

⇒ Example i

Make a grouped freq dist from the following data, relating to the weight recorded to the nearest grams of 60 apples picked out at random from a consignment.

106	107	76	82	109	107	115	93
187	95	123	125	111	92	86	70
126	68	130	129	139	119	115	128
100	186	84	99	113	204	111	141
136	123	90	115	98	110	78	185
162	178	140	152	173	146	158	194
148	90	107	181	131	75	184	104
110	80	118	82				

$$\Rightarrow R = 204 - 68 = 136$$

$$c = \sqrt{60} = 7.74 \quad \text{or} \quad 1 + 3.3 \log(60) = 6.8 \quad \text{so,}$$

$$c \approx 7$$

$$h = \frac{136}{7} = 19.47 \approx 20$$

Classes	C.B	Tally	f	r.f	C.F	c.r.f
65-84	64.5-84.5		9	9/60	9	9/60
85-104	84.5-104.5		10	10/60	19	19/60
105-124	104.5-124.5		17	17/60	36	36/60
125-144	124.5-144.5		10	10/60	46	46/60
145-164	144.5-164.5		5	5/60	51	51/60
165-184	164.5-184.5		4	4/60	55	55/60
185-204	184.5-204.5		5	5/6	60	60/60

Example 2.2: The following data shows the ages of 50 cancer patients admitted in Shaukat Khanum Memorial Hospital, Lahore :

48	29	39	32	54	33	44	36	38	31
46	30	20	44	47	39	42	35	33	47
31	35	34	42	41	42	43	35	32	35
43	36	37	45	46	41	25	27	26	40
38	41	44	47	45	45	52	43	44	43

Ages (Class limits)	Tally	f	Class boundaries
20 – 24	/	1	19.5 – 24.5
25 – 29	////	4	24.5 – 29.5
30 – 34	#### III	8	29.5 – 34.5
35 – 39	#### #### I	11	34.5 – 39.5
40 – 44	#### #####	15	39.5 – 44.5
45 – 49	#### ////	9	44.5 – 49.5
50 – 54	//	2	49.5 – 54.5
Σ	----	50	----

Example 2.3: Make a cumulative frequency distribution. Also find relative frequency & cumulative relative frequency for the following data:

Ages	f
20 – 24	1
25 – 29	4
30 – 34	8
35 – 39	11
40 – 44	15
45 – 49	9
50 – 54	2

Solution:

Ages	f	Class boundaries	Cumulative frequency (c.f)	Relative frequency $r.f = \frac{f}{\Sigma f}$	c.r.f $= \frac{c.f}{\Sigma f}$
20 – 24	1	19.5 – 24.5	1	0.02	0.02
25 – 29	4	24.5 – 29.5	1 + 4 = 5	0.08	0.10
30 – 34	8	29.5 – 34.5	5 + 8 = 13	0.16	0.26
35 – 39	11	34.5 – 39.5	13 + 11 = 24	0.22	0.48
40 – 44	15	39.5 – 44.5	24 + 15 = 39	0.30	0.78
45 – 49	9	44.5 – 49.5	39 + 9 = 48	0.18	0.96
50 – 54	2	49.5 – 54.5	48 + 2 = 50	0.04	1.00
Σ	50	----	----	1.00	---

Example 2.1: *The following data shows the number of children in different families of a small locality:*

1, 2, 4, 3, 0, 1, 2, 3, 1, 1, 0, 2, 1, 0, 2, 3, 0, 0, 1, 3.

Make a frequency distribution. Also find relative frequencies.

Solution:

The number of children	Tally	The number of families (f)	Relative frequency $r.f = \frac{f}{\Sigma f}$
0	////	5	$5/20 = 0.25$
1	//// /	6	$6/20 = 0.30$
2	////	4	$4/20 = 0.20$
3	////	4	$4/20 = 0.20$
4	/	1	$1/20 = 0.05$
Σ	-----	20	1.00

The following data gives the life time in minutes, recorded nearest tenth of a minutes.

1.2	2.2	0.7	3.9	1.7	1.9	1.4	1.8	2.0	4.3
2.5	0.9	3.4	2.8	3.7	3.5	0.4	2.8	1.1	0.2
3.9	6.3	2.5	2.1	1.3	2.1	0.3	0.4	2.4	2.1
3.5	2.9	1.2	5.3	1.7	2.7	1.8	4.8	3.2	1.6
2.6	1.8	2.3	1.3	3.1	1.5	2.6	5.9	2.0	2.3

Using 8 intervals with the lowest starting at 0.1.

- i) Form a frequency distribution and a cumulative frequency distribution.

Classes	Tally	f	C.B	$C.f$
0.1 – 0.8	###	5	0.05 – 0.85	5
0.9 – 1.6	###	9	0.85 – 1.65	14
1.7 – 2.4	### ### ###	15	1.65 – 2.45	29
2.5 – 3.2	### ###	10	2.45 – 3.25	39
3.3 – 4.0	###	6	3.25 – 4.05	45
4.1 – 4.8	//	2	4.05 – 4.85	47
4.9 – 5.6		1	4.85 – 5.65	48
5.7 – 6.4	//	2	5.65 – 6.45	50
Σ	-----	50	-----	-----