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.

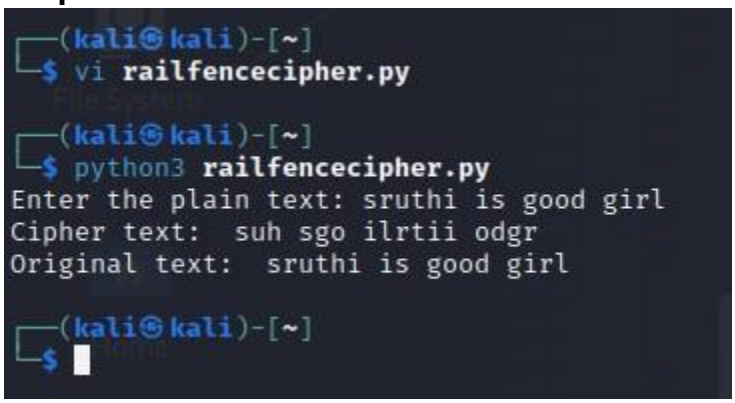
Program:

```
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.