Practical 3

Aim: Write a program to implement DES algorithm.

Code:

import java.util.Scanner;

import javax.crypto.\*;

public class DES {

    Cipher encipher, dcipher;

    public static void main(String args[]) {

        System.out.println("Enter any String:");

        Scanner sc = new Scanner(System.in);

        String input = sc.nextLine();

        try {

            KeyGenerator k = KeyGenerator.getInstance("DES");

            SecretKey key = k.generateKey();

            DES en = new DES(key);

            String ct = en.encrypt(input);

            String decrypted = en.decrypt(ct);

            System.out.println("Original string is:" + input);

            System.out.println("Encrypted string is:" + ct);

            System.out.println("Decrypted string is:" + decrypted);

        } catch (Exception e) {

            System.out.println(e);

        }

    }

    public DES(SecretKey key) {

        try {

            encipher = Cipher.getInstance("DES");

            encipher.init(Cipher.ENCRYPT\_MODE, key);

            dcipher = Cipher.getInstance("DES");

            dcipher.init(Cipher.DECRYPT\_MODE, key);

        } catch (Exception e) {

            System.out.println(e);

        }

    }

    public String encrypt(String str) {

        try {

            byte[] b = str.getBytes();

            byte[] enc = encipher.doFinal(b);

            return new String(enc);

        } catch (Exception e) {

            System.out.println(e);

            // TODO: handle exception

        }

        return null;

    }

    public String decrypt(String str) {

        try {

            byte[] b = str.getBytes();

            byte[] dec = dcipher.doFinal(b);

            return new String(dec);

        } catch (Exception e) {

            System.out.println(e);

        }

        return null;

    }

}

Output:

A computer screen with white text

Description automatically generated

AES algorithm

Code:

import java.util.Scanner;

import javax.crypto.\*;

public class AES {

    Cipher encipher, dcipher;

    public static void main(String args[]) {

        System.out.println("Enter any String:");

        Scanner sc = new Scanner(System.in);

        String input = sc.nextLine();

        try {

            KeyGenerator k = KeyGenerator.getInstance("AES");

            SecretKey key = k.generateKey();

            AES en = new AES(key);

            String ct = en.encrypt(input);

            String decrypted = en.decrypt(ct);

            System.out.println("Original string is:" + input);

            System.out.println("Encrypted string is:" + ct);

            System.out.println("Decrypted string is:" + decrypted);

        } catch (Exception e) {

            System.out.println(e);

        }

    }

    public AES(SecretKey key) {

        try {

            encipher = Cipher.getInstance("AES");

            encipher.init(Cipher.ENCRYPT\_MODE, key);

            dcipher = Cipher.getInstance("AES");

            dcipher.init(Cipher.DECRYPT\_MODE, key);

        } catch (Exception e) {

            System.out.println(e);

        }

    }

    public String encrypt(String str) {

        try {

            byte[] b = str.getBytes();

            byte[] enc = encipher.doFinal(b);

            return new String(enc);

        } catch (Exception e) {

            System.out.println(e);

        }

        return null;

    }

    public String decrypt(String str) {

        try {

            byte[] b = str.getBytes();

            byte[] dec = dcipher.doFinal(b);

            return new String(dec);

        } catch (Exception e) {

            System.out.println(e);

        }

        return null;

    }

}

Output:

A computer screen with white text

Description automatically generated