1. To implement the Railfence transposition technique using C program.

**Program:**

#include <stdio.h>

#include <string.h>

void encrypt(char \*plaintext, int key) {

int i, j, k;

int plaintextLen = strlen(plaintext);

char ciphertext[plaintextLen];

for (i = 0, k = 0; i < key; i++) {

for (j = i; j < plaintextLen; j += key) {

ciphertext[k++] = plaintext[j];

}

}

ciphertext[k] = '\0';

strcpy(plaintext, ciphertext);

}

void decrypt(char \*ciphertext, int key) {

int i, j, k;

int ciphertextLen = strlen(ciphertext);

int rows = key, cols = (ciphertextLen + key - 1) / key;

char plaintext[ciphertextLen];

for (i = 0, k = 0; k < ciphertextLen; i++) {

for (j = i; j < ciphertextLen; j += rows) {

plaintext[j] = (k < ciphertextLen) ? ciphertext[k++] : '\0';

}

}

strcpy(ciphertext, plaintext);

}

int main() {

char plaintext[100];

int key;

printf("Enter plaintext: ");

scanf("%s", plaintext);

printf("Enter key: ");

scanf("%d", &key);

encrypt(plaintext, key);

printf("Encrypted Text: %s\n", plaintext);

decrypt(plaintext, key);

printf("Decrypted Text: %s\n", plaintext);

return 0;

}

