CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY

Name(s)
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Project Number
J1215

Project Title
Your Password Is Not Secure

Abstract

Objectives/Goals
The purpose of this experiment is to determine what type of password is most #secure#, where type is classified by character set and length.

Methods/Materials
The testing was done by scripting my computer (Dual 2 GHz #PowerPC 970 (2.2)# processors, 2GB DDR SDRAM) to generate and cycle through character strings. Various scripts used different parameters to generate different types of character strings. The parameters were character set and length: 1) lengths varied from one to eight characters, and 2) the character sets were numeric, alpha, alpha + caps, alpha-numeric, alpha-numeric + symbols, and all typeable ASCII characters. The scripts also timed themselves.

Results
The scripts that took the longest time to cycle through used larger character sets, versus only a longer string. For example, all combinations of six numeric characters takes half as much time to cycle through compared to three characters in the alpha-numeric + symbols character set.

Conclusions/Discussion
In password security, the size of the character sets plays a greater role than the length of the password. More secure passwords contain many different types of characters.

Summary Statement
This experiment tests the security of different types of passwords.

Help Received
I received assistance from my parents in the grammatical proofreading of my write-ups.