of the EDF plot with cumulative normal distribution function added

```
mean_mass<-mean(mass)
sd_mass<-sd(mass)
min_mass<-min(mass)
max_mass<-1500
#
xx<-seq(0,10000,1)*(max_mass-
min_mass)/10000.+min_mass
yy<-pnorm(xx,mean_mass,sd_mass)
#
ecdfmass<-ecdf(mass)
plot.stepfun(ecdfmass,xlab="Mass
(g)",ylab="Empirical Distribution Function",
main=NULL,verticals=TRUE,do.points=FALSE,pch=1
6,xlim=c(0,1500))
#
arrows(max(mass),1.0,1555,1.0,code=2,length=0.05)
arrows(-45.,0.0,min(mass),0.0,code=1,length=0.05)
#
lines(xx,yy)
```



Sekian

Terimakasih