CS 162

Loaded Dice Analysis

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I ran the following dice with 10, 100, and 100 rolls:

* Regular 6 sided dice.
* Regular 100 sided dice.
* Loaded 6 sided dice.
* Loaded 100 side dice.

The 10, and 100 roll runs were not very conclusive because of the small sample size.

Data was analyzed from the 1000 roll run.

Data from the regular dice run:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Dice6 mean | | 2.983209 |  | Dice100 mean | | 38.20793 |
| Dice6 median | | 3 |  | Dice100 median | | 52 |
| Dice6 mode | | 2 |  | Dice100 mode | | 22 |
| Dice6 stddev | | 1.704899 |  | Dice100 stddev | | 29.63477 |
|  |  |  |  |  |  |  |
| Sum mean | | 43.52518 |  |  |  |  |
| Sum median | | 55 |  |  |  |  |
| Sum mode | | 66 |  |  |  |  |
| Sum stddev | | 29.69887 |  |  |  |  |

Data from the loaded dice run:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Dice6 mean | | 2.940327 |  | Dice100 mean | | 39.39608 |
| Dice6 median | | 3 |  | Dice100 median | | 52 |
| Dice6 mode | | 3 |  | Dice100 mode | | 40 |
| Dice6 stddev | | 1.705118 |  | Dice100 stddev | | 27.97675 |
|  |  |  |  |  |  |  |
| Sum mean | | 44.57401 |  |  |  |  |
| Sum median | | 55 |  |  |  |  |
| Sum mode | | 43 |  |  |  |  |
| Sum stddev | | 28.04513 |  |  |  |  |

The results from the 6 sided dice did not follow the 100 sided dice because of the low number of sides, the chance of being loaded did not produce a noticeable effect in the output.

The loaded dice run had a lower standard deviation and a higher mean, indicating that the 5% chance of getting a loaded result had an impact on the overall outcome of the results.