Fast – but not fast enough!

Checkpoints

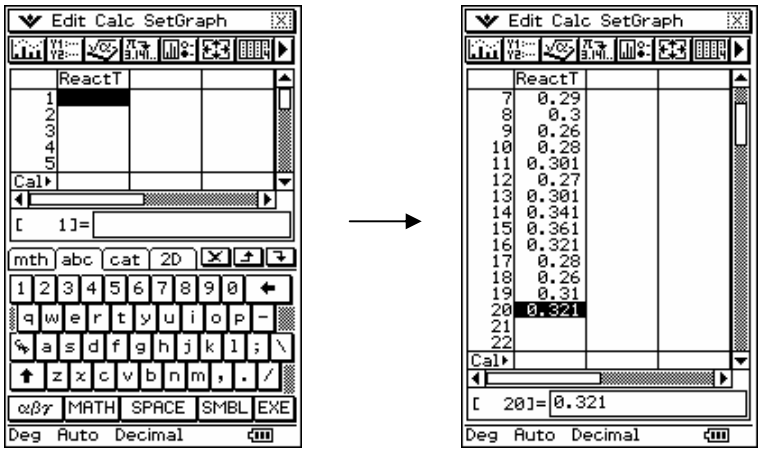
Activity 1 – How fast are you?

Answer

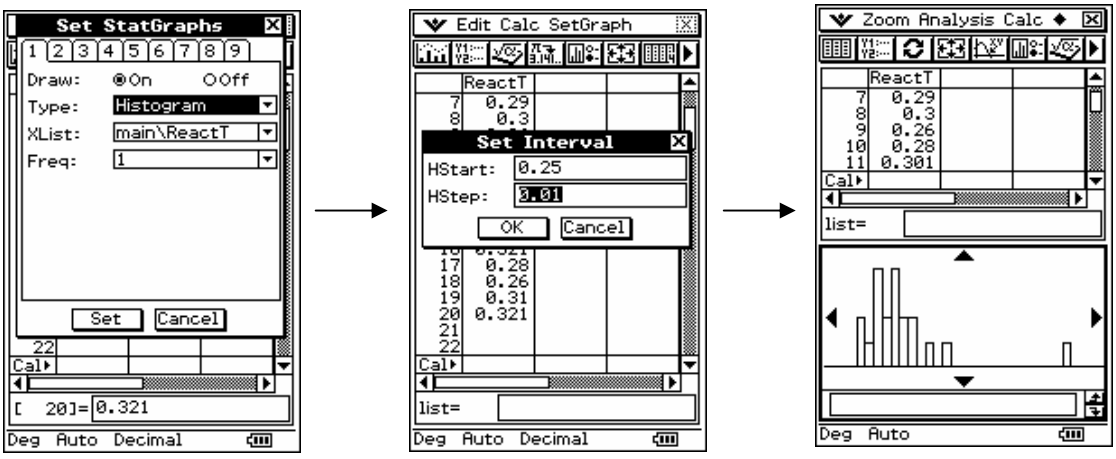
1. As you can see from your samples, there tends to be variation in the times recorded by the reaction timer. If only one score was studied it could be a "good", a "bad" or an "average" score. If many scores are studied then you will usually see "good", "bad" *and* "average" scores, allowing the central trend to become clear, as well as the variations around that central trend.

Activity 2 – Graphing your results.

In Statistics mode data is entered into `Lists` which can be named using the `abc` Keyboard. If named, these lists become *variables* in the ClassPad's memory.



With the data entered, your graph needs to be *set up*, by tapping
(or tapping `SetGraph : Settings…`) to get to `Set StatGraphs`.
Once your settings are correct, tap `Set`. Now tap .
`Set Interval` determines the start of the histogram (`HStart`) and the width of the columns (`HStep`). Enter values appropriate for your data and tap `OK`.
Your graph will be shown. This sequence is shown below.



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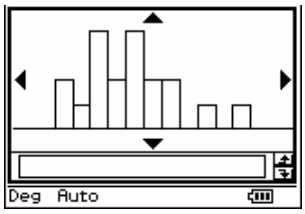
The choice of values for `HStart` and `HStep` is not always obvious. You need to have a 'feel' your data. Your Histogram should start near your minimum value and have a column width that will give you the "just right" number of columns – not too many and not too few.

You can experiment by tapping back into Stat Editor (containing the list of data) and then tapping on to change your choice of settings.

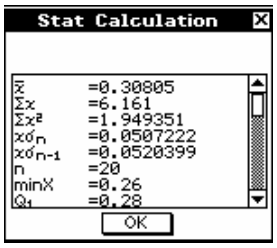
Answers – based on author's reaction time sample.

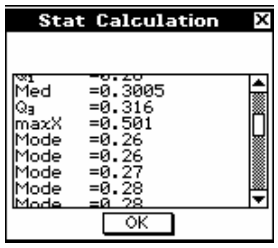
1. 0.501 deleted
2. See right.
3. This histogram seems to be skewed high.



Activity 3 – Analysing your results further.

With the information from your *one variable analysis* available, a number of questions that relate to your sample can be answered.



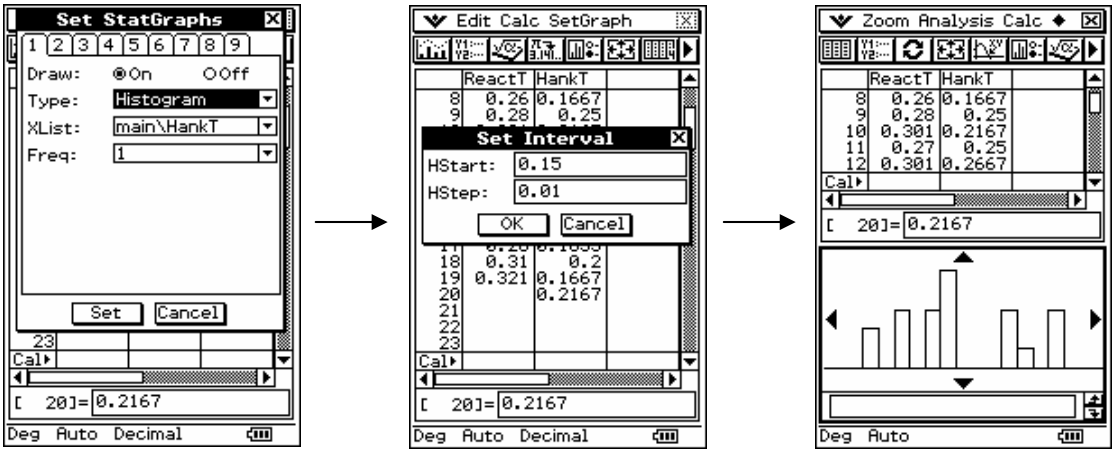


Answers.

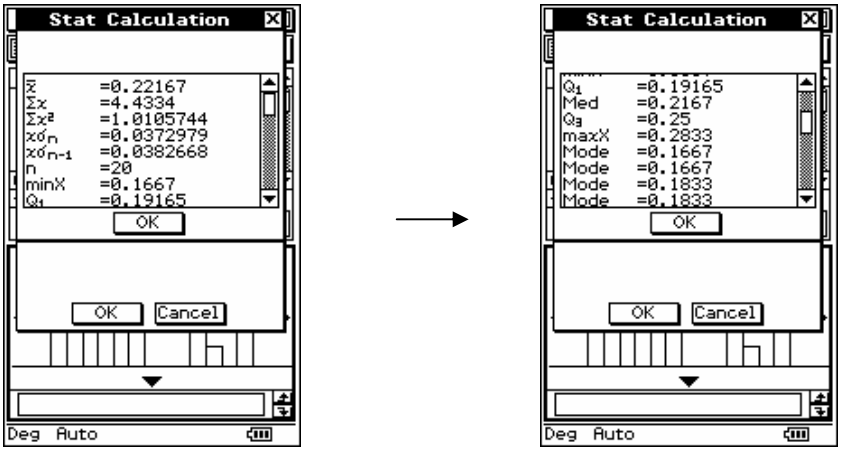
1. The "average" of my reaction time sample is best measured using *median*, due to its skewed nature. As such, the sample suggests that my "average" reaction time in this activity is around 0.3 seconds.
2. The reaction times in my sample vary between 0.26 seconds and 0.361 seconds, with an I.Q.R. of 0.036 seconds, meaning that the most consistent 50% of my reaction times fell within an interval of 0.031 seconds – between 0.28 and 0.316 seconds.
3. As none of my reaction time scores are under 0.2 seconds (or even close), this sample suggests that I do not meet the 0.2 second standard, either occasionally or consistently, putting a dent in my baseballing aspirations. I hope you did better.
4. Having failed to meet the baseball standard, I am nowhere near the goal keeping standard. How about you?

Activity 4 – Is Hank fast enough?

A histogram of Hank's sample of reaction times looks like,



The one variable analysis is as follows,



The shape of the histogram is hard to determine but it seems to display a possible right skew. This is confirmed by the fact that the mean (of 0.22167 seconds) is higher than the median (of 0.21676 seconds). We can say that Hank's reaction times in this sample are centred around a median 0.2167 seconds. This suggests more than 50% of the time Hank's reactions are not quick enough to hit a fastball (which requires a reaction time of 0.2 seconds or less).

There is a degree of variation in Hank's sample. Times ranged from 0.1667 seconds up to 0.2833 seconds. More specifically, as the first quartile is 0.19165 seconds, more than a quarter of this sample of Hank's reaction times was less than 0.2 seconds.

Taken in combination, this sample suggests that, whilst Hank might not be quick enough to hit a fastball on a regular basis (i.e. more than 50% of the time), his reaction times vary and on around 25% of occasions he was quick enough to hit a fastball, with a reaction time of less than the required standard of 0.2 seconds.