CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)

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Project Number

S1411

Project Title

The Randomness of Humans and Computers

Abstract

Objectives/Goals

The purpose of this project is to determine whether humans or computers can generate a more random sequence of numbers without the use of any materials. Randomness can be applied to almost anything, such as choosing a random number for a game.

Methods/Materials

This project tested randomness in sets of 100 numbers. There were 60 sets generated by humans and 60 sets generated by computers. The computers generated random by using the Math.random() method from Java, which is a commonly known linear congruential generator. The human side was tested by having each subject write down 100 numbers that they believed to be random. The numbers were then ran through a statistical test called the serial correlation analysis. This test checks for any repeating patterns in the numbers. The closer the score was to 0, the better the source generated random.

Results

The results showed that the computer had generated random sequences more efficiently than the humans.

Conclusions/Discussion

The statistical tests were not very accurate because a set of 100 numbers was not large enough to determine if there was a significant correlation. Further research should include testing with bigger sets, or with a certain group of humans. The result of using a diverse group of humans might be different than a concentrated group, such as a certain job like a mathematics professor who often deal with numbers.

Summary Statement

This project will test how well a person can generate randomness without any resources in comparison to a commonly used computer generated algorithm.

Help Received

Science teacher helped make writing more clear.