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Cryptosystems and Hash Functions

**Abstract**

Cryptosystems have a rich history of concealing trying messages with sensitive information. From the days of ancient Italy, under Julius Ceaser reign. The Allies in World War II trying to decipher the Axis communications. To modern day message relaying; our emails, bank account and social media. Cryptosystems surround every business aspect of the world wide web , that requires trust and company integrity.

However, cryptosystems make up a huge part of the eco-system of the web; they are based on theormes in mathematics. Different mathematical techniques are applied to make cryptosystems and to ensure security. This is known as a hash function. In the past, ciphers were to be written with paper and pen. This is no longer the case in the modern world were the power of computing is exponential and growing. Computers, are used in the research and development of new cryptostytems and hash functions.

Mathematica, is a programming language with many keywords that support the research and development of cryptosystems in research. Mathematica, will also give the opportunity to transform data in different formats to expose different ideas in cryptography. Mathematica, also has a repertoire of plotting formats that allows a person to contemplate the nature of numbers used in cryptography.

The conclusion being , to gain experience programming with Mathematica. As well to make the synthesis between the ideas in mathematics and computational sciences. Exploring exclusive programming paradigms available in Mathematica, such as procedural and functional to analyze and research a problem.