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package ct255_assignment_3;

/**
 * CT255 - Assignment 3
 * Skeleton code for Steganography assignment.
 *
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 * @version 1.0
 */

import java.io.BufferedReader;
import java.io.BufferedWriter;
import java.io.FileReader;
import java.io.FileWriter;
import java.io.IOException;

public class Stegano
{
    /**
     * Constructor for objects of class Stegano
     */
    public Stegano()
    {

    }

    public static void main(String[] args) {
        String arg1, arg2, arg3, arg4;
        Boolean err = false;

        if (args != null && args.length > 1) { // Check for minimum number of
arguments
            arg1 = args[0];
            arg2 = args[1];


            if (arg2 == "") {
                err = true;
            }
            else if ((arg1.equals("A") && (args.length > 3))) {
                // Get other arguments
                arg3 = args[2];
                arg4 = args[3];
                if (arg3 == "" || arg4 == "") {
                    err = true;

                    for (int i = 0; i < arg4.length(); i++) {
                        if  (!( arg4.charAt(i)  ==  '1'  ||  arg4.charAt(i)  ==
'0' )) {
                                // make sure input is a bitstring
                                err = true;
                        }
                    }
                }
                else {
                    // Hide bitstring
                  if(arg4.length() % 2 != 0) {
                        arg4 += "0";
                        // padding bit if odd
                  }
                    hide(arg2, arg3, arg4);
                }
            }
            else if (arg1.equals("E")){
                // Extract bitstring from text
                retrieve(arg2);
            }
            else {
                err = true;
            }
        }
        else {
            err = true;
        }

        if (err == true) {
            System.out.println();
                              System.out.println("Use:   Stegano   <A:E><Input
File><OutputFile><Bitstring>");
            System.out.println("Example: Stegano A inp.txt out.txt 0010101");
            System.out.println("Example: Stegano E inp.txt");
             System.out.println("please only enter a bitstring, and no other
characters");
        }
    }

    static void hide(String inpFile, String outFile, String binString) {
        //
        BufferedReader reader;
        BufferedWriter writer;
        int i = 0, j;
        // i is for iterating through bitvector
        // j is to take two bits at a time

        try {
            reader = new BufferedReader(new FileReader(inpFile));
            writer = new BufferedWriter(new FileWriter(outFile));
            String line = reader.readLine();
            while (line != null) {
                  // Your code starts here
                  for (j = 0; j < 2; j++) {
                  // two bits at a time
                  if (i < binString.length()) {
                        // stop when reached end of vector
                        if (binString.charAt(i) == '1') {
                              line += "\u200b";
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                               // zero width space
                         }
                         else if (binString.charAt(i) == '0') {
                               line += "\u00ad";
                               // non breaking space
                         }
                         i++;
                         }
                  }
                  // Store amended line in output file
                  writer.write(line);
                  writer.newLine();
                         // read next line
                         line = reader.readLine();
            }
            reader.close();
            writer.close();
      } catch (IOException e) {
          e.printStackTrace();
      }

    }

    static void retrieve(String inpFile) {
        BufferedReader reader;
        String binString = "";
        boolean stringEnd = false;
        int j;

        try {
            reader = new BufferedReader(new FileReader(inpFile));
            String line = reader.readLine();
            while (line != null) {
                // Your code starts here
            for (j = 2; j > 0; j--) {
                  // read the penultimate and antipenultimate characters
                  if(!stringEnd) {
                         if (line.charAt(line.length() - j) == '\u200b') {
                               binString += "1";
                         }
                         else if (line.charAt(line.length() - j) == '\u00ad')
{
                               binString += "0";
                         }
                         else {
                               stringEnd = true;
                               //  exit  when  there's  a  line  that  doesn't  end
in either character
                         }
                  }
            }
                         // read next line
                         line = reader.readLine();
            }
            reader.close();
        } catch (IOException e) {
           e.printStackTrace();
        }
          // and return i guess
          System.out.println("encoded bitvector: " + binString);
    }
}
```