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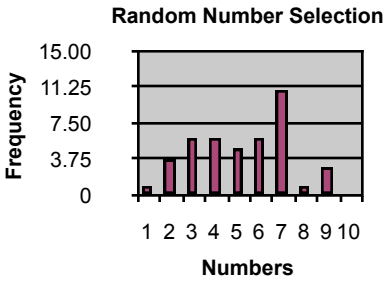
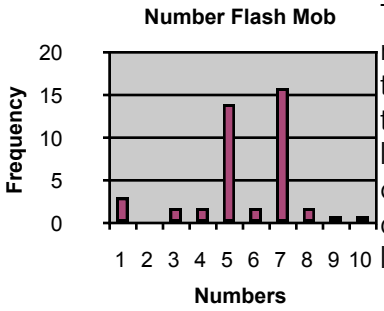
Lab: Descriptive Statistics

10/4/09

If it is necessary to address the strategies and payoffs of players when describing a situation in terms of game theory, it can be said that the following demonstration would not even entirely fit the description of a game: students are given four assignments involving the numeric values 1-10, ranging from random number selection to more involved theoretical calculations. The players (namely, the students) were unaware of the outcomes that would be associated with their strategies of selection. Whether this had to do with the nature of the game itself or the inexperience of the participants is another matter altogether.

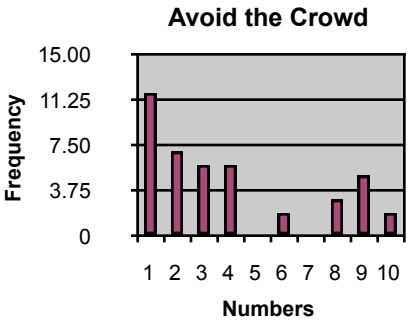
For the initial exercise of choosing a random number, the ideal results would resemble something close to an even distribution among the values (obviously approaching equal ratios with a greater test population). However, it appeared as though the majority of the group interpreted the task as avoiding the most obvious choices: 1 and 10. This brought the mean to 5.21 and the standard deviation to 2.08, as the most popular values were within the 3-7 range. The intended originality is admirable, but the frequencies became skewed for it.



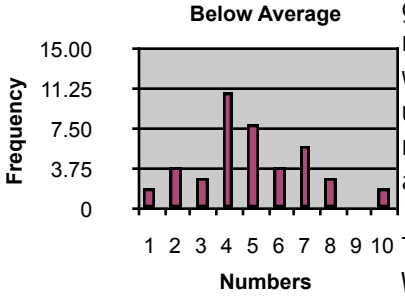


The question prompting a selection that would reflect the favorite of the majority provoked a different type of thinking; that is, the subject needed to attempt to remove his own biases from the response and think logically. The mean is around 5.72 and the standard deviation somewhat low (1.93), as five and seven were the most popular (and therefore best) choices. This is most likely because of their roles as a base number and symbol of luck, respectively, which demonstrates the all-too-common conflict between logic and emotion (in the form of superstition).

"Avoiding the crowd" would have worked well had everybody selected a number at random. However, the previous question likely influenced an aversion to five and seven, so, ironically, they would have been the best choices given the results. The mean was 3.93, which means that the population's perception of an unpopular seems to be a low number. A few outliers on the high end of the spectrum brought the standard deviation to 3.03.



The final exercise proved to be the most intellectually challenging to the group, as evidenced by the fact that rationally unfounded responses (i.e. anything above seven or so) made their way into the results. Even so, the average estimate of 2/3 of the mean ended up being 4.95 with a standard deviation of 2.13. Even though this does not reflect 2/3 of the mean derived from the first question, the fact that it is within a few tenths is encouraging.



This lab demonstrated that certain decisions cannot be made by reason alone. Without intuition, there would be no way to know, for instance, what numbers would prove to be the most or least popular. That said, there is a reason we use people as test subjects as opposed to readings from a number-generating system. There is as much social information to process as there are mathematical calculations. Aside from gaining experience in statistical measures, the experiment was one in human predictability (or lack thereof), and it seems to have served its purpose.