Assignment-3
AI1110: Probability And Random Variables
IIT Hyderabad

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Q-8 A random survey of the number of children of various age group playing in a park was found as follows:-

Age(in years)	Number of children
1-2	5
2-3	3
3-5	6
5-7	12
7-10	9
10-15	10
15-17	4

Draw a histogram to represent the above data.

Solution:-
Here, the has class intervals of varying width.
So, we will calculate adjusted frequency

$$Adjusted\ Frequency = \frac{Frequency \times Required\ size\ of\ interval}{Current\ size\ of\ interval} \quad (1)$$

Required size of interval = Minimum size of interval $\quad (2)$
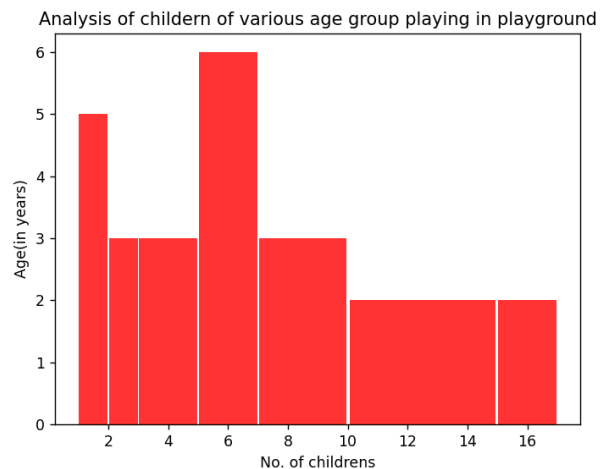
Minimum size of interval $= 2 - 1 = 1 \quad (3)$

Age(in year)	Adjusted frequency
1-2	5
2-3	3
3-5	3
5-7	6
7-10	3
10-15	2
15-17	2

Fig. 1. Histogram showing age data of children

Age (in Age)	Number of children	Current interval	Adjusted frequency
1-2	5	2-1 = 1	$\frac{5\times1}{1} = 5$
2-3	3	3-2 = 1	$\frac{3\times1}{1} = 3$
3-5	6	5-3 = 2	$\frac{6\times1}{2} = 3$
5-7	12	7-5 = 2	$\frac{12\times1}{2} = 6$
7-10	9	10-7 = 3	$\frac{9\times1}{3} = 3$
10-15	10	15-10 = 5	$\frac{10\times1}{5} = 2$
15-17	4	17-15 = 2	$\frac{4\times1}{2} = 2$