Exp: 1C RAIL FENCE CIPHER
Date: 10-02-2024

AIM:

To write a python program implementing rail fence cipher algorithm

ALGORITHM:

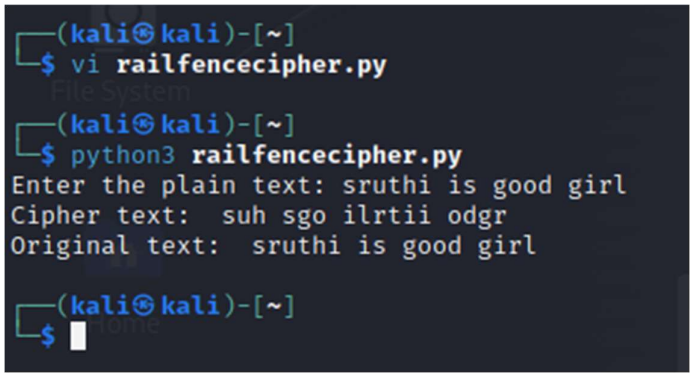
1. Get the plain text from the user
2. Set the key as 2 by default.
3. Arrange the plaintext in two rows in a zig-zag manner.
4. Derive the cipher text by adding the first row of arrangement with the second row of arrangement.
5. Get the original text by using the cipher text and arranging it in zigzag manner and repeat the same process.

PROGRAM:

```
def encryptRailFence(text, key):
	rail = [['\n' for i in range(len(text))]for j in range(key)]
	dir_down = False
	row, col = 0, 0
	for i in range(len(text)):
		if (row == 0) or (row == key - 1):
			dir_down = not dir_down
		rail[row][col] = text[i]
		col += 1
		if dir_down:
			row += 1
		else:
			row -= 1
	result = []
	for i in range(key):
		for j in range(len(text)):
			if rail[i][j] != '\n':
				result.append(rail[i][j])
	return("" . join(result))
def decryptRailFence(cipher, key):
	rail = [['\n' for i in range(len(cipher))]for j in range(key)]
	dir_down = None
	row, col = 0, 0
	for i in range(len(cipher)):
		if row == 0:
			dir_down = True
		if row == key - 1:
			dir_down = False
		rail[row][col] = '*'
		col += 1
		if dir_down:
			row += 1
		else:
			row -= 1
	index = 0
	for i in range(key):
		for j in range(len(cipher)):
```

```
                        if ((rail[i][j] == '*') and
                        (index < len(cipher))):
                                rail[i][j] = cipher[index]
                                index += 1
        result = []
        row, col = 0, 0
        for i in range(len(cipher)):
                if row == 0:
                        dir_down = True
                if row == key-1:
                        dir_down = False
                if (rail[row][col] != '*'):
                        result.append(rail[row][col])
                        col += 1
                if dir_down:
                        row += 1
                else:
                        row -= 1
        return("".join(result))
if __name__ == "__main__":
        pt=input("Enter plain text: ")
        ct=encryptRailFence(pt,2)
        print(ct)
        print(decryptRailFence(ct, 2))
```

OUTPUT:



RESULT:

Thus the python program for rail fence cipher is implemented successfully.