BONUS QUESTION:
[Jupyter notebook stopped working]

Question 1: Encoding

```
alphabet = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l', 'm', 'n', 'o', 'p', 'q', 'r', 's', 't',
'u', 'v', 'w', 'x', 'y', 'z','a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j','k', 'l', 'm', 'n', 'o', 'p', 'q', 'r', 's', 't',
'u', 'v', 'w', 'x', 'y', 'z']


text = input("Type your message:\n").lower()
shift = 3

#Encrypt function
def encrypt(text,shift):
        encoded=""
        for letter in text:
        pos=alphabet.index(letter)
        newpos=pos+shift
        newletter=alphabet[newpos]
        encoded+=newletter
        print("The encoded text is: ",encoded)



#Caesar function
def caesar(text,shift):
encrypt(text,shift)


#Finding encoded and decoded
caesar(text,shift)

#Restart
shdcontinue=True
while shdcontinue:
        text = input("Type your message:\n").lower()
        shift = 3
        caesar(text,shift)
        x = input("Continue? [y/n]")
        if x == 'n':
        shdcontinue=False
```

Question 2: PAN Number

```
#importing re, which is used to check if a string contains a particular pattern
import re

#Creating a function to check validity
def valid(pan):
	check = re.compile("[A-Z]{5}\d{4}[A-Z]{1}") #Checking for 5 Alphabets, 4 Digits and 1 Alphabet
	return check.match(pan)


pan = input("Enter your PAN Number: ")
if valid(pan):
	print("The PAN Number is valid")
else:
	print("The PAN Number is invalid")
```