The Encryption and Decryption of Messages with an Intelligent Chatbot through the Usage of Polygraphs

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The growing popularity of messaging has made it possible to send personal information to others in an efficient manner. Even though passwords are required to gain access to phones, many apps are not encrypted themselves giving those with malicious intent access to secure information. Developments in encryption are crucial in today's world as even law enforcement officers were given a search warrant to seize and unlock a phone utilizing the users biometrics in Oakland, California as judges ruled it didn't violate the self-incrimination clause. To encrypt messages, a conversation is required which led to the development of a chatbot using natural language processing technology which uses term frequency, inverse document frequency and uses the cosine similarity index to calculate the dot product of both vectors and identify the best response. After a conversation was established, pre-processing and extracting raw data was coded and an algorithm was developed based of a poly-graphic method previously used for government encryption. After creating a three-dimensional cube to house the characters based on a password, time, date, and other factors, I coded algorithms to divide the text into sets of two letters and created functions to replace them based on the cube. Finally, frequency analysis and brute force attacks were tested to decrypt the code and an average of a 3.8% match was found when compared to the original text making decrypting without the password almost impossible. After developing the texting API, this app will be employed in the app store for users to securely communicate with each other. As hacking is becoming more intricate, the need has risen for another layer of security and this algorithm is the perfect solution to safeguard private information.

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