Symmetric Key Encryption Algorithm Using Indian Traditional Musical Scale for Information Security

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Abstract : Cryptography helps in preventing threats to information security by providing various algorithms. This study introduces a new symmetric key encryption algorithm for information security which is linked with the "raagas" which means Indian traditional scale and pattern of music notes. This algorithm takes the plain text as input and starts its encryption process. The algorithm then randomly selects a raaga from the list of raagas that is assumed to be present with both sender and the receiver. The plain text is associated with the thus selected raaga and an intermediate cipher-text is formed as the algorithm converts the plain text characters into other characters, depending upon the rules of the algorithm. This intermediate code or cipher text is arranged in various patterns in three different rounds of encryption performed. The total number of rounds in the algorithm is equal to the multiples of 3. To be more specific, the outcome or output of the sequence of first three rounds is again passed as the input to this sequence of rounds recursively, till the total number of rounds of encryption is performed. The raaga selected by the algorithm and the number of rounds performed will be specified at an arbitrary location in the key, in addition to important information regarding the rounds of encryption, embedded in the key which is known by the sender and interpreted only by the receiver, thereby making the algorithm hack proof. The key can be constructed of any number of bits without any restriction to the size. A software application is also developed to demonstrate this process of encryption, which dynamically takes the plain text as input and readily generates the cipher text as output. Therefore, this algorithm stands as one of the strongest tools for information security.

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