

EXPERIMENT- 05: RAIL FENCE TECHNIQUE

PROGRAM:

```
#include <stdio.h>
#include <string.h>

void encrypt(char *text, int key) {
    int len = strlen(text);
    char rail[key][len];
    for (int i = 0; i < key; i++)
        for (int j = 0; j < len; j++)
            rail[i][j] = '\n';

    int row = 0, col = 0;
    int dir_down = 0;

    for (int i = 0; i < len; i++) {
        if (row == 0)
            dir_down = 1;
        if (row == key - 1)
            dir_down = 0;

        rail[row][col++] = text[i];

        dir_down ? row++ : row--;
    }

    for (int i = 0; i < key; i++)
        for (int j = 0; j < len; j++)
            if (rail[i][j] != '\n')
                printf("%c", rail[i][j]);
    }

void decrypt(char *cipher, int key) {
    int len = strlen(cipher);
    char rail[key][len];
    for (int i = 0; i < key; i++)
        for (int j = 0; j < len; j++)
            rail[i][j] = '\n';

    int row = 0, col = 0;
    int dir_down = 0;

    for (int i = 0; i < len; i++) {
        if (row == 0)
            dir_down = 1;
        if (row == key - 1)
            dir_down = 0;

        rail[row][col++] = '*';

        dir_down ? row++ : row--;
    }

    int index = 0;
    for (int i = 0; i < key; i++)
        for (int j = 0; j < len; j++)
            if ((rail[i][j] == '*') && (index < len))
                rail[i][j] = cipher[index++];
}
```

```

row = 0, col = 0;
dir_down = 0;

for (int i = 0; i < len; i++) {
    if (row == 0)
        dir_down = 1;
    if (row == key - 1)
        dir_down = 0;

    if (rail[row][col] != '\n')
        printf("%c", rail[row][col++]);

    dir_down ? row++ : row--;
}
}

int main() {
    int choice, key;
    char text[100];

    printf("Select 1 for Encryption or 2 for Decryption: ");
    scanf("%d", &choice);
    printf("Enter the key: ");
    scanf("%d", &key);
    printf("Enter the text: ");
    scanf("%s", text);

    if (choice == 1) {
        encrypt(text, key);
    } else if (choice == 2) {
        decrypt(text, key);
    } else {
        printf("Invalid choice.\n");
    }

    return 0;
}

```

output:

Output

```

Select 1 for Encryption or 2 for Decryption: 1
Enter the key: 2
Enter the text: SOMASEKHARREDDY
SMSKARDY0AEHRED

```

```

=== Code Execution Successful ===

```