# SiL HW IV

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1. We visualized the data using box plots. We first generated a box plot showing spoken words per minute by amount of red bull consumed. In order to present the data differently we also made individual graphs for each stage of Redbull consumption.

2. See attached files for code and graphs (rb_*.png, wpm_boxplot.png)

3. See attached code. The purpose of visualizing and computing the standard deviation is to see how well the data fits a Gaussian distribution.

| ml of Redbull | Variance | Standard Deviation |
|---|---|---|
| 0 | 30.12 | 5.49 |
| 100 | 61.13 | 7.82 |
| 200 | 19.88 | 4.46 |
| 300 | 73.23 | 8.56 |
| 400 | 21.38 | 4.62 |
| 500 | 11.70 | 3.42 |
| 600 | 57.79 | 7.60 |
| 700 | 86.54 | 9.30 |
| 800 | 61.25 | 7.83 |
| 900 | 41.63 | 6.45 |
| 1000 | 56.83 | 7.54 |
| 1100 | 72.80 | 8.53 |
| 1200 | 33.18 | 5.76 |
| 1300 | 32.63 | 5.71 |
| 1400 | 32.52 | 5.70 |
| 1500 | 56.43 | 7.51 |
| 1600 | 11.23 | 3.35 |
| 1700 | 32.55 | 5.71 |
| 1800 | 17.42 | 4.17 |
| 1900 | 23.17 | 4.81 |

Table 1 shows the variance and standard deviation of spoken words per minute at different stages of redbull consumption.

5. In table 2, we show the mean spoken words per minute for all test subjects at each level or Redbull ingestion. The data shows a fairly linear increase in wpm as Redbull consumption increases.

| ml of Redbull | Mean WPM |
|---|---|
| 0 | 159.60 |
| 100 | 179.56 |
| 200 | 200.17 |
| 300 | 221.65 |
| 400 | 244.98 |
| 500 | 257.50 |
| 600 | 273.91 |
| 700 | 299.78 |
| 800 | 322.80 |
| 900 | 348.54 |
| 1000 | 370.73 |
| 1100 | 392.71 |
| 1200 | 420.67 |
| 1300 | 438.10 |
| 1400 | 454.73 |
| 1500 | 476.93 |
| 1600 | 492.89 |
| 1700 | 509.74 |
| 1800 | 525.45 |
| 1900 | 542.86 |

Table 1: Mean wpm of all participants vs. Amount of Redbull consumed