Construction of Frequency Distribution

Step 1

➤ How many no. of groups (classes)?

➤ Just enough classes to reveal the shape of the distribution.

➤ Let k be the desired no. of classes.

➤ k should be such that $2^k > n$.

➤ If n = 80 and we choose k = 6,

then $2^6 = 64$ which is < 80, so k = 6 is not desirable. If we take k = 7, then $2^7 = 128$, which is > 80, so no. of classes should be 7.

Next   **1**

Step 2

➤ Determine the class interval (width).

➤ the class interval should be the same for all classes.

➤ The formula to determine class width:

$$i \geq \frac{H - L}{k}$$

where i is the class width, H is the highest observed value, L is the lowest observed value, and k is the number of classes.

Construction of Frequency Distribution (cont.)

Step 3

- ➢ Set the individual class limits.
- ➢ Class limits should be very clear.
- ➢ Class limits should not be overlapping.
- ➢ Some time class width is rounded which may increase the range H-L.
- ➢ Make the lower limit of the first class a multiple of class width.

Step 4

- ➢ Make tally of observations falling in each class.

Step 5

- ➢ Count the number of items in each class (class frequency)

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Example

Construction of Frequency Distribution
(Example)

Raw Data
(Ungrouped Data)

23197	23372	20454	23591	24220	30655	22442	17891
18021	28683	30872	19587	21558	21639	24296	15935
20047	24285	24324	24609	26651	29076	20642	19889
19873	25251	25277	28034	23169	28337	17399	20895
20004	17357	20155	19688	28670	20818	19766	21981
20203	23765	25783	26661	24533	27453	32492	17968
24052	25799	15794	18263	23657	35851	20642	20633
20356	21442	21722	19331	32277	15546	29237	18890
20962	22845	26285	27896	35925	27443	17266	23613
21740	22374	24571	25449	22817	26613	19251	20445

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Cont.

➢ Following Step 1, with n = 80, k should be 7.

➢ Following Step 2 the class width should be 2911.

❖ The width size is usually rounded up to a number multiple of 10 or 100.

❖ The width size is taken as i = 3000.

➢ Following Step 3, with i = 3000 and k = 7, the range is 7×3000=21000.

❖ Where as the actual range is H – L = 35925 - 15546 = 20379.

❖ The lower limit of the first class should be a multiple of class width.

❖ Thus the lower limit of starting class is taken as 15000.

➢ Following Step 4 and Step 5

Selling Price	Frequency
15000 up to 18000	8
18000 up to 21000	23
21000 up to 24000	17
24000 up to 27000	18
27000 up to 30000	8
30000 up to 33000	4
33000 up to 36000	2
	Total = 80

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