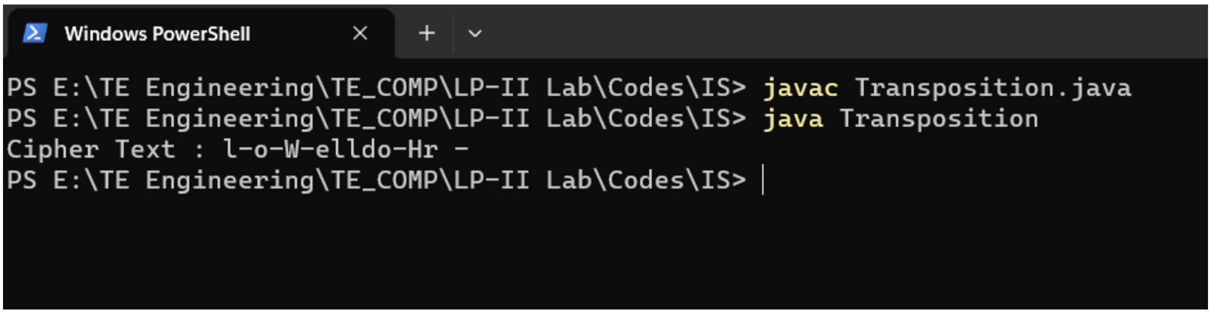
```
import java.io.*;
import java.util.*;

// Class
// For transposition cipher
public class Transposition {

    // Member variables of this class
    public static String selectedKey;
    public static char sortedKey[];
    public static int sortedKeyPos[];

    // Constructor 1 of this class
    // Default constructor defining the default key
    public Transposition() {
        selectedKey = "megabuck";
        sortedKeyPos = new int[selectedKey.length()];
        sortedKey = selectedKey.toCharArray();
    }

    // Constructor 2 of this class
    // Parameterized constructor defining the custom key
    public Transposition(String computerDepartmentString) {
        selectedKey = computerDepartmentString;
        sortedKeyPos = new int[selectedKey.length()];
        sortedKey = selectedKey.toCharArray();
    }

    // Method 1 - doProcessOnKey()
    // To reorder data do the sorting on selected key
    public static void doProcessOnKey() {
        // Find position of each character in selected key
        // and arranging it in alphabetical order
        int min, i, j;
    char orginalKey[] = selectedKey.toCharArray();
    char temp;

    // Step 1: Sorting the array of selected key
    // using nested for loops
    for (i = 0; i < selectedKey.length(); i++) {
        min = i;
        for (j = i; j < selectedKey.length(); j++) {
            if (sortedKey[min] > sortedKey[j]) {
                min = j;
            }
        }

        if (min != i) {
            temp = sortedKey[i];
            sortedKey[i] = sortedKey[min];
            sortedKey[min] = temp;
        }
    }

    // Step 2: Filling the position of array
    // according to alphabetical order
    // using nested for loops
    for (i = 0; i < selectedKey.length(); i++) {
        for (j = 0; j < selectedKey.length(); j++) {
            if (orginalKey[i] == sortedKey[j])
                sortedKeyPos[i] = j;
        }
    }
}

// Method 2 - doEncryption()
// To encrypt the targeted string
public static String doEncryption(String plainText) {
    int min, i, j;
```

```
char orginalKey[] = selectedKey.toCharArray();
char temp;
doProcessOnKey();

// Step 3: Generating the encrypted message by
// doing encryption using Transpotion Cipher
int row = plainText.length() / selectedKey.length();
int extrabit = plainText.length() % selectedKey.length();
int exrow = (extrabit == 0) ? 0 : 1;
int rowtemp = -1, coltemp = -1;
int totallen = (row + exrow) * selectedKey.length();
char pmat[][] = new char[(row + exrow)][(selectedKey.length())];
char encry[] = new char[totallen];

int tempcnt = -1;
row = 0;

for (i = 0; i < totallen; i++) {
  coltemp++;
  if (i < plainText.length()) {
    if (coltemp == (selectedKey.length())) {
      row++;
      coltemp = 0;
    }
    pmat[row][coltemp] = plainText.charAt(i);
  }

  else {

    // Padding can be added between two
    // consecutive alphabets or a group of
    // alphabets of the resultant cipher text
    pmat[row][coltemp] = '-';
  }
}
```

```
    int len = -1, k;

    for (i = 0; i < selectedKey.length(); i++) {
        for (k = 0; k < selectedKey.length(); k++) {
            if (i == sortedKeyPos[k]) {
                break;
            }
        }
        for (j = 0; j <= row; j++) {
            len++;
            encry[len] = pmat[j][k];
        }
    }

    String p1 = new String(encry);
    return (new String(p1));
}

// Method 3 - doEncryption()
// To decrypt the targeted string
public static String doDecryption(String s) {
    int min, i, j, k;
    char key[] = selectedKey.toCharArray();
    char encry[] = s.toCharArray();
    char temp;

    doProcessOnKey();

    // Step 4: Generating a plain message
    int row = s.length();
    selectedKey.length();
    char pmat[][] = new char[row][(selectedKey.length())];
    int tempcnt = -1;
    for (i = 0; i < selectedKey.length(); i++) {
        for (k = 0; k < selectedKey.length(); k++) {
            if (i == sortedKeyPos[k]) {
                break;
            }
        }

        for (j = 0; j < row; j++) {
            tempcnt++;
            pmat[j][k] = encry[tempcnt];
        }
    }

    // Step 5: Storing matrix character in
    // to a single string
    char p1[] = new char[row * selectedKey.length()];

    k = 0;
    for (i = 0; i < row; i++) {
        for (j = 0; j < selectedKey.length(); j++) {
            if (pmat[i][j] != '*') {
                p1[k++] = pmat[i][j];
            }
        }
    }

    p1[k++] = '\0';
    return (new String(p1));
}

@SuppressWarnings("static-access")

// Method 4 - main()
// Main driver method
public static void main(String[] args) {
        // Creating object of class in main method

        Transposition tc = new Transposition();


        // Printing the ciphere text

        // Custom input - Hello Geek

        System.out.println("Cipher Text : "

            + tc.doEncryption("Hello World"));

    }

}
```



```
PS E:\TE Engineering\TE_COMP\LP-II Lab\Codes\IS> javac Transposition.java
PS E:\TE Engineering\TE_COMP\LP-II Lab\Codes\IS> java Transposition
Cipher Text : l-o-W-elldo-Hr -
PS E:\TE Engineering\TE_COMP\LP-II Lab\Codes\IS>
```