**ENCRYPTION PACKAGE IN PYTHON:**

As Data Science students we are currently studying data Privacy, security and Professional Ethics.

We have therefore chosen to undertake a project which uses python programming to encrypt any text.

We’ve devised methods of encryption from the very simplistic to the more traditional and complex.

**Context:**

Scenario – Alice wants to send a message (plaintext P) to Bob. – The communication channel is insecure and can be eavesdropped – If Alice and Bob have previously agreed on a symmetric encryption scheme and a secret key K (python folder in this case containing the encryptor package), the message can be sent encrypted (ciphertext ).

**Encryption methods**:

1. Mirror:

The Mirror encryption is just basically reversing full sentences in a text.

1. Mirror squared:

Same as above whereby the difference is that in addition to reversing the sentences each word is also reversed within the text.

1. Substitution:

This substitution cipher is very simple, and easy to break: Replace each letter with the one “three over” in the alphabet.

1. Transposition:

Rearrange letters in plaintext to produce ciphertext

Example (Rail-Fence Cipher) – Plaintext is HELLO WORLD – Rearrange as HLOOL ELWRD – Ciphertext is HLOOL ELWRD.

Note, in this module we did not specifically tackle decryption as it can be a separate package or module , however we have written the code in a manner that decryption is possible. E.g: setting a seed when using random function so can always work backwards when decrypting.

**Python packages structure**: