*# Latest Code*

import tkinter

from tkinter import filedialog

import numpy as np

from tkinter import \*

def encrypt\_word(word):

key = np.array([[3, 15], [4, 5]]) *# key matrix*

l1 = []

for x in word: *# storing ascii values of word in list*

x = x.lower()

if x == "z":

val = 0

else:

val = ord(x) - ord("`")

l1.append(val)

l3 = []

if (len(l1) % 2) != 0: *# adding last letter if odd number of letters*

a = l1[-1]

l1.append(a)

while (len(l1) != 0): *# encrypt pairs in list*

col\_mat = np.array([[l1[0]], [l1[1]]])

col\_mat = np.dot(key, col\_mat)

col\_mat = np.mod(col\_mat, 26)

l3.append(col\_mat[0][0]) *# add encrypted values to list*

l3.append(col\_mat[1][0])

l1.pop(0)

l1.pop(0)

l4 = []

for x in l3: *# convert values into letters*

y = chr(x + 96)

l4.append(y)

word = ("".join(l4)) *# merge list to form word*

return word *# return encrypted word*

*##########################################*

def decrypt\_word(word):

list1 = []

key\_inverse = [[23, 9], [18, 19]]

for x in word: *# storing ascii values of word in list*

x = x.lower()

if x == "z":

val = 0

else:

val = ord(x) - ord("`")

list1.append(val)

list2 = []

if (len(list1) % 2) != 0: *# adding last letter if odd number of letters*

a = list1[-1]

list1.append(a)

while (len(list1) != 0): *# decrypt pairs in list*

col\_mat = np.array([[list1[0]], [list1[1]]])

col\_mat = np.dot(key\_inverse, col\_mat)

col\_mat = np.mod(col\_mat, 26)

list2.append(col\_mat[0][0]) *# add decrypted values to list*

list2.append(col\_mat[1][0])

list1.pop(0)

list1.pop(0)

list3 = []

for x in list2: *# convert values into letters*

y = chr(x + 96)

list3.append(y)

word = ("".join(list3)) *# merge list to form word*

return word *# return decrypted word*

*##########################################*

def encrypt\_string(string):

list1=string.split(" ")

for i in range(len(list1)):

if ('.' or ','or '!') in list1[i]:

char=list1[i][-1]

x = list1[i][:-1]

x = encrypt\_word(x)

list1[i] = x +char

else:

list1[i] = encrypt\_word(list1[i])

string=" ".join(list1)

return(string)

*##########################################*

def decrypt\_string(string):

list1 = string.split(" ")

for i in range(len(list1)):

if ('.' or ',' or '!') in list1[i]:

char = list1[i][-1]

x = list1[i][:-1]

x = decrypt\_word(x)

list1[i] = x + char

else:

list1[i] = decrypt\_word(list1[i])

for i in range(len(list1)):

x=list1[i][-2:]

if x[0]==x[-1]:

list1[i] = list1[i][:-1]

string = " ".join(list1)

return (string)

*##########################################*

def raise\_frame(frame, f\_prev):

frame.pack(fill='both', expand=True)

f\_prev.forget()

*##########################################*

def encrypt\_file():

file\_name = filedialog.askopenfilename()

file = open(file\_name, "r")

list1 = []

list2 = []

for u in file:

list1.append(u)

for u in list1:

u = u.split(' ')

list2.append(u)

for i in range(len(list2)):

if '\n' in list2[i][-1]:

list2[i][-1] = list2[i][-1][:-1]

for i in range(len(list2)):

for ind in range(len(list2[i])):

if ('.' or ',' or '!') in list2[i][ind]:

char = list2[i][ind][-1]

x = list2[i][ind][:-1]

x = encrypt\_word(x)

list2[i][ind] = x + char

else:

list2[i][ind] = encrypt\_word(list2[i][ind])

for i in range(len(list2)):

list2[i][-1] = list2[i][-1] + "\n"

for i in range(len(list2)):

list2[i] = " ".join(list2[i])

if '.' in file\_name:

index = file\_name.index('.')

file\_name = file\_name[:index]

with open(file\_name + "\_encrypted.txt", "w") as f:

for z in range(len(list2)):

f.write(list2[z])

*##########################################*

def decrypt\_file():

file\_name = filedialog.askopenfilename()

file = open(file\_name, "r")

list1 = []

list2 = []

for u in file:

list1.append(u)

for u in list1:

u = u.split(' ')

list2.append(u)

for i in range(len(list2)):

if '\n' in list2[i][-1]:

list2[i][-1] = list2[i][-1][:-1]

for i in range(len(list2)):

for ind in range(len(list2[i])):

if ('.' or ',' or '!') in list2[i][ind]:

char = list2[i][ind][-1]

x = list2[i][ind][:-1]

x = decrypt\_word(x)

list2[i][ind] = x + char

else:

list2[i][ind] = decrypt\_word(list2[i][ind])

for i in range(len(list2)):

for ind in range(len(list2[i])):

x = list2[i][ind][-2:]

if (len(x)>1):

if x[0] == x[-1]:

list2[i][ind] = list2[i][ind][:-1]

for i in range(len(list2)):

list2[i][-1] = list2[i][-1] + "\n"

for i in range(len(list2)):

list2[i] = " ".join(list2[i])

if '.' in file\_name:

index = file\_name.index('.')

file\_name = file\_name[:index]

with open(file\_name + "\_decrypted.txt", "w") as f:

for z in range(len(list2)):

f.write(list2[z])

*##########################################*

def main\_frame():

f = Frame(root, bg="misty rose", height=750, width=900)

f.pack(fill="both", expand=True)

string\_op = Button(f, text="Enter a String", height=2, width=25, bd=5, bg="white",

font=('Lucida Bright', 20, 'bold'), command=lambda: raise\_frame(string\_frame(), f))

file\_op = Button(f, text="Select a file", height=2, width=25, bd=5, bg="white",

font=('Lucida Bright', 20, 'bold'), command=lambda: raise\_frame(file\_frame(), f))

title1 = Label(f, text="CRYPTOGRAPHY", font=('Snap ITC', 40), bg="IndianRed1")

title1.place(relx=100, rely=100, anchor="center")

string\_op.grid(row=3, column=2, padx=200, pady=55)

file\_op.grid(row=4, column=2, padx=200, pady=50)

title1.grid(row=0, column=2, padx=200, pady=30)

return f

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def string\_frame():

frame\_string\_op = Frame(root, height=1000, width=1000, bg="AntiqueWhite1")

text\_ = StringVar()

textBox = Entry(frame\_string\_op, textvariable=text\_, bg="white", bd=5, font=('Lucida Bright', 30, 'bold'))

EncryptButton = Button(frame\_string\_op, text="ENCRYPT", width=18, height=2, bd=5, bg="green3",

font=('Lucida Bright', 18, 'bold'),

command=lambda: encrypt\_label())

DecryptButton = Button(frame\_string\_op, text="DECRYPT", width=18, height=2, bd=5, bg="green3",

font=('Century Schoolbook', 18, 'bold'),

command=lambda: decrypt\_label())

ExitButton = Button(frame\_string\_op, text="EXIT", bg="red", height=2, width=10, bd=5,

font=('Century Schoolbook', 18, 'bold'),

command=lambda: raise\_frame(main\_frame(), frame\_string\_op))

msg1 = Label(frame\_string\_op, text="Enter a string :", font=('Lucida Bright', 25, 'bold'), bg="AntiqueWhite1")

msg1.grid(row=0, column=0, padx=5, pady=10)

EncryptButton.grid(row=2, column=0, padx=30, pady=30)

DecryptButton.grid(row=2, column=1, padx=10, pady=30)

ExitButton.grid(row=6, column=1, padx=100, pady=50)

textBox.grid(row=0, column=1, padx=20, pady=50)

def encrypt\_label():

inputText = text\_.get()

text\_encrypt = encrypt\_string(inputText)

text = Text(frame\_string\_op, height=1, width=18, bg="white", bd=5, font=("Lucida Bright", 30, 'bold'),

wrap=WORD)

msg2 = Label(frame\_string\_op, text="Encrypted String :", font=('Lucida Bright', 25, 'bold'), bg="AntiqueWhite1")

text.insert(INSERT, text\_encrypt)

text.grid(row=1, column=1, padx=20, pady=30, ipadx=10, ipady=2)

msg2.grid(row=1, column=0, padx=5, pady=10)

def decrypt\_label():

inputText = text\_.get()

text\_decrypt = decrypt\_string(inputText)

text = Text(frame\_string\_op, height=1, width=18, bg="white", bd=5, font=("Lucida Bright", 30, 'bold'),

wrap=WORD)

msg2 = Label(frame\_string\_op, text="Decrypted String :", font=("Lucida Bright", 25, 'bold'), bg="AntiqueWhite1")

text.insert(INSERT, text\_decrypt)

text.grid(row=1, column=1, padx=20, pady=30, ipadx=10, ipady=2)

msg2.grid(row=1, column=0, padx=5, pady=10)

return frame\_string\_op

*##########################################*

def file\_frame():

frame\_file\_op = Frame(root, bg="peach puff", height=500, width=500)

button\_encrypt = Button(frame\_file\_op, text="ENCRYPT", bg="white", height=2, width=20, bd=5,

font=('Lucida Bright', 20, 'bold'),

command=lambda: encrypt\_file()) *# command = lambda:encrypt\_file())*

button\_decrypt = Button(frame\_file\_op, text="DECRYPT", bg="white", height=2, width=25, bd=5,

font=('Lucida Bright', 20, 'bold'),

command=lambda: decrypt\_file()) *# command = lambda:decrypt\_file())*

butt\_exit = Button(frame\_file\_op, text="EXIT", bg="red", height=2, width=15, bd=5,

font=('Lucida Bright', 20, 'bold'),

command=lambda: raise\_frame(main\_frame(), frame\_file\_op))

title2 = Label(frame\_file\_op, text="Select a file to :", font=('Lucida Bright ', 30, 'bold'), bg="peach puff")

title2.place(relx=100, rely=100, anchor="center")

button\_encrypt.grid(row=3, column=2, padx=200, pady=40)

button\_decrypt.grid(row=4, column=2, padx=200, pady=40)

butt\_exit.grid(row=5, column=2, padx=200, pady=40)

title2.grid(row=0, column=2, padx=300, pady=30)

return frame\_file\_op

*##########################################*

root = tkinter.Tk()

root.title("Cryptography")

root.geometry("900x700")

root.resizable(False, False)

main\_frame()

root.mainloop()