Steps of Constructing frequency distribution –

Step 1: Calculating Range,

$$R = H - L$$

where, H = The Highest Value

L = " lowest "

Step 2: Calculating no. class, K such that

$2^K > N$ (For minimum Value of K)

K = Positive Integer Value

N = No. of observations

or. H. A Sturges formula,

$$K = 1 + 3.322 \log_{10} N$$

Step 3:

length or size of class Interval, $C = \frac{R}{K}$ (Round up)

Problem: Construct a frequency distrution table using suitable Length of class Interval of the following data:

Weigth (Kg)

40, 12, 80, 100, 85, 70, 95
30, 35, 60, 89, 120, 70, 90
45, 15, 98, 20, 25, 35, 40

60, 75, 95, 110, 45, 90, 81
42, 85, 15, 18, 14, 20, 25
40, 50, 30, 20, 30

Sol: Total no. of observation,

$N = 40$

Highest value, $H = 120$

Lowest " , $L = 12$

Range, $R = 120 - 12$

$= 108$

No. of class, K such that

$2^K = 2^6 = 64 > 40$

∴ No. of class, $K = 6$

Length or size of class Interval. $c = \frac{R}{K}$

$= \frac{108}{6} = 18$

For integer No. $c = 18 + 1 = 19$

class Interval (CI)	Tally Marks	frequency (f_i)
12 – 31	𝍸 𝍸 ||||	14
31 – 50	𝍸 ||	8
50 – 69	|||	3
69 – 88	𝍸 |	6
88 – 107	𝍸 ||	7
107 – 126	||	2

$N = \sum_{i=1}^{n} f_i$

$= 40$

Note:
Lower limit Included

10, 15, 15.5

CI	f
10 – 15	4
16 – 21	6
21 – 26	5

→ Discrete class

CI	f_i	F_i
10 – 15	5	5
15 – 20	6	11
20 – 25	4	15

→ Continous class

* Lower limit Included/
Upper " excluded

Cumulative Frequency → (Fi)

Relative → (Ri)

Midpoint → x_i