Swapnika Mallipeddi

The Complexity of the Encoding Algorithms vs. The Ability to Decode It

The objective of my project was to investigate the effect of the complexity of the encoding algorithm, on the ability of the students to decode the encrypted text. From the background research that I performed, I identified that algorithm 2 or Bifid, out of the selected five algorithms (Atbash, Bifid, Letter Numbers, ROT 13 and Skip), would be the most complex to decode due to the critical thinking required.

In order to test this, I first wrote a program using JavaScript and HTML, and used this program to automate the process of encrypting the original plain text. Next, I created a questionnaire containing five encrypted messages, each using a different algorithm. With the help of my teacher, I gave this questionnaire to two Honors Biology and two 'Introduction to Engineering' classes. Total 77 students participated in my project. Each student was given exactly thirty minutes to complete the questionnaire.

85% were able to decode Atbash and Letter Numbers, Rot 13 - 65%, Skip - 23%, but only 4% were able to decode Bifid. As the complexity of the algorithm increases, fewer students were only able to decode.

This proved the hypothesis that Bifid algorithm was the most complex to decode. The knowledge that I gained in programming will help me with my Game Programming class next year. In fact, that is one of the reasons I have chosen this project. In addition, it can also help me in future, as I am planning on having a career in Science/Engineering.