Input Type for Each Cipher Help :-

1) Shift Cipher :-

$$key = \{x : 1 \leq x < 26 \ \& \ x \in \mathbb{N}\}$$

Notice that key can be any integer between 1 and 25, including 1 and 25.

2) Caesar Cipher :-

No key required, since Caesar Cipher is a special case of shift Cipher where shift $k = 3$.

3) Monoalphabetic Cipher :-

No key required, we map some alphabets to other alphabets randomly, hence choosing our own key while hard coding the values.

4) Polyalphabetic Cipher :-

key is any string with only alphabets shorter than the plaintext.

$K = "abcdef..."$

$S.t.\ len(k) \leq len(p)$,

where p is plaintext., $k \in \{a, b, c, \ldots, z, A, B, C, D, \ldots, Z\}$ for all $k \in K$

5) Playfair Cipher :-

key is any string of any length with only alphabets.

$K = "abc..."$, $k \in \{a, b, c, \ldots, z, A, B, C, \ldots Z\}$ for all $k \in K$

6) One-Time-Pad :-

key is not required. Each time the app is reopened, a new key is randomly generated.

7) Hill cipher :-

Key needs to be in the format

eg $k = "1,2,3,4"$, $\longrightarrow$ $k \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$

This is converted to an n-dimensional square matrix.

$n = 1, 2, \ldots, n,$

$\det k \mid_{n \times n} \neq 0$ is the condition which needs to be satisfied, and k inverse must exist modulo 26.

8) Rail-fence Cipher :-

Key is the railfence depth. It can be any positive Natural numbers

$key = 2.$

$K = \{x : x \in \mathbb{N} \ \& \ x \geq 1\}$

9) Keyed Columnar and Columnar :-

Key here is a list of numbers of size k.

eg $key = "3,1,4,5,2"$.

$key = \{p : p \in \mathbb{N} \ \& \ p \geq 1, p \leq n\}$, Can be in any order