

Ns 7 To develop a program to implement Advanced Encryption Standard for encryption and decryption.

```
import javax.crypto.Cipher;

import javax.crypto.KeyGenerator;

import javax.crypto.SecretKey;

import javax.crypto.spec.IvParameterSpec;

import java.util.Base64;

public class AESExample {

    public static void main(String[] args) {

        try {

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

            keyGen.init(128);

            SecretKey secretKey = keyGen.generateKey();

            byte[] iv = new byte[16];

            IvParameterSpec ivParameterSpec = new IvParameterSpec(iv);

            String originalMessage = "Hello,Have a Good Day ";

            byte[] encryptedMessage = encrypt(originalMessage, secretKey, ivParameterSpec);

            String decryptedMessage = decrypt(encryptedMessage, secretKey, ivParameterSpec);

            System.out.println("Original Message: " + originalMessage);

            System.out.println("Encrypted Message: " +
Base64.getEncoder().encodeToString(encryptedMessage));

            System.out.println("Decrypted Message: " + decryptedMessage);

        } catch (Exception e) {

            e.printStackTrace();

        }

    }

    public static byte[] encrypt(String message, SecretKey secretKey, IvParameterSpec
ivParameterSpec) throws Exception {

        Cipher cipher = Cipher.getInstance("AES/CBC/PKCS5Padding");

        cipher.init(Cipher.ENCRYPT_MODE, secretKey, ivParameterSpec);
```

```
        return cipher.doFinal(message.getBytes());
    }

    public static String decrypt(byte[] encryptedMessage, SecretKey secretKey, IvParameterSpec
ivParameterSpec) throws Exception {
        Cipher cipher = Cipher.getInstance("AES/CBC/PKCS5Padding");
        cipher.init(Cipher.DECRYPT_MODE, secretKey, ivParameterSpec);
        return new String(cipher.doFinal(encryptedMessage));
    }
}
```