PYTHON EXERCISES

challenge 1: **Cryptography Task**

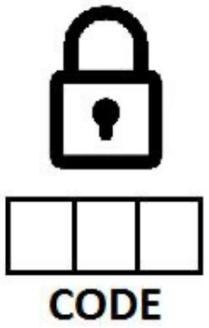
- In cryptography, a Caesar cipher is a very simple encryption techniques in which each letter in the plain text is replaced by a letter some fixed number of positions down the alphabet. For example, with a shift of 3, A would be replaced by D, B would become E, and so on. The method is named after Julius Caesar, who used it to communicate with his generals. ROT-13 ("rotate by 13 places") is a widely used example of a Caesar cipher where the shift is 13. In Python, the key for ROT-13 may be represented by means of the following dictionary:

```
code = {'a':'n', 'b':'o', 'c':'p', 'd':'q', 'e':'r', 'f':'s', 'g':'t', 'h':'u',
'i':'v', 'j':'w', 'k':'x', 'l':'y', 'm':'z', 'n':'a', 'o':'b', 'p':'c',
'q':'d', 'r':'e', 's':'f', 't':'g', 'u':'h', 'v':'i', 'w':'j', 'x':'k',
'y':'l', 'z':'m', 'A':'N', 'B':'O', 'C':'P', 'D':'Q', 'E':'R', 'F':'S',
'G':'T', 'H':'U', 'I':'V', 'J':'W', 'K':'X', 'L':'Y', 'M':'Z', 'N':'A',
'O':'B', 'P':'C', 'Q':'D', 'R':'E', 'S':'F', 'T':'G', 'U':'H', 'V':'I',
'W':'J', 'X':'K', 'Y':'L', 'Z':'M'}
```

- Your task in this exercise is to implement an encoder/decoder of ROT-13. Once you're done, you will be able to read the following secret message: BZT! guvf vf fb obevat.

Challenge 2: **Crack the Lock Code**

- You need to crack a 3 digit code based on these hints:
  - 682 – one number is correct and in the correct position
  - 645 – one number is correct but in the wrong position
  - 206 – two numbers are correct but in the wrong positions
  - 738 – nothing is correct
  - 780 – one number is correct but in the wrong position.



- You need just pencil and paper to crack the code. But if your program can do it, it will be even better.
  - Your task in this exercise is to implement