**Ex.No:2a RAIL FENCE CIPHER TRANSPOSITIONTECHNIQUE**

**Date:**

**Aim:**

To implement a program for encryption and decryption using rail fence transposition technique.

**Algorithm:**

1. In the rail fence cipher, the plaintext is written downwards and diagonally on successive "rails" of an imaginary fence, then moving up when we reach the bottom rail
2. When we reach the top rail, the message is written downwards again until the whole plaintext is written out.
3. The message is then read off in rows.

**Program:**

packagerailfencecipher;

classrailfenceCipherHelper {

int depth;

String encode(String msg, int depth) throws Exception {

int r = depth;

int l = msg.length();

int c = l / depth;

int k = 0;

char mat[][] = new char[r][c];

String enc = "";

for (inti = 0; i< c; i++) {

for (int j = 0; j < r; j++) {

if (k != l) {

mat[j][i] = msg.charAt(k++);

} else {

mat[j][i] = 'X';

}

}

}

for (inti = 0; i< r; i++) {

for (int j = 0; j < c; j++) {

enc += mat[i][j];

}

}

returnenc;

}

String decode(String encmsg, int depth) throws Exception {

int r = depth;

int l = encmsg.length();

int c = l / depth;

int k = 0;

char mat[][] = new char[r][c];

String dec = "";

for (inti = 0; i< r; i++) {

for (int j = 0; j < c; j++) {

mat[i][j] = encmsg.charAt(k++);

}

}

for (inti = 0; i< c; i++) {

for (int j = 0; j < r; j++) {

dec += mat[j][i];

}

}

returndec;

}

}

public class railfenceCipher {

public static void main(String[] args) throws java.lang.Exception {

railfenceCipherHelperrf = new railfenceCipherHelper();

String msg, enc, dec;

msg = "Velammal College, Madurai";

int depth = 2;

enc = rf.encode(msg, depth);

dec = rf.decode(enc, depth);

System.out.println("Simulating Railfence Cipher\n-------------------------");

System.out.println("Input Message : " + msg);

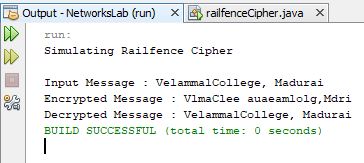
System.out.println("Encrypted Message : " + enc);

System.out.printf("Decrypted Message : " + dec);

}

}

**Output:**



**Result:**

Thus the java program for Rail Fence Transposition Technique has been implemented and the output verified successfully.

**Ex.No:2b ROW AND COLUMN TRANSFORMATIONTECHNIQUE**

**Date:**

**Aim:**

To implement a program for encryption and decryption by using row and column transformation technique.

**Algorithm:**

1. Consider the plain text hello world, and let us apply the simple columnar transposition technique as shown below

h e l l

o w o r

ld

1. The plain text characters are placed horizontally and the cipher text is created with vertical format as: holewdlolr.
2. Now, the receiver has to use the same table to decrypt the cipher text to plain text.

**Program:**

packagetranscipher;

importjava.util.\*;

classTransCipher {

public static void main(String args[]) {

Scanner sc = new Scanner(System.in);

System.out.println("Enter the plain text");

String pl = sc.nextLine();

sc.close();

String s = "";

int start = 0;

for (inti = 0; i<pl.length(); i++) {

if (pl.charAt(i) == ' ') {

s = s + pl.substring(start, i);

start = i + 1;

}

}

s = s + pl.substring(start);

System.out.print(s);

System.out.println();

// end of space deletion

int k = s.length();

int l = 0;

int col = 4;

int row = s.length() / col;

charch[][] = new char[row][col];

for (inti = 0; i< row; i++) {

for (int j = 0; j < col; j++) {

if (l < k) {

ch[i][j] = s.charAt(l);

l++;

} else {

ch[i][j] = '#';

}

}

}

// arranged in matrix

char trans[][] = new char[col][row];

for (inti = 0; i< row; i++) {

for (int j = 0; j < col; j++) {

trans[j][i] = ch[i][j];

}

}

for (inti = 0; i< col; i++) {

for (int j = 0; j < row; j++) {

System.out.print(trans[i][j]);

}

}

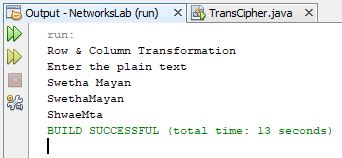
// display

System.out.println();

}

}

**Output:**



**Result:**

Thus the java program for Row and Column Transposition Technique has been implemented and the output verified successfully.