| Ex. No : 2(a)<br>Date : | **Rail Fence Cipher Transposition Technique** |
|---|---|

**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:**

***railFenceCipher.java***

```
class railfenceCipherHelper {
   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 (int i = 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 (int i = 0; i < r; i++) {
         for (int j = 0; j < c; j++) {
            enc += mat[i][j];
         }
```

```
        }
        return enc;
    }

    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 (int i = 0; i < r; i++) {
            for (int j = 0; j < c; j++) {
                mat[i][j] = encmsg.charAt(k++);
            }
        }
        for (int i = 0; i < c; i++) {
            for (int j = 0; j < r; j++) {
                dec += mat[j][i];
            }
        }
        return dec;
    }
}

class railFenceCipher {
    public static void main(String[] args) throws java.lang.Exception {
        railfenceCipherHelper rf = new railfenceCipherHelper();
        String msg, enc, dec;
        msg = "Anna University, Chennai";
        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:**

```
Simulating Railfence Cipher
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Input Message : Anna University, Chennai
Encrypted Message : An nvriy hnanaUiest,Ceni
Decrypted Message : Anna University, Chennai
```

**RESULT:**

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