Package 'cryptography'

July 22, 2025

Title Encrypts and Decrypts Text Ciphers

Version 1.0.0

Description Playfair, Four-Square, Scytale, Columnar Transposition and Autokey methods. Further explanation on methods of classical cryptography can be found at Wikipedia; (<https://en.wikipedia.org/wiki/Classical_cipher>).

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Encoding UTF-8

RoxygenNote 7.2.3

Suggests knitr, rmarkdown, testthat (>= 3.0.0)

Config/testthat/edition 3

URL https://github.com/PiarasFahey/cryptography

BugReports https://github.com/PiarasFahey/cryptography/issues

Imports DescTools

VignetteBuilder knitr

NeedsCompilation no

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Repository CRAN

Date/Publication 2023-07-08 09:40:02 UTC

Contents

autokey *Autokey Cipher*

Description

This can be used to encrypt or decrypt an Autokey cipher. The Autokey Cipher is derived from the Vigenere Cipher, in which the key and plaintext are bound to generate a new encryption key for the Vigenere method. This Vigenere method uses only letters and numbers, as such any other characters used as inputs are not used in the cipher.

Usage

```
autokey(message, key, encrypt = TRUE)
```

Arguments

message	A character vector of plaintext to be encrypted or ciphertext to be decrypted
key	A character vector to be used as the encryption key
encrypt	(Default: TRUE) TRUE will encrypt the message, while FALSE will decrypt the message.

Value

A character vector of either plaintext that has been encrypted or ciphertext that has been decrypted.

Examples

```
autokey("VerySecretMessage", "Hack", encrypt = TRUE)
autokey("c4JYn8JfwNoLMbmAM", "Hack", encrypt = FALSE)
autokey("Very $%^&SecretMes(*sag£$%e", "Hack", encrypt = TRUE)
```

columnar_transposition *Columnar Transposition Cipher*

Description

This can be used to encrypt or decrypt a Columnar Transposition cipher. This method is a development of the Scytale cipher that rearranges the encryption matrix used in the Scytale method by the alphabetical ordering of the encryption key.

Usage

```
columnar_transposition(message, key, encrypt = TRUE)
```

Arguments

message	A character vector
key	A character vector composed only of a-zA-Z letters used as the encryption key
encrypt	(Default: TRUE) TRUE will encrypt the message, while FALSE will decrypt the message.

Value

A character vector of either plaintext that has been encrypted or ciphertext that has been decrypted using the columnar transposition cryptographic method.

Examples

```
columnar_transposition("Hidden message", "hack", encrypt = TRUE)
columnar_transposition("insed sHeegdma", "hack", encrypt = FALSE)
```

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four_square *Four-Square Cipher*

Description

This can be used to encrypt or decrypt a Four-Square cipher. The Four-Square cipher is a polygraphic substitution cipher that maps digrams of text to two encryption matrices through their position in a square alphabet matrix.

Usage

```
four_square(message, key1, key2, encrypt = TRUE)
```

Arguments

message	a character vector used as the plaintext to be encrypted or the ciphertext to be decrypted
key1	a character vector used as the encryption key for the first encryption matrix
key2	a character vector used as the encryption key for the second encryption matrix
encrypt	(Default: TRUE) TRUE will encrypt the message, while FALSE will decrypt the message.

Value

A character vector of either plaintext that has been encrypted or ciphertext that has been decrypted.

Examples

```
four_square("THEPRISONERSHAVEESCAPED", "HACK", "SAFE", encrypt = TRUE)
four_square("SHBOTDTMPFSQDFZSCUHFPBCY", "HACK", "SAFE", encrypt = FALSE)
```

playfair *Playfair Cipher*

Description

This can be used to encrypt or decrypt a Playfair cipher. A Playfair cipher is a polygraphic substitution cipher that maps digrams of text to other elements of an encryption matrix which is generated by a keyword.

Usage

```
playfair(message, key, encrypt = TRUE)
```

Arguments

message	a character vector to be encrypted or decrypted
key	a character vector to be used as the encryption key
encrypt	(Default: TRUE) TRUE will encrypt the message, while FALSE will decrypt the message.

Value

A character vector of either plaintext that has been encrypted or ciphertext that has been decrypted.

Examples

```
playfair("SUPERSECRETMESSAGE", "safety", encrypt = TRUE)
playfair("YSQFNTFDQTGRTAAFDT", "safety", encrypt = FALSE)
playfair("$%^Att&(a09Ck___He86re", "safety", encrypt = TRUE)
playfair("FSSFKPLSQT", "safety", encrypt = FALSE)
```

scytale *Scytale cipher*

Description

This can be used to encrypt and decrypt a Scytale cipher. A Scytale cipher is an ancient form of cryptography that wraps a message (typically written on a long thing piece of paper) around a device to create a matrix with a fixed number of columns that transposes the text.

Usage

```
scytale(message, col, encrypt = TRUE)
```

Arguments

message	A character vector
col	A positive integer, this determines the number of columns in the encryption matrix. 1 column will have no effect
encrypt	(Default: TRUE) TRUE will encrypt the message, while FALSE will decrypt the message.

Value

A character vector of either plaintext that has been encrypted or ciphertext that has been decrypted.

Examples

```
scytale("very super secret message!", col = 4, encrypt = TRUE)
scytale("v eetseesrc s!ru rmaypseeg", col = 4, encrypt = FALSE)
```

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