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// Implementation of Simple DES algorithm

import java.util.*;
import javax.crypto.BadPaddingException;
import javax.crypto.Cipher;
import javax.crypto.IllegalBlockSizeException;
import javax.crypto.KeyGenerator;
import javax.crypto.NoSuchPaddingException;
import javax.crypto.SecretKey;
import javax.crypto.SecretKeyFactory;
import javax.crypto.spec.DESKeySpec;
import java.io.*;
import java.security.InvalidKeyException;
import java.security.NoSuchAlgorithmException;
import java.security.spec.InvalidKeySpecException;

class DES{

    public static void main(String[] args) throws IOException, NoSuchAlgorithmException,
    InvalidKeyException, InvalidKeySpecException, NoSuchPaddingException,
    IllegalBlockSizeException, BadPaddingException {

        //String we want to encrypt
        String message="This is a confidential message.";
        byte[] myMessage =message.getBytes(); //string to byte array as DES works on bytes

        //Generating Key
        KeyGenerator Mygenerator = KeyGenerator.getInstance("DES");
        SecretKey myDesKey = Mygenerator.generateKey();

        //initializing crypto algorithm
        Cipher myCipher = Cipher.getInstance("DES");

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//setting encryption mode
myCipher.init(Cipher.ENCRYPT_MODE, myDesKey);
byte[] myEncryptedBytes=myCipher.doFinal(myMessage);

//setting decryption mode
myCipher.init(Cipher.DECRYPT_MODE, myDesKey);
byte[] myDecryptedBytes=myCipher.doFinal(myEncryptedBytes);

//print message in byte format
//System.out.println(Arrays.toString(myEncryptedBytes));
//System.out.println(Arrays.toString(myDecryptedBytes));

String encrypteddata=new String(myEncryptedBytes);
String decrypteddata=new String(myDecryptedBytes);

System.out.println("Message : "+ message);
System.out.println("Encrypted - "+ encrypteddata);
System.out.println("Decrypted Message - "+ decrypteddata);
}
}

```

Output

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C:\>cd "C:\jdk-20.0.2"
C:\jdk-20.0.2>cd bin
C:\jdk-20.0.2\bin>javac DES.java
C:\jdk-20.0.2\bin>java DES
Message : This is a confidential message.
Encrypted - ???K??+?Bj???W??6{?N??P?Y
Decrypted Message - This is a confidential message.

```