EXP 1: Write a C program that contains a string (char pointer) with a value \Hello World’. The program should XOR each character in this string with 0 and displays the result.

PROGRAM:

#include<stdlib.h>

int main()

{

char str[]="HelloWorld";

char str1[11];

int i,len;

len=strlen(str);

for(i=0;i<len;i++)

{

str1[i]=str[i]^1;

printf("%c",str1[i]);

}

printf("\n");

return 0;

}

EXP 2: Write a C program that contains a string (char pointer) with a value \Hello World’. The program should AND or and XOR each character in this string with 127 and display the result

PROGRAM:

#include<stdio.h>

#include<stdlib.h>

#include<string.h>

void main()

{

char str[]="HelloWorld";

char str1[11];

char str2[11];

char str3[11];

int i,len;

len=strlen(str);

strcpy(str2,str);

for(i=0;i<len;i++)

{

str1[i]=str[i]&127;

printf("%c",str1[i]);

}

printf("\n");

for(i=0;i<len;i++)

{

str3[i]=str2[i]^127;

printf("%c",str3[i]);

}

printf("\n");

}

EXP 3:Write a Java program to perform encryption and decryption using the following

algorithms:

1. Ceaser Cipher

PROGRAM:

import java.io.BufferedReader;

import java.io.IOException;

import java.io.InputStreamReader;

import java.util.Scanner;

public class CeaserCipher {

static Scanner sc=new Scanner(System.in);

static BufferedReader br=new BufferedReader(new InputStreamReader(System.in));

public static void main(String[]args)throws IOException{

//TODOcodeapplicationlogichere

System.out.print("EnteranyString:");

String str=br.readLine();

System.out.print(" \nEntertheKey:");

int key=sc.nextInt();

String encrypted = encrypt(str, key);

System.out.println("\nEncryptedStringis:"+encrypted);

String decrypted=decrypt(encrypted,key);

System.out.println("\nDecrypted Stringis:"+decrypted);

System.out.println("\n");

}

public static String encrypt(String str,int key){

String encrypted =" ";

for(int i=0;i<str.length();i++){

int c=str.charAt(i);

if(Character.isUpperCase(c)){

c=c+(key%26);

if(c>'Z')

c=c-26;

}

else if(Character.isLowerCase(c)){

c=c+(key%26);

if(c>'z')

c=c-26;

}

encrypted+=(char)c;

}

return encrypted;

}

public static String decrypt(String str,int key)

{

String decrypted =" ";

for(int i=0;i<str.length();i++){

int c=str.charAt(i);

if(Character.isUpperCase(c)){

c=c-(key%26);

if(c<'A')

c=c+26;

}

else if(Character.isLowerCase(c)){

c=c-(key%26);

if(c<'a')

c=c+26;

}

decrypted+=(char)c;

}

return decrypted;

}

}

OUTPUT:

EnteranyString:HelloWorld

EntertheKey:1

EncryptedStringis: IfmmpXpsme

Decrypted Stringis: HelloWorld

1. Substitution Cipher

PROGRAM:

import java.io.\*;

import java.util.\*;

public class SubstitutionCipher{

static Scanner sc=new Scanner(System.in);

static BufferedReader br=new BufferedReader(new InputStreamReader(System.in));

public static void main(String[] args) throws IOException{

//TODOcodeapplicationlogichere

String a="abcdefghijklmnopqrstuvwxyz";

String b="zyxwvutsrqponmlkjihgfedcba";

System.out.print("Enteranystring:");

String str=br.readLine();

String decrypt=" ";

char c;

for(int i=0;i<str.length();i++)

{

c=str.charAt(i);

int j=a.indexOf(c);

decrypt=decrypt+b.charAt(j);

}

System.out.println("The encrypted data is:"+decrypt);

}

}

OUTPUT:

Enterany string: aceho

Theencrypteddatais: zxvsl

1. Hill Cipher

PROGRAM:

import java.io.\*;

import java.util.\*;

import java.io.\*;

public class HillCipher{

static float[][] decrypt=new float[3][1];

static float[][] a=new float[3][3];

static float[][] b = new float[3][3];

static float[][] mes = new float[3][1];

static float[][] res=new float[3][1];

static BufferedReader br = new BufferedReader(new InputStreamReader(System.in));

static Scanner sc=new Scanner(System.in);

public static void main(String[] args)throws IOException{

//TODOcodeapplicationlogichere

getkeymes();

for(int i=0;i<3;i++)

for(int j=0;j<1;j++)

for(int k=0;k<3;k++)

{

res[i][j]=res[i][j]+a[i][k]\*mes[k][j];

}

System.out.print("\nEncrypted stringis:");

for(int i=0;i<3;i++)

{

System.out.print((char)(res[i][0]%26+97));

res[i][0]=res[i][0];

}

inverse();

for(int i=0;i<3;i++)

for(int j=0;j<1;j++)

for(int k=0;k<3;k++){

decrypt[i][j]=decrypt[i][j]+b[i][k]\*res[k][j];

}

System.out.print("\nDecrypted string is:");

for(int i=0;i<3;i++)

{

System.out.print((char)(decrypt[i][0]%26+97));

}

System.out.print("\n");

}

public static void getkeymes() throws IOException

{

System.out.println("Enter 3x3 matrix forkey(It should be inversible):");

for(int i=0;i<3;i++)

for(int j=0;j<3;j++)

a[i][j]=sc.nextFloat();

System.out.println("\nEnter a 3 letter string:");

String msg=br.readLine();

for(int i=0;i<3;i++)

mes[i][0]=msg.charAt(i)-97;

}

public static void inverse(){

float p,q;

float[][] c =a;

for(int i=0;i<3;i++)

for(int j=0;j<3;j++){

//a[i][j]=sc.nextFloat();

if(i==j)

b[i][j]=1;

else

b[i][j]=0;

}

for(int k=0;k<3;k++){

for(int i=0;i<3;i++){

p=c[i][k];

q=c[k][k];

for(int j=0;j<3;j++){

if(i!=k){

c[i][j]=c[i][j]\*q-p\*c[k][j];

b[i][j]=b[i][j]\*q-p\*b[k][j];

}

}

}

}

for(int i=0;i<3;i++)

for(int j=0;j<3;j++){

b[i][j]=b[i][j]/c[i][i];

}

System.out.println("");

System.out.println("\nInverse Matrixis:");

for(int i=0;i<3;i++){

for(int j=0;j<3;j++)

System.out.print(b[i][j]+" ");

System.out.print("\n");}

}

}