

## ΕΡΓΑΣΙΑ ΔΙΚΤΥΑ ΥΠΟΛΟΓΙΣΤΩΝ Ι

ΟΝΟΜΑΤΕΠΩΝΥΜΟ : **Νάστος Βίκτωρ**

ΑΕΜ : **9297**

```
import java.util.ArrayList;

import java.io.*;

import java.io.BufferedWriter;

import java.io.FileWriter;

import java.io.FileOutputStream;

import java.io.IOException;

import java.util.List;

import java.util.*;

public class virtualModem {

    public static void main(String[] param) {

        (new virtualModem()).demo();

    }

    public void demo() {

        int k;

        String message;

        Modem modem;

        ArrayList < Long > myTime = new ArrayList < Long > ();

        ArrayList < Byte > myBytes = new ArrayList < Byte > ();

        ArrayList < Byte > myBytesError = new ArrayList < Byte > ();

        ArrayList < String > gps = new ArrayList < String > ();

        ArrayList < String > gpsElem = new ArrayList < String > ();

        ArrayList < String > width = new ArrayList < String > ();

        ArrayList < String > length = new ArrayList < String > ();

        ArrayList < Byte > myBytesGps = new ArrayList < Byte > ();

        ArrayList < Long > myXor = new ArrayList < Long > ();

        ArrayList < Integer > timesResend = new ArrayList < Integer > ();
```

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J A V A C O D E

```
modem = new Modem();

modem.setSpeed(70000);

modem.setTimeout(2000);

modem.open("ithaki");

message = "";

for (;;) {

    try {

        k = modem.read();

        if (k == -1) break;

        System.out.print((char) k);

        message = message + (char) k;

        if (message.indexOf("\r\n\n") > -1) {

            break;

        }

    } catch (Exception x) {

        break;

    }

}

final long NANOSEC_PER_SEC = 1000 l * 1000 * 1000;

long startTime = System.nanoTime();

k = 0;

//loop gia parapanw apo 4 lepta

while ((System.nanoTime() - startTime) < 6 * 60 * NANOSEC_PER_SEC) {

    /* 60*/

    message = "";

    //Echo request code
```

```
modem.write("E1892\r".getBytes());

long time = System.currentTimeMillis();

for (;;) {

    k = modem.read();

    if (k == -1) {

        break;

    }

    message = message + (char) k;

    System.out.print((char) k);

    if (message.indexOf("PSTOP") > -1) {

        break;

    }

}

long endTime = System.currentTimeMillis();

long difference = (endTime - time);

message = "";

myTime.add(difference);

System.out.print("\nTime difference: " + (difference));

System.out.println("");

}

System.out.println(myTime);

//dimiourgia file.txt

File file = new File("MyFile.txt");

try {

    if (!file.exists()) {

        file.createNewFile();

    }

}
```

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J A V A C O D E

```
}
```

```
} catch (IOException ioe) {
```

```
ioe.printStackTrace();
```

```
}
```

```
//metafora tw n stoixeiw n ths listas sto txt
```

```
BufferedWriter bw = null;
```

```
FileWriter fw = null;
```

```
try {
```

```
fw = new FileWriter("MyFile.txt");
```

```
bw = new BufferedWriter(fw);
```

```
int t = myTime.size();
```

```
for (int i = 0; i < t; i++) {
```

```
bw.write(Long.toString(myTime.get(i)) + "\n");
```

```
}
```

```
bw.close();
```

```
} catch (IOException ioe) {
```

```
ioe.printStackTrace();
```

```
}
```

```
//////////////////////////////////Image request code//////////////////////////////////
```

```
//System.out.print((char)k+ "NAS\n");
```

```
modem.setSpeed(500000);
```

```
modem.write("M1394\r".getBytes());
```

```
//ektupwsh tw n bytes apo to image request code
```

```
for (;) {
```

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J A V A C O D E

```
k = modem.read();

if (k == -1)

    break;


myBytes.add((byte) k);

}

////////imageNoError////////

try (FileOutputStream imageNoError = new FileOutputStream("imageNoError.jpg")) {

    int m = myBytes.size();

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

        imageNoError.write(myBytes.get(i));

    }

    imageNoError.close();

} catch (IOException e) {

    e.printStackTrace();

}


modem.write("G8234\r".getBytes());

//ektupwsh twn bytes apo to image request code

for (;;) {

    k = modem.read();

    if (k == -1)

        break;


    myBytesError.add((byte) k);

    //System.out.println("" + "VICCCCC");

    //System.out.print((int)k);

    //System.out.print((char)k);
```

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J A V A C O D E

```
}
```

```
//////////ImageError//////////
```

```
try (FileOutputStream imageError = new FileOutputStream("imageError.jpg")) {
```

```
//FileOutputStream imageError = new FileOutputStream("imageError.jpg");
```

```
int m = myBytesError.size();
```

```
for (int i = 0; i < m; i++) {
```

```
    imageError.write(myBytesError.get(i));
```

```
}
```

```
imageError.close();
```

```
} catch (IOException e) {
```

```
    e.printStackTrace();
```

```
}
```

```
//////////gps//////////
```

```
modem.setSpeed(70000);
```

```
message = "";
```

```
modem.write("P6559R=1002999\r".getBytes());
```

```
for (;;) {
```

```
    k = modem.read();
```

```
    if (k == -1) {
```

```
        break;
```

```
}
```

```
message = message + (char) k;
```

```
System.out.print((char) k);
```

```
if (message.indexOf("START ITHAKI GPS TRACKING\r\n") > -1) {
```

```
    message = "";
```

```
}
```

```
if (message.indexOf("0000*") > -1) {
```

```
k = modem.read();

System.out.print((char) k);

message = message + (char) k;

k = modem.read();

System.out.print((char) k);

message = message + (char) k;

gps.add(message);

message = "";

}

}

System.out.print(gps);

for (int i = 0; i < gps.size(); i = i + 10) {

    message = gps.get(i);

    gpsElem.add(message);

    message = "";

}

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

////////////////////WIDTH////////////////////

for (int i = 0; i < 1; i++) {

    message = gpsElem.get(i).substring(18, 22);

    String messageNew = gpsElem.get(i).substring(23, 27);

    int widthEx = Integer.parseInt(messageNew);

    int messageExtra = (int)(widthEx * (0.006));

    String widthString = Integer.toString(messageExtra);

    String resultWidth = message + widthString;

    width.add(resultWidth);

    message = "";

}

for (int i = 1; i < gpsElem.size(); i++) {

    message = gpsElem.get(i).substring(20, 24);

    String messageNew = gpsElem.get(i).substring(25, 29);
```

```
int widthEx = Integer.parseInt(messageNew);

int messageExtra = (int)(widthEx * (0.006));

String widthString = Integer.toString(messageExtra);

String resultWidth = message + widthString;

width.add(resultWidth);

message = "";

}

//////////////////LENGTHHHHHHHHH//////////////////

for (int i = 0; i < 1; i++) {

    message = gpsElem.get(i).substring(31, 35);

    String messageNew = gpsElem.get(i).substring(36, 40);

    int lengthEx = Integer.parseInt(messageNew);

    int messageExtra = (int)(lengthEx * (0.006));

    String lengthString = Integer.toString(messageExtra);

    String resultLength = message + lengthString;

    length.add(resultLength);

    message = "";

}

for (int i = 1; i < gpsElem.size(); i++) {

    message = gpsElem.get(i).substring(33, 37);

    String messageNew = gpsElem.get(i).substring(38, 42);

    int widthEx = Integer.parseInt(messageNew);

    int messageExtra = (int)(widthEx * (0.006));

    String lengthString = Integer.toString(messageExtra);

    String resultLength = message + lengthString;

    //System.out.print(gps.get(i).substring(10,20)+);

    length.add(resultLength);

    message = "";

}

System.out.print("\nWIDTH\n" + width);

System.out.print("\nLENGTH\n" + length);
```



```
modem.write(("P6559T=" + length.get(0) + width.get(0) + "T=" + length.get(1) + width.get(1) + "T=" +
length.get(2) + width.get(2) + "T=" + length.get(3) + width.get(3) + "T=" + length.get(4) + width.get(4) +
"\r").getBytes());
```

```
for (;;) {
```

```
    k = modem.read();
```

```
    if (k == -1)
```

```
        break;
```

```
    myBytesGps.add((byte) k);
```

```
}
```

```
try (FileOutputStream imageGps = new FileOutputStream("imageGps.jpg")) {
```

```
    int m = myBytesGps.size();
```

```
    for (int i = 0; i < m; i++) {
```

```
        imageGps.write(myBytesGps.get(i));
```

```
    }
```

```
    imageGps.close();
```

```
} catch (IOException e) {
```

```
    e.printStackTrace();
```

```
}
```

```
int resultXor = 0;
```

```
int fcs = 0;
```

```
int counter = 0;
```

```
long startTimeXor = 0;
```

```
long endTimeXor = 0;
```

```
long differenceXor = 0;
```

```
int resend = 0;
```

```
int times = 0;
```

```
final long NANOSEC_PER_SECX = 1000 l * 1000 * 1000;
```

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J A V A C O D E

```
long startTimeX = System.nanoTime();
```

```
k = 0;
```

```
while ((System.nanoTime() - startTimeX) < 6 * 60 * NANOSec_PER_SECX) {
```

```
    message = "";
```

```
    if (counter == 0 || fcs == resultXor) {
```

```
        modem.write("Q3002\r".getBytes());
```

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

```
        timesResend.add(resend);
```

```
        resend = 0;
```

```
    } else if (fcs != resultXor) {
```

```
        modem.write("R7598\r".getBytes());
```

```
        System.out.print("\nNACK!!!!!!!!!!!!\n");
```

```
        resend++;
```

```
        System.out.print(resend);
```

```
    }
```

```
    startTimeXor = System.currentTimeMillis();
```

```
    for (;;) {
```

```
        k = modem.read();
```

```
        if (k == -1) {
```

```
            break;
```

```
        }
```

```
        message = message + (char) k;
```

```
        System.out.print((char) k);
```

```
if (message.indexOf("PSTOP") > -1) {

    resultXor = 0;

    endTimeXor = System.currentTimeMillis();

    for (int i = 31; i < 47; i++) {

        resultXor = resultXor ^ (message.charAt(i));

    }

    if (counter == 0 || fcs == resultXor) {

        differenceXor = (endTimeXor - startTimeXor);

        myXor.add(differenceXor);

    }

    System.out.print("\nRESULTXOR: " + resultXor);

    fcs = Integer.parseInt(message.substring(49, 52));

    System.out.print("\nFCS: " + fcs + "\n");

    counter++;

    break;

}

}

}

System.out.print(myXor);

File fileX = new File("MyXor.txt");

try {

    if (!fileX.exists()) {

        fileX.createNewFile();

    }

} catch (IOException ioe) {

    ioe.printStackTrace();

}
```

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J A V A C O D E

```
//metafora tw n stoixeewn ths listas sto txt
```

```
BufferedWriter bwXor = null;
```

```
FileWriter fwXor = null;
```

```
try {
```

```
    fwXor = new FileWriter("MyXor.txt");
```

```
    bwXor = new BufferedWriter(fwXor);
```

```
    int tXor = myXor.size();
```

```
    for (int i = 0; i < tXor; i++) {
```

```
        bwXor.write(Long.toString(myXor.get(i)) + "\n");
```

```
    }
```

```
    bwXor.close();
```

```
    } catch (IOException ioe) {
```

```
        ioe.printStackTrace();
```

```
    }
```

```
//////////FILE MYTIMES//////////
```

```
File fileT = new File("MyTimes.txt");
```

```
try {
```

```
    if (!fileT.exists()) {
```

```
        fileT.createNewFile();
```

```
    }
```

```
    } catch (IOException ioe) {
```

```
        ioe.printStackTrace();
```

```
    }
```

```
//metafora tw n stoixeewn ths listas sto txt
```

```
BufferedWriter bwTimes = null;
```

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J A V A C O D E

```
FileWriter fwTimes = null;
```

```
try {
```

```
    fwTimes = new FileWriter("MyTimes.txt");
```

```
    bwTimes = new BufferedWriter(fwTimes);
```

```
    int timesR = timesResend.size();
```

```
    for (int i = 0; i < timesR; i++) {
```

```
        bwTimes.write(Long.toString(timesResend.get(i)) + "\n");
```

```
    }
```

```
    bwTimes.close();
```

```
    } catch (IOException ioe) {
```

```
        ioe.printStackTrace();
```

```
    }
```

```
    modem.close();
```

```
    } /* gia th sunarthsh demo*/
```

```
}
```