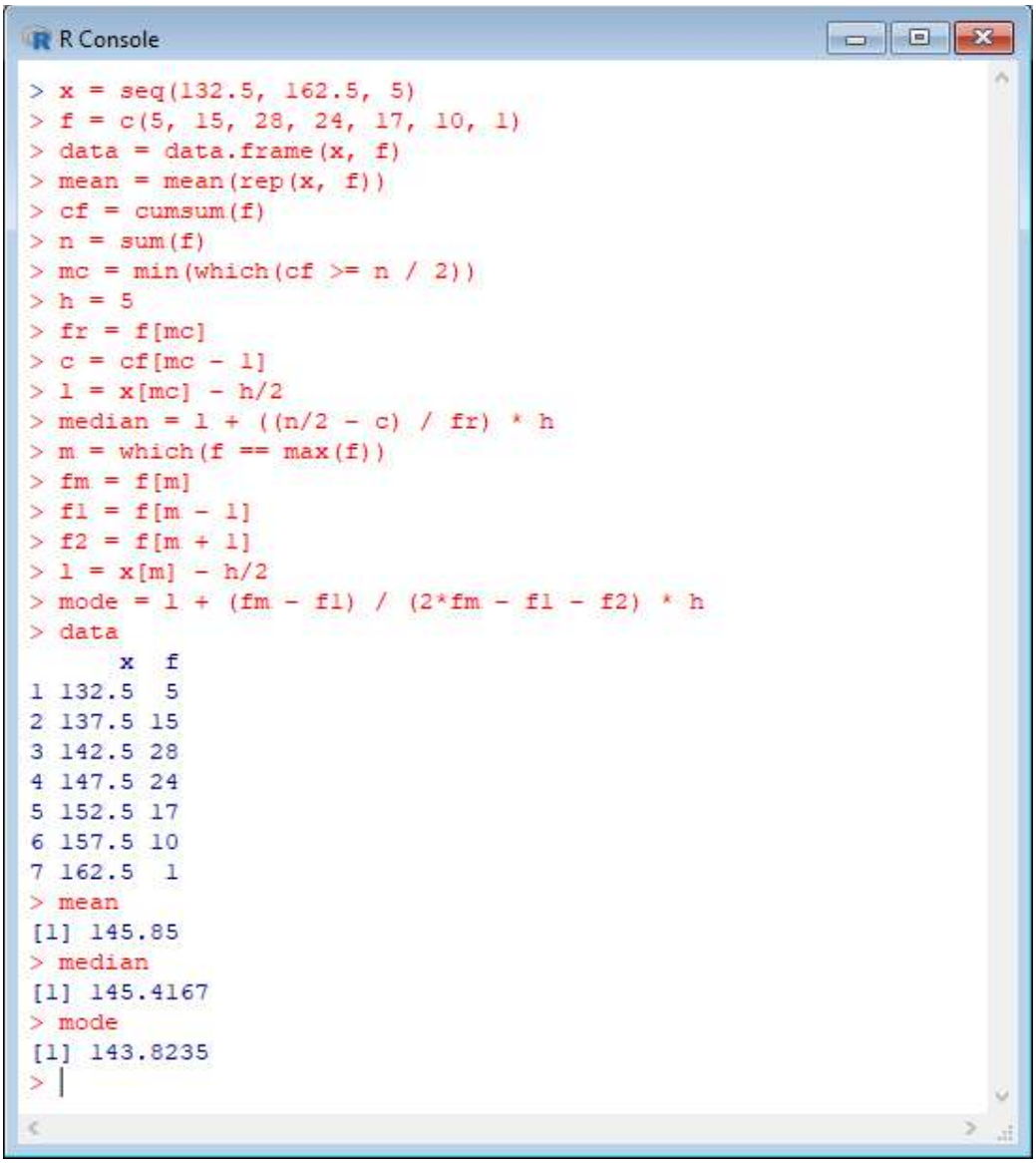
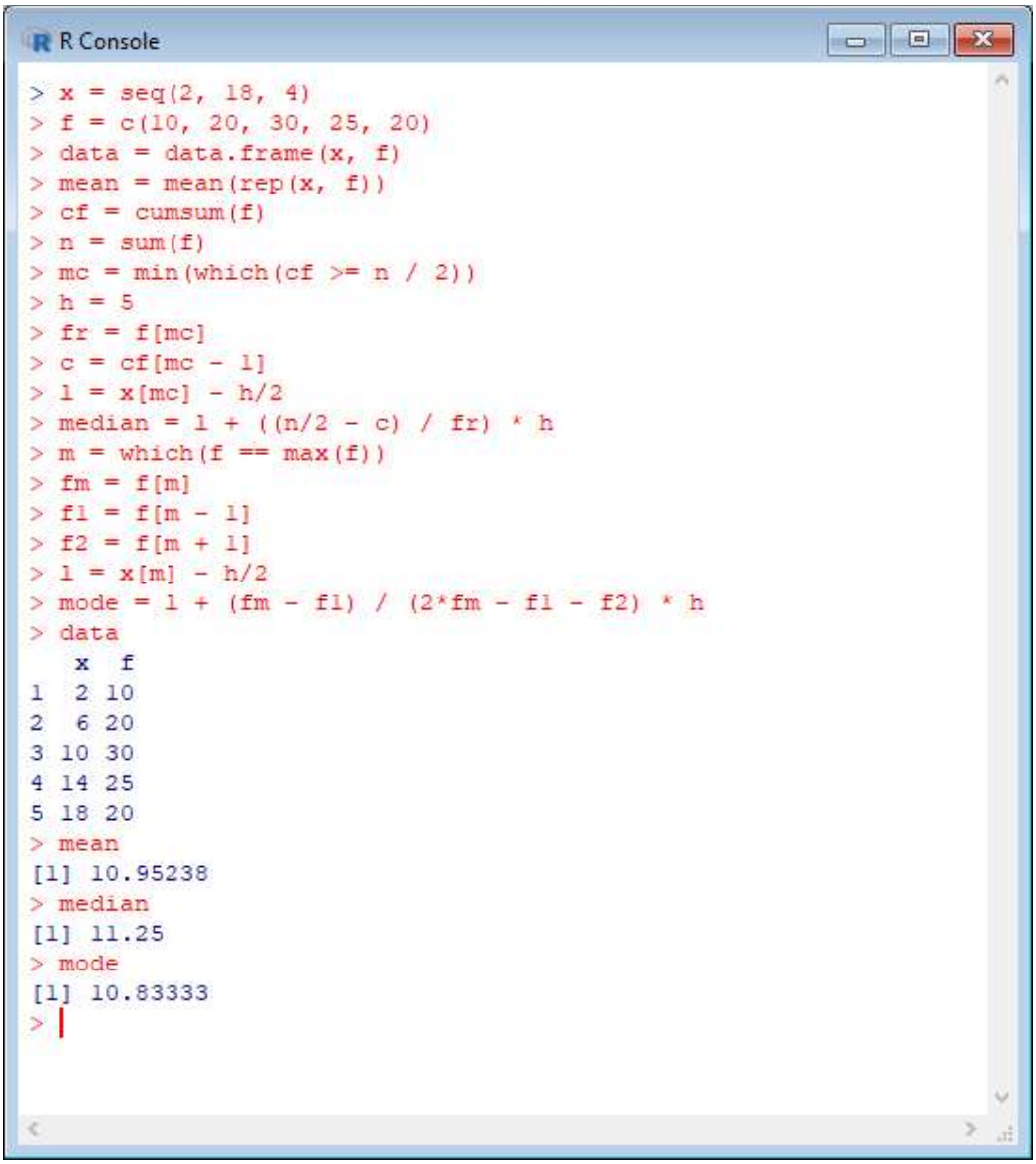
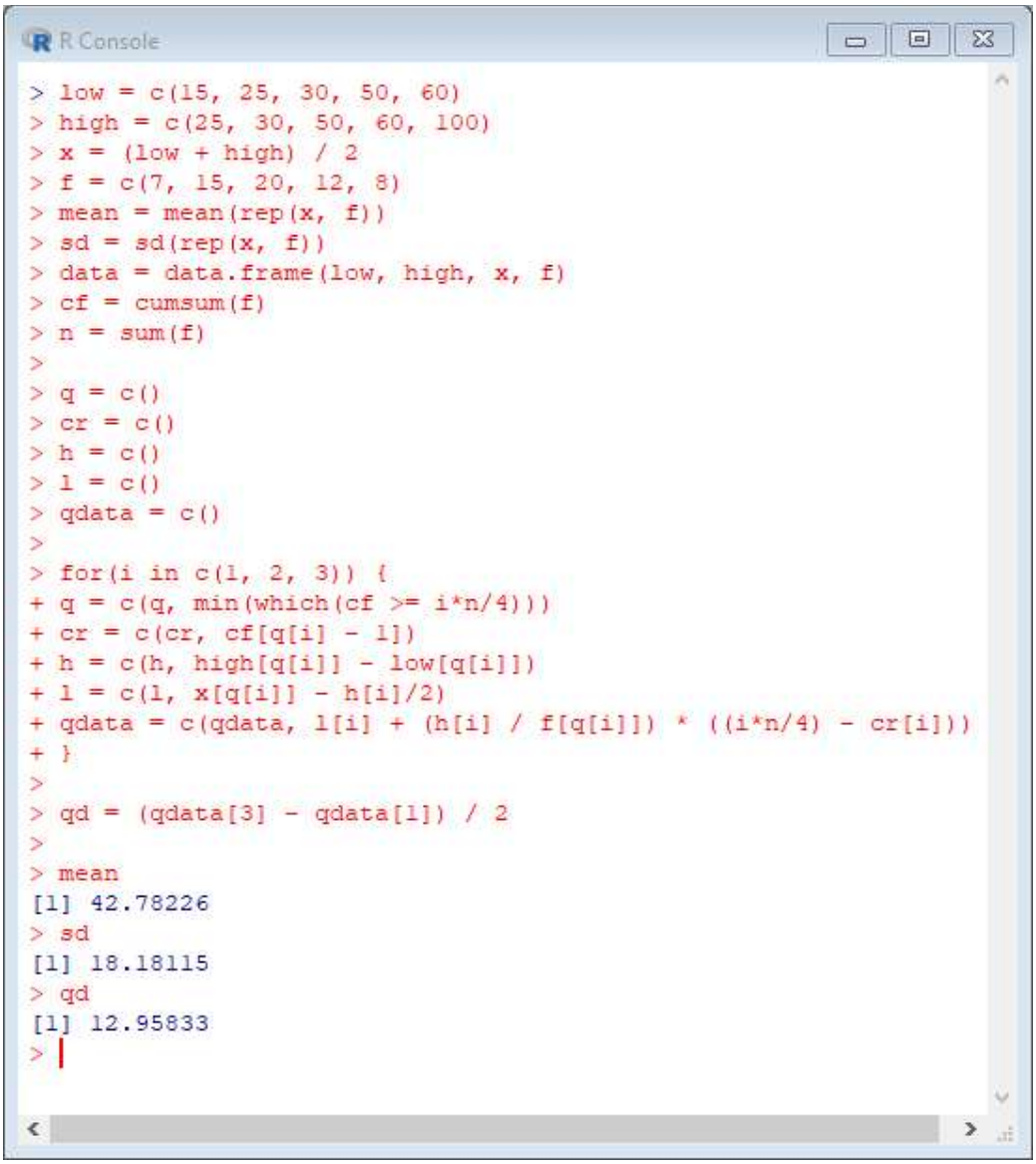

R Console
> x = seq(132.5, 162.5, 5)
> f = c(5, 15, 28, 24, 17, 10, 1)
> data = data.frame(x, f)
> mean = mean(rep(x, f))
> cf = cumsum(f)
> n = sum(f)
> mc = min(which(cf >= n / 2))
> h = 5
> fr = f[mc]
> c = cf[mc - 1]
> l = x[mc] - h/2
> median = l + ((n/2 - c) / fr) * h
> m = which(f == max(f))
> fm = f[m]
> f1 = f[m - 1]
> f2 = f[m + 1]
> l = x[m] - h/2
> mode = l + (fm - f1) / (2*fm - f1 - f2) * h
> data
x f
1 132.5 5
2 137.5 15
3 142.5 28
4 147.5 24
5 152.5 17
6 157.5 10
7 162.5 1
> mean
[1] 145.85
> median
[1] 145.4167
> mode
[1] 143.8235
>


R Console
> x = seq(2, 18, 4)
> f = c(10, 20, 30, 25, 20)
> data = data.frame(x, f)
> mean = mean(rep(x, f))
> cf = cumsum(f)
> n = sum(f)
> mc = min(which(cf >= n / 2))
> h = 5
> fr = f[mc]
> c = cf[mc - 1]
> l = x[mc] - h/2
> median = l + ((n/2 - c) / fr) * h
> m = which(f == max(f))
> fm = f[m]
> f1 = f[m - 1]
> f2 = f[m + 1]
> l = x[m] - h/2
> mode = l + (fm - f1) / (2*fm - f1 - f2) * h
> data
x f
1 2 10
2 6 20
3 10 30
4 14 25
5 18 20
> mean
[1] 10.95238
> median
[1] 11.25
> mode
[1] 10.83333
>


R Console
> low = c(15, 25, 30, 50, 60)
> high = c(25, 30, 50, 60, 100)
> x = (low + high) / 2
> f = c(7, 15, 20, 12, 8)
> mean = mean(rep(x, f))
> sd = sd(rep(x, f))
> data = data.frame(low, high, x, f)
> cf = cumsum(f)
> n = sum(f)
>
> q = c()
> cr = c()
> h = c()
> l = c()
> qdata = c()
>
> for(i in c(1, 2, 3)) {
+ q = c(q, min(which(cf >= i*n/4)))
+ cr = c(cr, cf[q[i] - 1])
+ h = c(h, high[q[i]] - low[q[i]])
+ l = c(l, x[q[i]] - h[i]/2)
+ qdata = c(qdata, l[i] + (h[i] / f[q[i]]) * ((i*n/4) - cr[i]))
+ }
>
> qd = (qdata[3] - qdata[1]) / 2
>
> mean
[1] 42.78226
> sd
[1] 18.18115
> qd
[1] 12.95833
>