

Reaction time data for M4 (visual stimulus)

Reaction times for a typical M4 student are shown in the panel below.


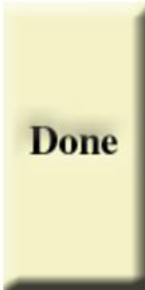
RED LIGHT - GREEN LIGHT Reaction Time Test			
Instructions:			
<ol style="list-style-type: none"> 1. Click the large button on the right to begin. 2. Wait for the stoplight to turn green. 3. When the stoplight turns green, click the large button quickly! 4. Click the large button again to continue to the next test. 			
Test Number	Reaction Time	The stoplight to watch.	The button to click.
1	<input style="width: 100%;" type="text" value="0.307"/>		
2	<input style="width: 100%;" type="text" value="0.29"/>		
3	<input style="width: 100%;" type="text" value="0.282"/>		
4	<input style="width: 100%;" type="text" value="0.313"/>		
5	<input style="width: 100%;" type="text" value="0.324"/>		
AVG.	<input style="width: 100%;" type="text" value="0.3032"/>		

Fig 1 - reaction times for a typical M4 student using a KVIS laptop.

Because there is a cut off time on the low side, the distribution is expected to be normal above the mean, but to have some of the lower part of the distribution missing. Figures 2 and 4 below show this expected pattern.

Taking distributions generated by more than 50 students and drawing approximate normal distributions, neglecting the occasional upper outlier due to distraction, gives estimates of reaction time that are on average from 0.01 or 0.02 seconds lower than a simple calculation of the mean.

Data is plotted for the set of M4 students in figure 2.

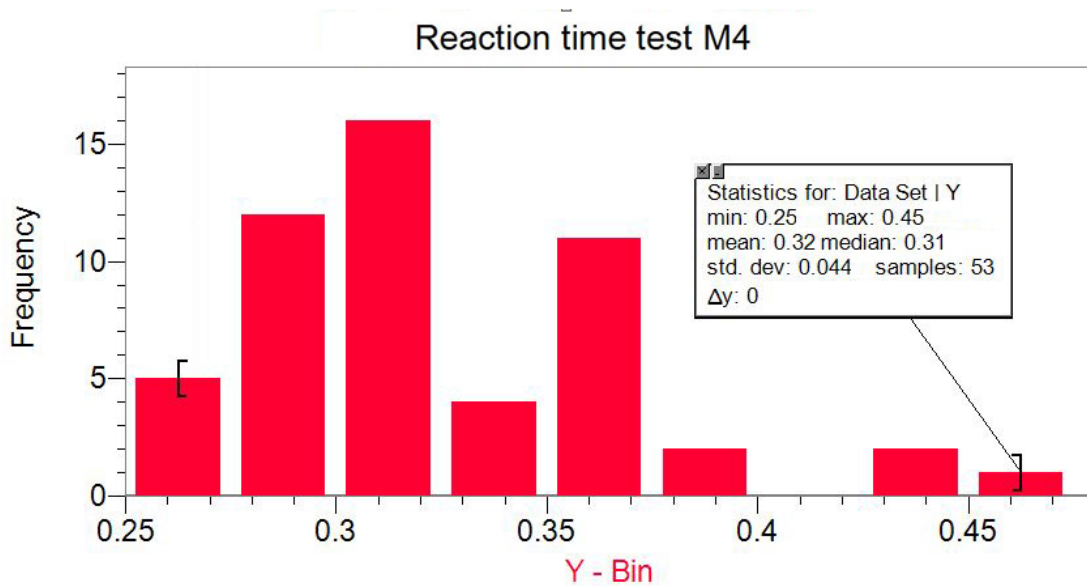


Fig 2 – the M4 data.

Drawing a normal distribution to fit the lower peak, (assuming a lower bound cut-off), gives an estimate of average reaction time to a visual stimulus for M4 students of 0.31 s.

A similar web site has averages by age group. Figure 3 below shows the prediction for 18 year olds (the lowest age available). <https://www.justpark.com/creative/reaction-time-test/>

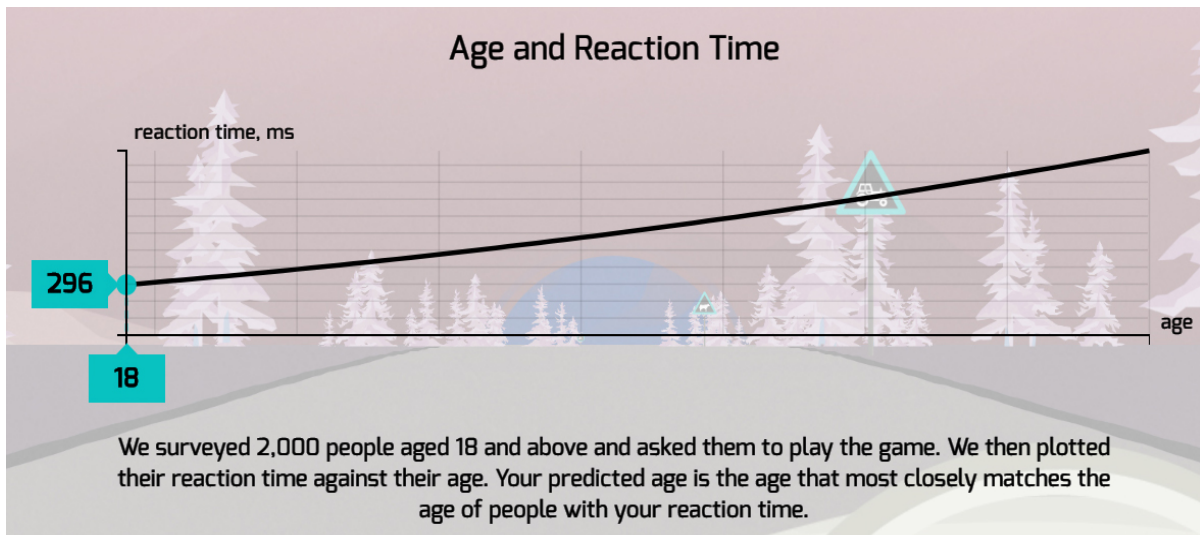


Fig 3 – a predicted reaction time for typical 18 year olds that matches the M4 data.

The data (figs 2 and 3) is the same within errors, but, there is an outstanding question.

While compiling this answer with a Desktop iMac the writer recorded his own reaction times with the web-based program used by the students. His data-points (neglecting obvious outliers due to distraction), are plotted in figure 4.

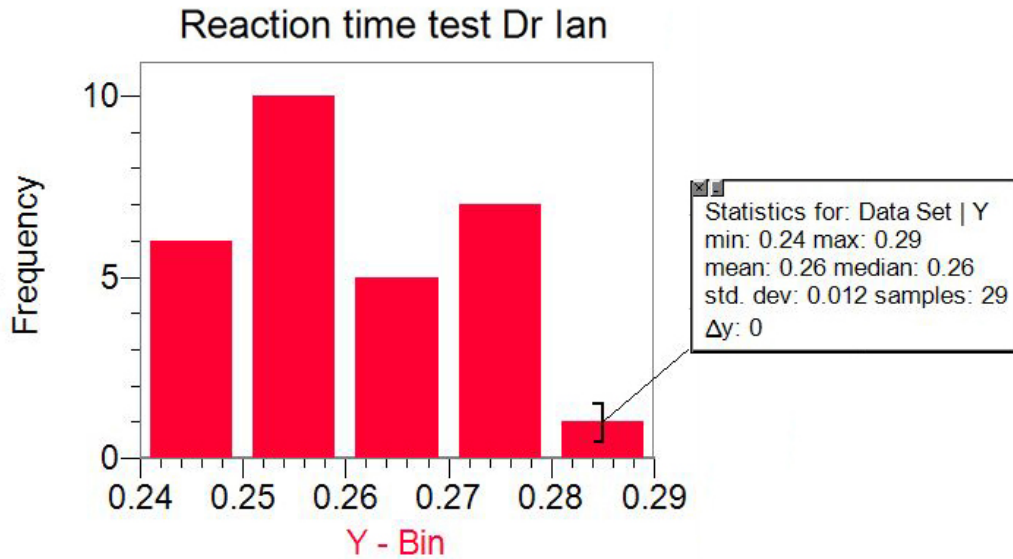


Fig 4 – visual reaction time data for the instructor.

This reaction time (0.26 s) is at the extreme lower end of the distribution in figure 2. The writer is 71. The data appears to be in error or very surprising. As a first step towards the elimination of a possible systematic error, the writer made one attempt to find his apparent age with the link above figure 3. The result is shown below.

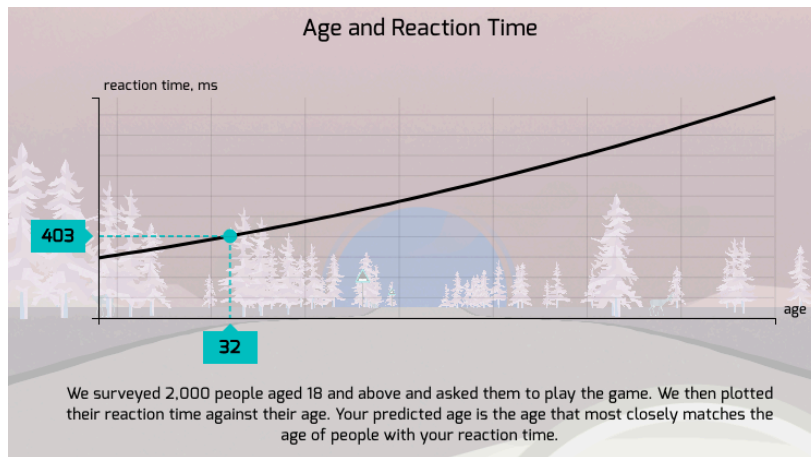


Fig 4 – a single visual reaction time for the instructor.

Further investigation is suggested as a student project.