A Project Report on

Vignere Cipher

Submitted by

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Code :-

```
# -*- coding: utf-8 -*-

# import tkinter module
from tkinter import *
from random import *
import tkinter as tk

# creating window object
window = Tk()

# defining size of window
window.geometry("800x400")

# setting up the title of window
window.title("Message Encryption and Decryption")

## setting the background color

window.configure(bg = 'dim gray')



rand = StringVar()
Msg = StringVar()
key = StringVar()
```

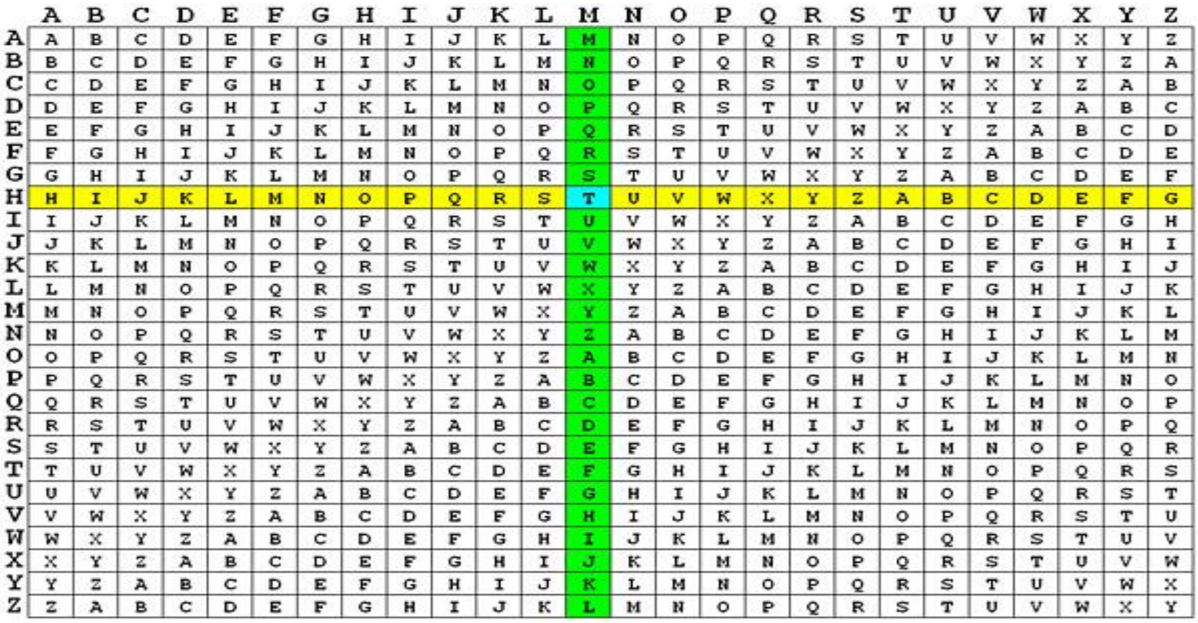
```
mode = StringVar()
Result = StringVar()

# exit function
def qExit():
    window.destroy()

# Function to reset the window
def Reset():
    rand.set("")
    Msg.set("")
    key.set("")
    mode.set("")
    Result.set("")



# adding entries
entry_the_text = Entry(window, width = 30, textvariable = Msg)
entry_the_text.place(x = 200, y = 160)

entry_key = Entry(window, width = 30, textvariable = key)
entry_key.place(x = 200, y = 200)

entry_ED = Entry(window, width = 30, textvariable = mode)
entry_ED.place(x = 400, y = 240)
```

```
entry_the_converted_text = Entry(window, width = 30, textvariable = Result)
entry_the_converted_text.place(x = 350, y = 360)



# labels
Label(window,text= 'VIGNERE CIPHER', bg = 'dim gray', fg = 'navy blue', font=('bold', 30)).place(x = 225, y = 30)
Label(window, text = 'Enter the Text:', bg = 'dim gray', fg = 'white', font=('bold', 15)).place(x = 50, y = 160)
Label(window, text = 'Key:',bg = 'dim gray', fg = 'white', font = ('bold', 15)).place(x = 50, y = 200)
Label(window, text = 'e for Encrypt / d for Decrypt',bg = 'dim gray', fg = 'white', font=('bold', 15)).place(x = 50, y = 240)
Label(window, text = 'The Converted Text is:',bg = 'dim gray', fg = 'white', font = ('bold', 15)).place(x = 50, y = 360)

# Vigen�re cipher
import base64

# Function to encode
def encode(key, clear):
    enc = []
    for i in range(len(clear)):
        key_c = key[i % len(key)]
        enc_c = chr((ord(clear[i]) +
                    ord(key_c)) % 256)

        enc.append(enc_c)

    return base64.urlsafe_b64encode("".join(enc).encode()).decode()

# Function to decode
def decode(key, enc):
    dec = []

    enc = base64.urlsafe_b64decode(enc).decode()
    for i in range(len(enc)):
        key_c = key[i % len(key)]
        dec_c = chr((256 + ord(enc[i]) -
                        ord(key_c)) % 256)

        dec.append(dec_c)
    return "".join(dec)



def Ref():
    print("Message= ", (Msg.get()))
    clear = Msg.get()
    k = key.get()
    m = mode.get()

    if (m == 'e'):
        Result.set(encode(k, clear))
    else:
        Result.set(decode(k, clear))
## adding buttons

btn_Show_message  = Button( fg = "black",
                        font = ('arial', 16, 'bold'), width = 12,
                    text = "Show Message", bg = "green", command =
Ref).place(x = 50, y = 280 )



btn_reset = Button( fg = "black",
                        font = ('arial', 16, 'bold'), width = 12,
                    text = "Reset", bg = "yellow", command = Reset).place(x
= 280, y = 280 )
```

```
btn_exit = Button( fg = "black",
                   font = ('arial', 16, 'bold'), width = 12,
                 text = "Exit", bg = "red", command = qExit).place(x =
500, y = 280)


# keeps window alive
   window.mainloop()
```

Procedure:-

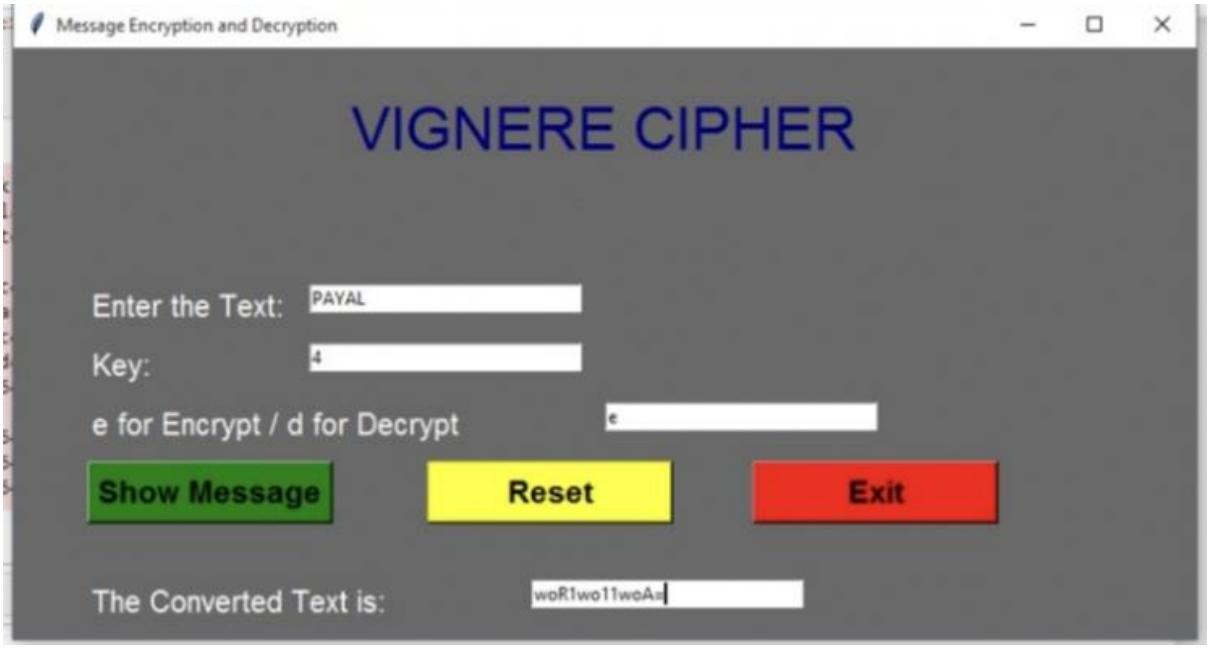
The Vigenère cipher is a method of encrypting alphabetic text by using a series of interwoven Caesar ciphers, based on the letters of a keyword. It employs a form of polyalphabetic substitution. To encrypt, pick a letter in the plaintext and its corresponding letter in the keyword, use the keyword letter and the plaintext letter as the row index and column index, respectively, and the entry at the row-column intersection is the letter in the ciphertext. For example, the first letter in the plaintext is **M** and its corresponding keyword letter is **H**. This means that the row of **H** and the column of **M** are used, and the entry **T** at the intersection is the encrypted result.



	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	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
B	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
C	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
D	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
E	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
F	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
G	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
H	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
I	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
J	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
K	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
L	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
M	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
N	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
O	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
P	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
Q	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
R	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
S	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
T	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
U	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
V	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
W	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
X	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
Y	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
Z	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

To decrypt, pick a letter in the ciphertext and its corresponding letter in the keyword, use the keyword letter to find the corresponding row, and the letter heading of the column that contains the ciphertext letter is the needed plaintext letter. For example, to decrypt the first letter **T** in the ciphertext, we find the corresponding letter **H** in the keyword. Then, the row of **H** is used to find the corresponding letter **T** and the column that contains **T** provides the plaintext letter **M** (see the above figures). Consider the fifth letter **P** in the ciphertext. This letter corresponds to the keyword letter **H** and row **H** is used to find **P**. Since **P** is on column **I**, the corresponding plaintext letter is **I**. In this project we created a window were we can encrypt and decrypt the given message/ text using vignere cipher. First we created a window object then we defined the size of window, after defining we set up the title of window by also setting the background colour , then we wrote a code for exit function along with the function to reset the window. Then entries were added by adding text ,key , converted text ,then labels were introduced along with the function to encode and decode the given text msg finally we designed the result box. All this functions were wrote using python.

Output:-



Enter the Text: PAYAL

Key: 4

e for Encrypt / d for Decrypt e

The Converted Text is: woR1wo11woA=