

Date: / /2020

Practical no 3**AIM:** Write program to implement the following Transposition Cipher Techniques

a)Rail Fence Cipher b)Simple Columnar Technique

Code:**a)Rail Fence Cipher**

```
import java.util.Scanner;
import java.util.logging.Level;
import java.util.logging.Logger;
public class Rails {
    String Encryption(String plainText,int depth) throws Exception{
        int r=depth, len = plainText.length();
        int c= len/depth;
        char mat[][] = new char[r][c];
        int k=0;

        String cipherText="";

        for(int i=0 ; i < c ; i++) {
            for (int j=0; j<r; j++) {
                if(k!=len) {
                    mat[j][i] = plainText.charAt(k++);
                }
            }
        }
        for(int i=0 ;i<r ;i++) {
            for (int j=0; j<c; j++){
```

```
        cipherText += mat[i][j];

    }

}

return cipherText ;
}

String Decryption(String cipherText,int depth)throws Exception{
    int r=depth,len=cipherText.length();
    int c=len/depth;
    char mat[][]=new char[r][c];
    int k=0;
    String plainText="";
    for(int i=0;i<r;i++) {
        for(int j=0;j<c;j++){
            mat[i][j] =cipherText.charAt(k++);
        }
    }
    for (int i=0; i<c ;i++){
        for(int j=0;j<r;j++){
            plainText += mat[j][i];

        }
    }
    return plainText ;
}

public static void main(String[] args) {
    try {
        System.out.println("INS Practical Performed by krupal 713");
```

```
System.out.println("----*--Encrypting string using RailFence cipher--*----");
Rails rf = new Rails();
Scanner scn = new Scanner(System.in);
int depth;
String plainText,cipherText,decryptedText;
System.out.println("Enter Plain Text");
plainText=scn.nextLine();
System.out.println("Enter depth for Encryption:");
depth=scn.nextInt();
while(plainText.length()%depth!=0){
    plainText+='X';
}
cipherText=rf.Encryption(plainText, depth);
System.out.println("Encrypted text is:\n" + cipherText);
decryptedText=rf.Decryption(cipherText, depth);
decryptedText=decryptedText.replace("X","");
System.out.println("Decrypted text is :\n"+decryptedText);
}catch (Exception ex){
    Logger.getLogger(Rails.class.getName()).log(Level.SEVERE,null,ex);
}
}
}
```

```
INS Practical Performed by krunal 713
----*--Encrypting string using RailFence cipher--*----
Enter Plain Text
kunal
Enter depth for Encryption:
2
Encrypted text is:
knluaX
Decrypted text is :
kunal
|
```

```
INS Practical Performed by krunal 713
----*--Encrypting string using RailFence cipher--*----
Enter Plain Text
krunal
Enter depth for Encryption:
2
Encrypted text is:
kuarnl
Decrypted text is :
krunal
|
```

b) Simple Columnar Technique

```
package prac3b;

import java.io.BufferedReader;
import java.io.*;
import java.io.InputStreamReader;
import java.util.logging.Level;
import java.util.logging.Logger;

public class Sct {
    public static void main(String[] args) {

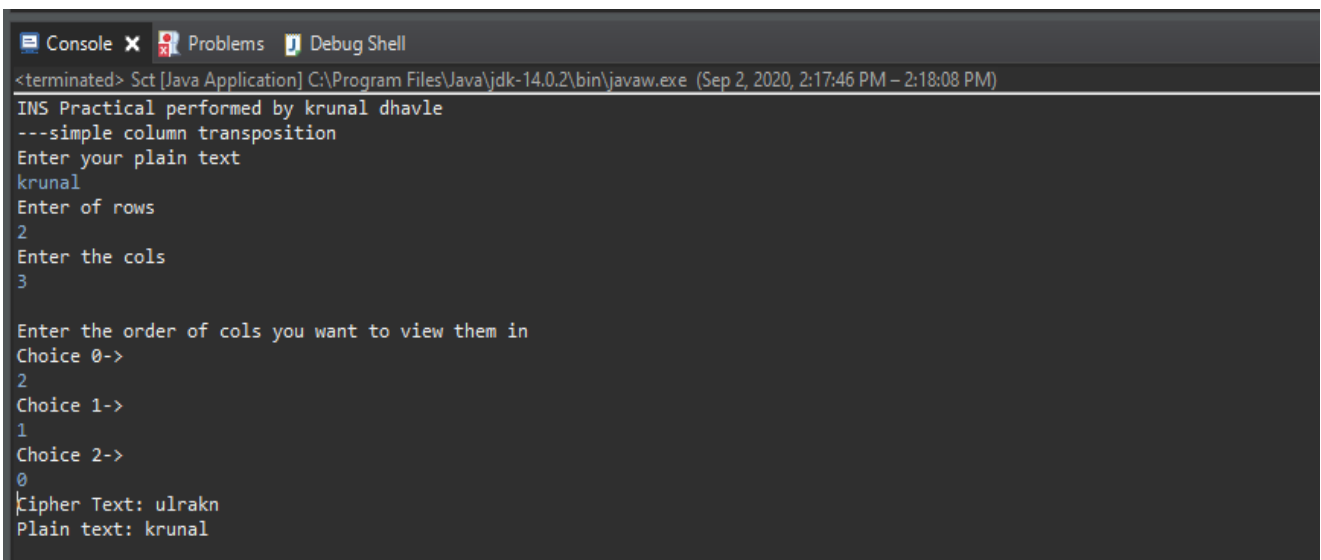
        try {

            System.out.println("INS Practical performed by krunal dhavle ");
            System.out.println("---simple column transposition ");
            BufferedReader br = new BufferedReader(new InputStreamReader(System.in));
            System.out.println("Enter your plain text");
            String accept = br.readLine();
            System.out.println("Enter of rows ");
            int r = Integer.parseInt(br.readLine());
            System.out.println("Enter the cols");
            int c = Integer.parseInt(br.readLine());
            int count = 0;
            char table[][] = new char[r][c];
            for (int i = 0; i < r; i++)
            {
                for (int j = 0; j < c; j++)
```

```
        {
            table[i][j] = accept.charAt(count);
            count++;
        }
    }

    System.out.println("\nEnter the order of cols you want to view them in");
    int choice[] = new int[c];
    for (int k = 0; k < c; k++)
    {
        System.out.println("Choice " + k + "-> ");
        choice[k] = Integer.parseInt(br.readLine());
    }
    String cipher = "", plain = "";
    for (int j = 0; j < c; j++)
    {
        int k = choice[j];
        for (int i = 0; i < r; i++)
        {
            cipher += table[i][k];
        }
    }
    cipher = cipher.trim();
    System.out.println("Cipher Text: "+cipher);
    char mat[][] = new char[r][c];
    int t = 0;
    for (int j = 0; j < c; j++)
    {
        int k = choice[j];
```

```
        for (int i = 0; i < r; i++)
        {
            mat[i][k] = cipher.charAt(t++);
        }
    }
    for (int i = 0; i < r; i++)
    {
        for (int j = 0; j < c; j++)
        {
            plain += mat[i][j];
        }
    }
    plain = plain.trim();
    System.out.println("Plain text: "+plain);
}
catch (IOException ex)
{
    Logger.getLogger(Sct.class.getName()).log(Level.SEVERE, null, ex);
}}}
```



The screenshot shows a Java IDE with three tabs: Console, Problems, and Debug Shell. The Console window is active and displays the following text:

```
<terminated> Sct [Java Application] C:\Program Files\Java\jdk-14.0.2\bin\javaw.exe (Sep 2, 2020, 2:17:46 PM – 2:18:08 PM)
INS Practical performed by krunal dhavle
---simple column transposition
Enter your plain text
krunal
Enter of rows
2
Enter the cols
3
Enter the order of cols you want to view them in
Choice 0->
2
Choice 1->
1
Choice 2->
0
Cipher Text: ulrakn
Plain text: krunal
```