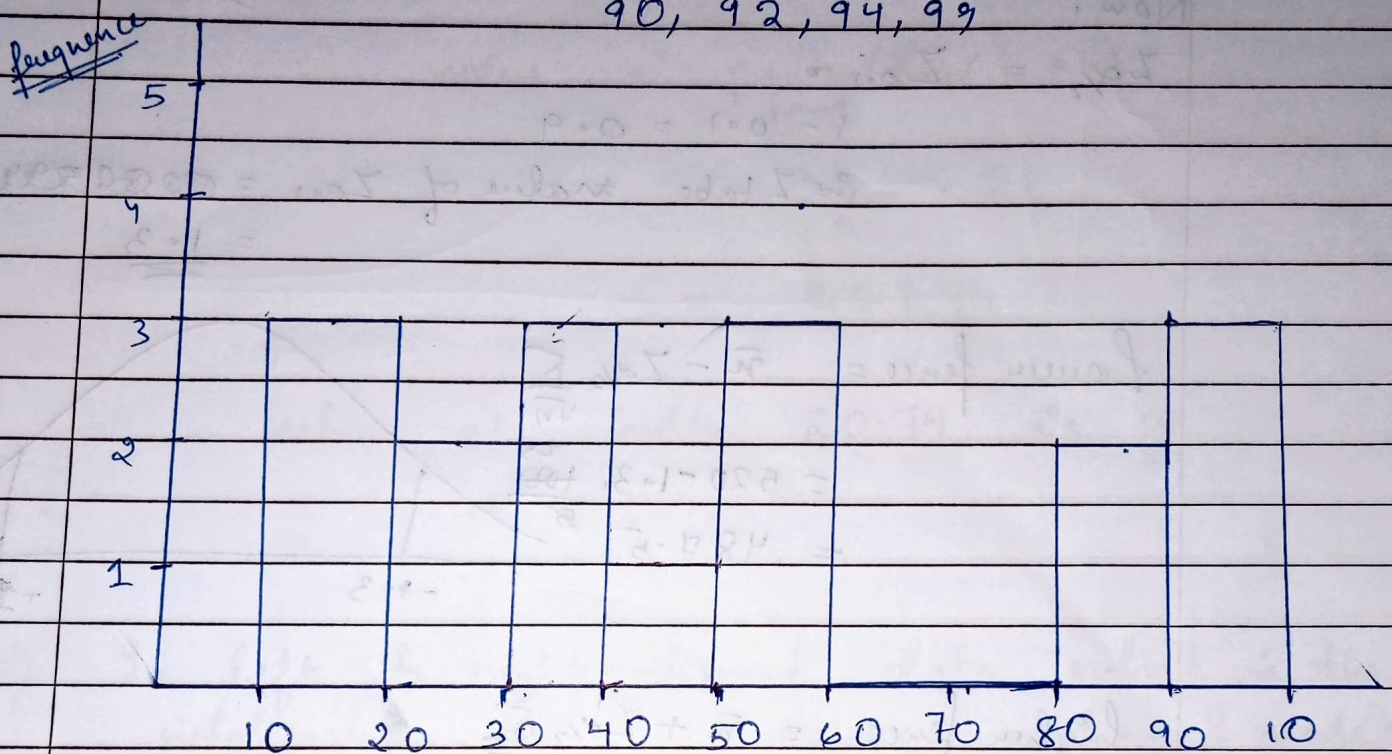


Stat Assignment 1

Q1) Plot a histogram.

10, 13, 18, 22, 27, 32, 38, 40, 45, 51, 56, 57, 88,
90, 92, 94, 99

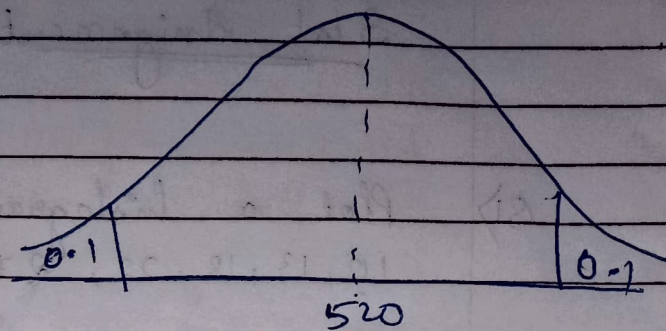


data → .

Q2 In a quant test of the CAT Exam, the population standard deviation is known to be 100. A sample of 25 test taken has a mean of 520. Construct an 80% CI about the mean.

Soln Given, $\sigma = 100$, $n = 25$, $\bar{x} = 520$

$$\alpha = 1 - \frac{80}{100} = 0.2$$



Now,

$$Z_{\alpha/2} = Z_{0.1} =$$

$$1 - 0.1 = 0.9$$

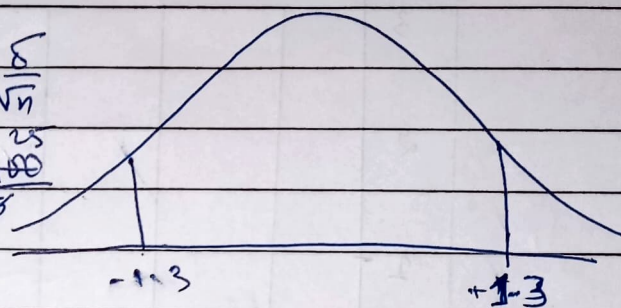
$$\text{in } Z \text{ table value of } Z_{0.1} = 0.081394$$

$$= \underline{\underline{1.3}}$$

$$\text{Lower fence} = \bar{x} - Z_{\alpha/2} \frac{s}{\sqrt{n}}$$

$$= 520 - 1.3 \times \frac{25}{5}$$

$$= 487.5$$



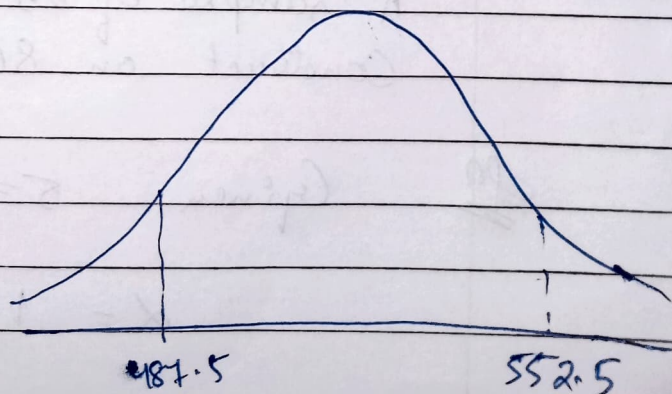
$$\text{higher fence} = \bar{x} + Z_{\alpha/2} \frac{s}{\sqrt{n}}$$

$$= 520 + 1.3 \times 25$$

$$= 520 + 32.5 = 552.5$$

$$CI = \bar{x} \pm Z_{\alpha/2} \frac{s}{\sqrt{n}}$$

$$CI = 520 \pm 32.5$$



Q4) What is the value of the 99 percentile?

2, 2, 3, 4, 5, 5, 5, 6, 7, 8, 8, 8, 8, 8, 9, 9, 10, 11, 11, 12.

Solⁿ 99% value -

$$\begin{aligned}\text{value} &= \frac{\text{percentile} \times (n+1)}{100} \\ &= \frac{99 \times 21}{100} \\ &= 20.79\end{aligned}$$

value at index 20.79 is 12

Q5) In left & right-skewed data, what is the relationship between mean, median & mode? Draw the graph to represent the same.

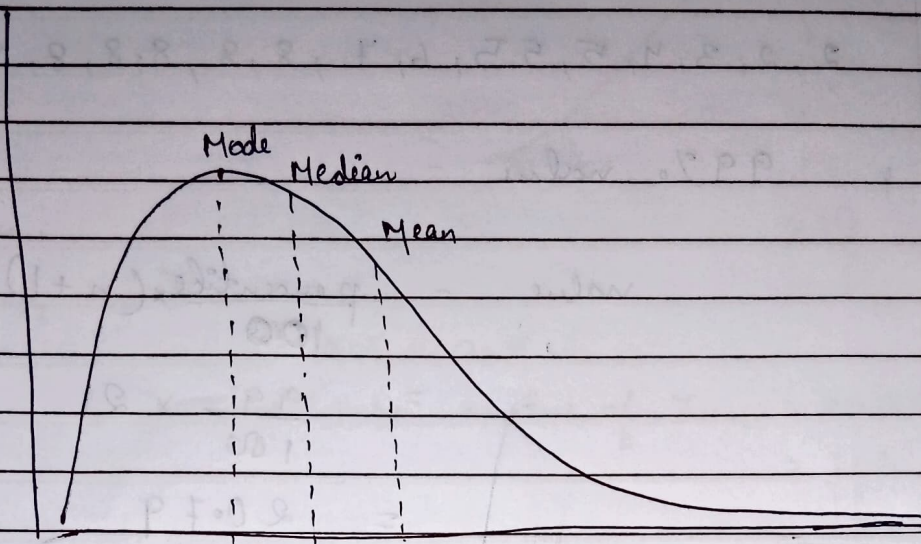
Solⁿ In left skewed distribution:
 $\text{mean} < \text{Median} < \text{Mode}.$



left skewed distribution

//_

In Right Skewed Distribution: $\text{Mode} < \text{Median} < \text{Mean}$



Right skewed distribution