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COURSE	Java Programming

SURPRISE ASSESSMENT - 1

A company wants to transmit the data over the telephone, but its concerned that its phone may be tapped. It has asked you to write a program that will encrypts its data so that the data may be transmitted more securely. All of its data is transmitted as four-digit numbers. Your application should read a four-digit number entered by the user and encrypt it as follows; Replace each digit with the result of adding 7 to the digit and getting the remainder after dividing the new value by 10. Then swap the first digit with the third and swap the second digit with the fourth. Then print the encrypted integer. Write a separate application that inputs and encrypted four-digit integer and decrypts it to form the original number.

Encryption:

```java
package assignment2;
import java.util.Scanner; //Needed for Scanner class

public class encryption {
    public static void main(String[] args) {
        int first, second, third, fourth, n, t;
        Scanner input = new Scanner(System.in);

        do {
            System.out.print("Enter n: ");
            n = input.nextInt();
        } while (n / 1000 == 0 || n / 10000 != 0);

        input.close();

        first = n / 1000;
        second = n / 100 % 10;
        third = n / 10 % 10;
        fourth = n % 10;

        first = (first + 7) % 10;
        second = (second + 7) % 10;
        third = (third + 7) % 10;
        fourth = (fourth + 7) % 10;

        t = first;
        first = third;
        third = t;
```
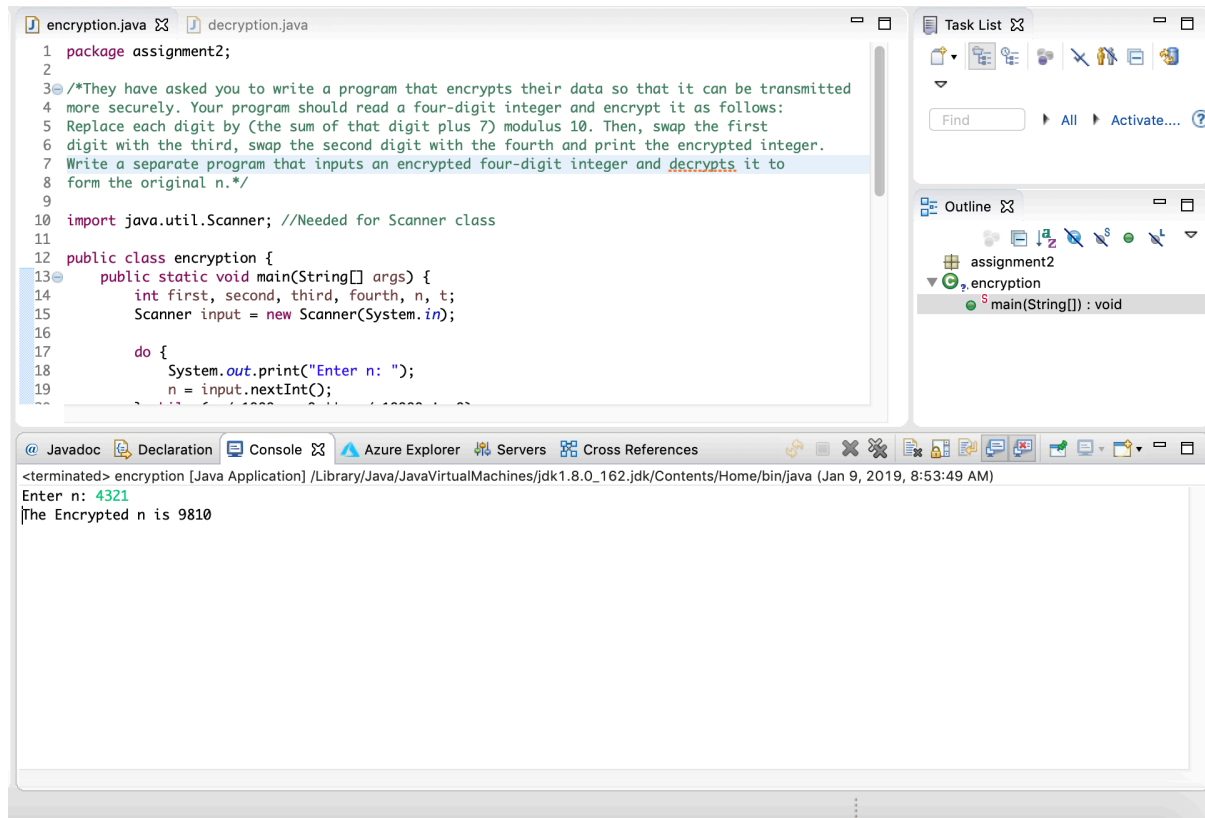
```
        t = second;
        second = fourth;
        fourth = t;

        System.out.printf("The Encrypted n is %d%d%d%d\n", first,
second, third, fourth);
    }
}
```

```
encryption.java        decryption.java
  1  package assignment2;
  2
  3  /*They have asked you to write a program that encrypts their data so that it can be transmitted
  4  more securely. Your program should read a four-digit integer and encrypt it as follows:
  5  Replace each digit by (the sum of that digit plus 7) modulus 10. Then, swap the first
  6  digit with the third, swap the second digit with the fourth and print the encrypted integer.
  7  Write a separate program that inputs an encrypted four-digit integer and decrypts it to
  8  form the original n.*/
  9
 10  import java.util.Scanner; //Needed for Scanner class
 11
 12  public class encryption {
 13      public static void main(String[] args) {
 14          int first, second, third, fourth, n, t;
 15          Scanner input = new Scanner(System.in);
 16
 17          do {
 18              System.out.print("Enter n: ");
 19              n = input.nextInt();
```

Task List

Outline
  assignment2
    encryption
        main(String[]) : void

@ Javadoc   Declaration   Console   Azure Explorer   Servers   Cross References

<terminated> encryption [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_162.jdk/Contents/Home/bin/java (Jan 9, 2019, 8:53:49 AM)
Enter n: 4321
The Encrypted n is 9810

Decryption:

```java
package assignment2;

import java.util.Scanner;

public class decryption {

public static void main(String[] args)
    {
        int first, second, third, fourth, n, t;
        Scanner input = new Scanner( System.in );

        do{
        System.out.print("Enter n: ");
        n = input.nextInt();
        }while(n / 1000 == 0 || n / 10000 != 0 );

            input.close();

        first = n / 1000;
        second = n / 100 % 10;
        third = n / 10 % 10;
        fourth = n % 10;

        if(first <= 6 && first >= 0)
            first = first + 10;
        if(second <= 6 && second >= 0)
            second = second + 10;
        if(third <= 6 && third >= 0)
            third = third + 10;
        if(fourth <= 6 && fourth >= 0)
            fourth = fourth + 10;

        first = first - 7;
        second = second - 7;
        third = third - 7;
        fourth = fourth - 7;

        t = first;
        first = third * 1000;
        third = t * 10;

        t = second;
        second = fourth * 100;
        fourth = t;

        System.out.printf("The Decrypted n is %d\n",
                first + second + third + fourth);
    }
```

```
}
```

```java
40          first = first - 7;
41          second = second - 7;
42          third = third - 7;
43          fourth = fourth - 7;
44
45          t = first;
46          first = third * 1000;
47          third = t * 10;
48
49          t = second;
50          second = fourth * 100;
51          fourth = t;
52
53          System.out.printf("The Decrypted n is %d\n",
54                  first + second + third + fourth);
55      }
56
57 }
58
```

Javadoc   Declaration   Console   Azure Explorer   Servers   Cross References

```
<terminated> decryption [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_162.jdk/Contents/Home/bin/java (Jan 9, 2019, 8:54:11 AM)
Enter n: 9810
The Decrypted n is 4321
```

Task List

Outline

assignment2
decryption
main(String[]) : void