How to construct a Box Plot

* Five number summary :

① Minimum
② First Quartile (25%)
③ Median
④ Third Quartile (75%)
⑤ Maximum

→ Box Plot
↓
Helps to identify outliers

→ Identifying outlier :

{1, 2, 2, 2, 3, 3, 4, 5, 5, 5, 6, 6, 6, 6, 7, 8, 8, 9, 27}

$Q1 = \frac{25}{100} \times (19+1)$

$= 5^{th}$ element

$\Rightarrow Q1 = 3$

$Q3 = \frac{75}{100} \times (19+1)$

$= 15^{th}$ element

$\Rightarrow Q3 = 7$

$IQR = Q3 - Q1 = 7 - 3 = 4.$

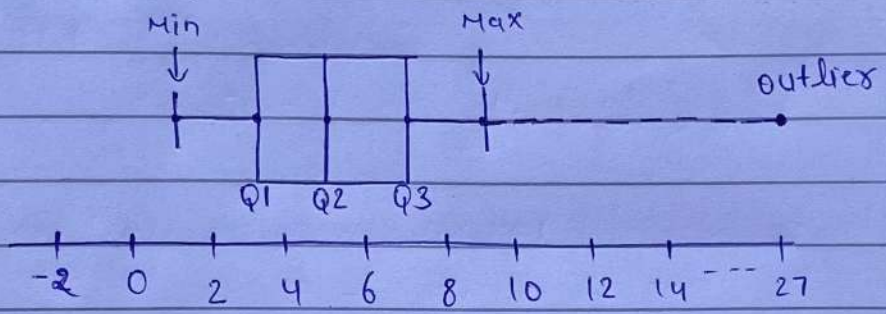
- Lower Fence $= Q1 - 1.5 \times IQR$
  $= 3 - 1.5 \times 4$
  $= -3$

- Higher Fence $= Q3 + 1.5 \times IQR$
  $= 7 + 1.5 \times 4$
  $= 13$

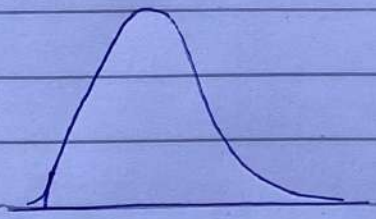
Fence Range → $[-3, 13]$

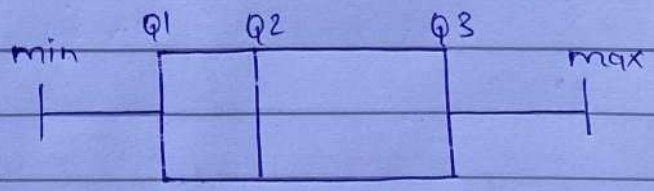
→ Constructing Box Plot :

① Minimum = 1
② Q1 = 3
③ Median = 5
④ Q3 = ~~13~~ 7
⑤ Maximum = 9
(Don't consider outliers)



Q: Draw a box plot for right skewed distribution.





Mean > Median > Mode