Math 414 Final Project – Steganography

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**Introduction**

Steganography, roughly meaning “covered writing” is a method of hiding a piece of information inside of another (Lo, Topiwala, and Wang, 1998). Take, for example, a letter with a secret message hidden inside. This may simply be that the first letter in every line can be taken and turned into a comprehensible sentence, or it may follow a more complex pattern. The letter itself may be innocuous and have a coherent message without knowing the key, but the interpreted message can be completely different than the plaintext one. Steganography is not limited to a particular medium or file type, and can vary in complexity.

Steganography shares many similarities with its cousin cryptography, but there are a few differences. Primarily, the purpose of the different techniques is usually different. While steganography tries to conceal a message, cryptography focuses on security. Cryptography assumes a bad-actor can intercept whatever encrypted message is being sent and tries to keep them from recovering the actual data. From a functional perspective, cryptography typically secures data by altering the message (image, text, or other data) sent using processes that are difficult to reverse without the proper key (typically some sort of backdoor that is usable only when one has the proper signature). In contrast to this, steganography tends to leave the message relatively unchanged, but instead breaks it up and embeds the chunks of message into the medium. Both of these techniques could be used in tandem to both obscure and secure a secret message being sent.

**Mathematical Background**

**Application**

**Results**

**References**