



Statistics Ex 7.4 Q3

Answer :

Here, the frequency table is given in inclusive form. Transforming the given table into exclusive form and prepare the cumulative frequency table.

IQ	Frequency(f_i)	Cumulative Frequency(c.f.)
54.5–64.5	1	1
64.5–74.5	2	3
74.5–84.5	9	12
84.5–94.5	22	34
94.5–104.5	33	67
104.5–114.5	22	89
114.5–124.5	8	97
124.5–134.5	2	99
134.5–144.5	1	100
	$N = 100$	

Here, $N = 100$

So, $\frac{N}{2} = 50$

Thus, the cumulative frequency just greater than 50 is 67 and the corresponding class is 94.5–104.5. Therefore, 94.5–104.5 is the median class.

Here, $l = 94.5$, $f = 33$, $F = 34$ and $h = 9$

We know that,

$$\begin{aligned}
 \text{Median} &= l + \left\{ \frac{\frac{N}{2} - F}{f} \right\} \times h \\
 &= 94.5 + \left(\frac{50 - 34}{33} \right) \times 10 \\
 &= 94.5 + \frac{160}{33} \\
 &= 94.5 + 4.85 \\
 &= 99.35
 \end{aligned}$$

Hence, the median is 99.35.

Statistics Ex 7.4 Q4

Answer :

First we prepare the following cumulative table to compute the median.

Rent (in Rs.)	No. of houses (f_i)	Cumulative Frequency ($c.f.$)
15-25	8	8
25-35	10	18
35-45	15	33
45-55	25	58
55-65	40	98
65-75	20	118
75-85	15	133
85-95	7	140
	$N = 140$	

Here, $N = 140$

So, $\frac{N}{2} = 70$

Thus, the cumulative frequency just greater than 70 is 98 and the corresponding class is 55 – 65 .

Therefore, 55 – 65 is the median class.

Here, $l = 55$, $f = 40$, $F = 58$ and $h = 10$

We know that

$$\begin{aligned}\text{Median} &= l + \left\{ \frac{\frac{N}{2} - F}{f} \right\} \times h \\ &= 55 + \left\{ \frac{70 - 58}{40} \right\} \times 10 \\ &= 55 + \frac{12 \times 10}{40} \\ &= 55 + \frac{120}{40} \\ &= 55 + 3 \\ &= 58\end{aligned}$$

Hence, the median is 58.

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