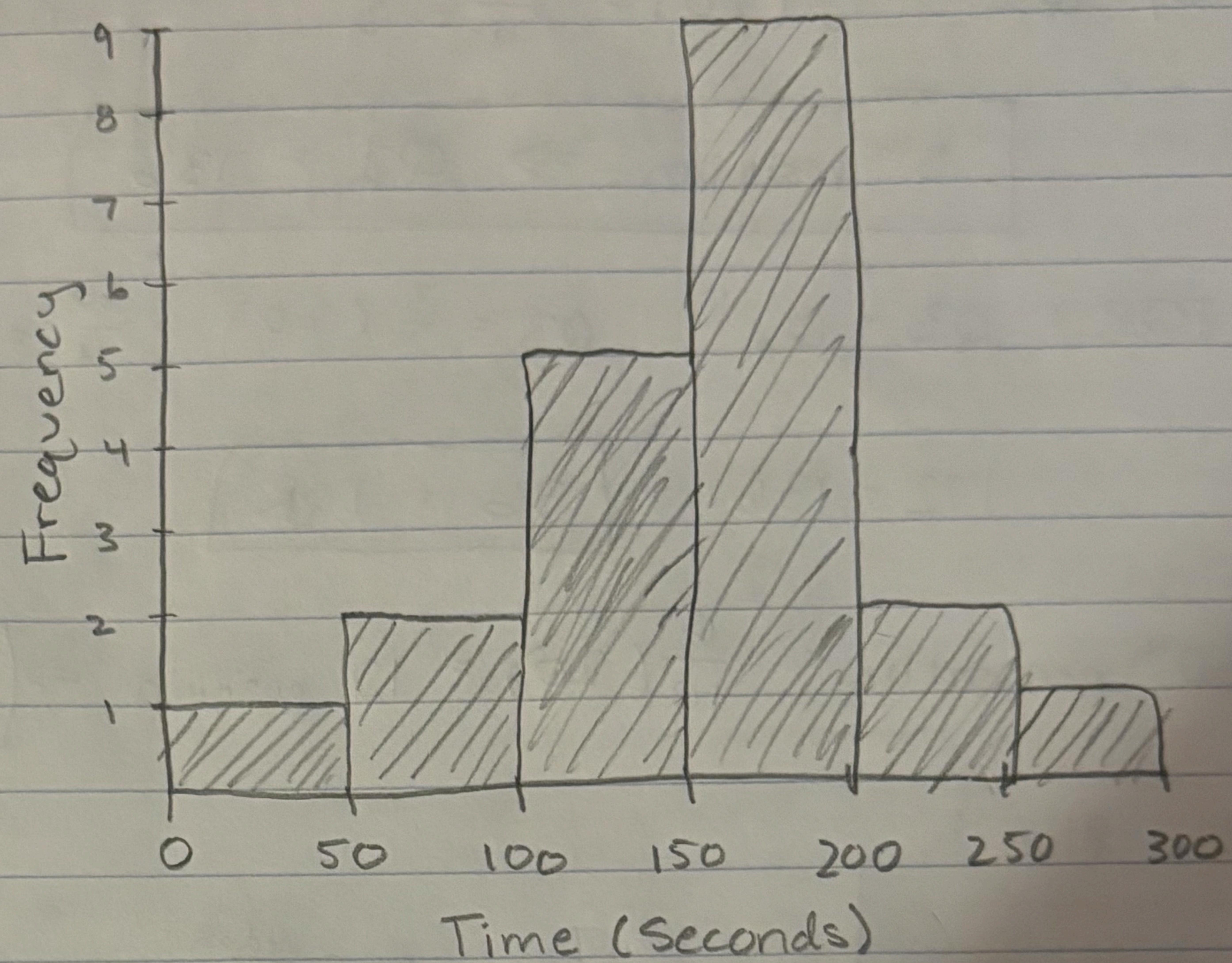


Stat360 Homework 1

Kenneth Son

1.	a)	Stem	Leaf
		4	1
		5	7
		9	8
		11	6
		13	6, 7
		14	1, 9
		15	4, 8
		16	4, 6, 7
		17	2, 2
		18	2
		19	7
		21	1
		23	2
		29	4



b) mean: $\frac{\text{total}}{\text{num. of values}} = \frac{3144}{20} = 157.2$

median: the middle number: $\frac{158 + 164}{2} = 161$

mode: most frequent value: 172

10% trimmed mean: mean w/ top & bottom 10% cut out

$$= 157.5$$

This tells us that coffee line wait is around $2\frac{1}{2}$ - 3 minutes. With the exception of a couple outliers. Overall the distribution is pretty balanced & consistent.

c) $Q_1: \frac{1}{4}(20) = \frac{20}{4} = 5$ $n = 20$

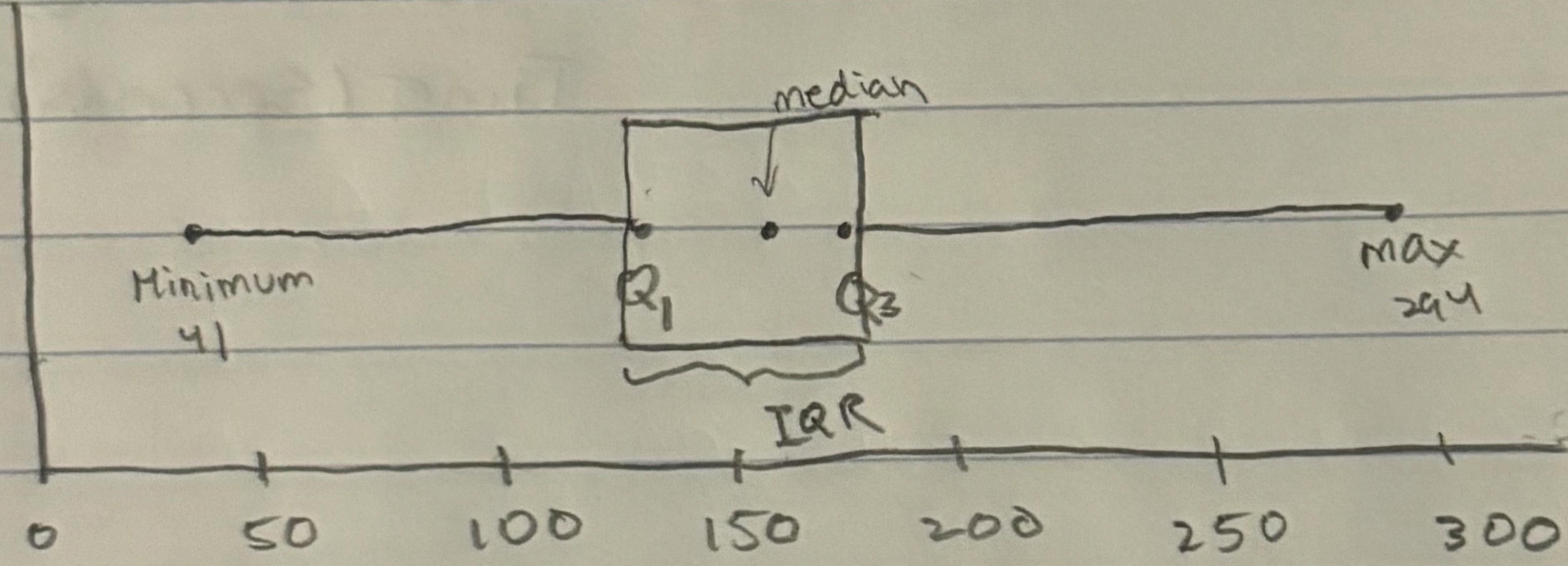
5^{th} position $\Rightarrow Q_1 = 136$

IQR: $Q_3 - Q_1$ $Q_3 = \frac{3}{4}(20) = \frac{60}{4} = 15^{\text{th}}$ position $= 172$

$172 - 136 = 36 = \text{IQR}$

60^{th} percentile: $\frac{6}{10}(20) = 12$ position $\Rightarrow 166 \rightarrow \text{value}$

Box Plot:



This tells us that wait times are usually short and consistent. The slight skewness to the right is due to the rare chance that you get a long wait. (294 sec)

d) sample variance: $s^2 = \frac{\sum (x_i - \bar{x})^2}{n-1} = \frac{\sum x_i^2 - (\sum x_i)^2}{n-1} = \frac{s_{xx}}{n-1}$

$\bar{x} = 157.2$

$x_i = \text{each data point}$ $= \frac{60,003.2}{20-1} = \frac{60,003.2}{19} \approx 3158.1 \text{ seconds}^2$

standard deviation: $s = \sqrt{s^2}$

$s = \sqrt{3158.1} \approx 56.2 \text{ seconds}$

The standard deviations shows consistency. The lines are fairly consistent with the variance being less than a minute.