

Calicia Perea  
PA 4  
March 22, 2023

You are working on a project where you are given data that has been through a "backup" program which, at times, added extraneous data. You discover that the data added has a pattern. The pattern is that the corrupt data ALWAYS starts with a CONTROL-C and always ends in a CONTROL-B, and that at most 4 carriage returns are introduced with such an event. You also discover that after the CONTROL-C, there may be more Control-C characters as part of the extraneous data.

You are to write programs in PERL, JAVA, and PYTHON which removes these values from control-char.txt.

## Perl

Code:

```
# Calicia Perea
# March 21 23
# Language :Perl
# The pattern is the corrupt data ALWAYS starts with a
CONTROL-C
# and always ends in a CONTROL-B, and that at most 4 carriage
returns
# are introduced with such an event.

#!/usr/bin/perl

use strict;
use warnings;

#Take in input file
```

```

my $input = 'control-char.txt';
open (FH,'<', $input) or die $!;

# Store in output
open (FW,'>', "perlout.txt") or die $!;

#Declaring variables to tell precisely if control starts with ^C
# and ends with ^B
my $opC = 1; #false
my $endC = 1; # false

# read input file
my $line = <FH>;

#For loop used to convert characters to decimal
#End of text for ^C == 0x03 in ASCII or 3 in decimal
#Start of text for ^B == 0x02 in ASCII or 2 in decimal
#Characters in btwn are not printed
while( $line){
    my $str = $line;
    my @spl = split(' ', $str);
    #displays result using foreach loop
    foreach my $i (@spl) {
        #conditiono after ^C happens
        if(ord($i)==3 and $opC == 1){
            $opC = 0;
            $endC = 1;
        }
        #condition after ^B happens
        if(ord($i)==2 and $opC == 0){
            $opC = 1;

```

```
        $endC = 0;
    }
    #Print file, except what is inbtwn ^C and ^B
    if($opC == 1 and $endC == 1){
        print $i;
        $a = $i;
        print FW $a;
    }
    if($endC == 0){
        $endC = 1;
    }
}
$line = <FH>;
}
close(FW) or die $!;
close(FH) or die $!;
```

Output:

```
PROBLEMS  OUTPUT  TERMINAL  DEBUG CONSOLE
○ caliciaperea@Calicias-MacBook-Pro PA4_CPEREA %
● caliciaperea@Calicias-MacBook-Pro PA4_CPEREA % perl per.pl
This is line 1 This is line 1 This is line 1
This is line 2 This is line 2 This is line 2
This is line 3 This is line 3 This is line 3 A
This is line 4 This is line 4 This is line 4
This is line 5 This is line 5 This is line 5
This is line 6 This is line 6 This is line 6
This is line 7 This is line 7 This is line 7
This is line 8 This is line 8 This is line 8 A
This is line 9 This is line 9 This is line 9
This is line 10 This is line 10 This is line 10
This is line 11 This is line 11 This is line 11
This is line 12 This is line 12 This is line 12
This is line 13 This is line 13 This is line 13
This is line 14 This is line 14 This is line 14
This is line 15 This is line 15 This is line 15 B
This is line 16 This is line 16 This is line 16
This is line 17 This is line 17 This is line 17
This is line 18 This is line 18 This is line 18
This is line 19 This is line 19 This is line 19
This is line 20 This is line 20 This is line 20 B
This is line 21 This is line 21 This is line 21
This is line 22 This is line 22 This is line 22
This is line 23 This is line 23 This is line 23
This is line 24 This is line 24 This is line 24
This is line 25 This is line 25 This is line 25 B
This is line 26 This is line 26 This is line 26
This is line 27 This is line 27 This is line 27
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This is line 36 This is line 36 This is line 36
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This is line 42 This is line 42 This is line 42
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This is line 44 This is line 44 This is line 44
This is line 45 This is line 45 This is line 45
This is line 46 This is line 46 This is line 46
This is line 47 This is line 47 This is line 47
This is line 48 This is line 48 This is line 48
This is line 49 This is line 49 This is line 49 C
This is line 50 This is line 50 This is line 50 D
○ caliciaperea@Calicias-MacBook-Pro PA4_CPEREA %
```

See perlout.txt for the output txt file and per.pl for the code file.

Java

Code:

```
/*
Calicia Perea
March 21, 2023
PA4: Java program
```

Language :java

The pattern is the corrupt data ALWAYS starts with a CONTROL-C and always ends in a CONTROL-B, and that at most 4 carriage returns

are introduced with such an event.

\*/

```
import java.io.*;
```

```
import java.util.*;
```

```
public class jav {
```

```
    public static void main(String[] args){
```

```
        try{
```

```
            // input file
```

```
            FileReader input = new
```

```
FileReader("control-char.txt");
```

```
            Scanner scan = new Scanner(input);
```

```
            //store ouput file
```

```
            FileWriter output = new FileWriter("jav.txt");
```

```
            //Declaring variables to tell precisely if control  
starts with ^C
```

```
            // and ends with ^B
```

```
            boolean opC = false;
```

```
            boolean endC= false;
```

```
            String line;
```

```
            while(scan.hasNextLine()){
```

```
                line= scan.nextLine();
```

```
                int length = line.length();
```

```

        //For loop used to convert characters to decimal
        //End of text for ^C == 0x03 in ASCII or 3 in
decimal
        //Start of text for ^B == 0x02 in ASCII or 2 in
decimal
        //Characters in btwn are not printed
        for (int i = 0; i<length; i++){
            //condition after ^C happens
            if((int)line.charAt(i)== 3 && opC == false){
                opC= true;
                endC = false;
            }
            //condition after ^B happens
            if((int)line.charAt(i)== 2 && opC == true){
                opC= false;
                endC= true;
            }
            //printing file except what is inbtwn ^C and
^B
            if(opC == false && endC == false){
                System.out.print(line.charAt(i));
                output.write(line.charAt(i));
            }

            if(endC == true)
                endC = false;

        }
        if (opC == false){
            System.out.println();

```

```

        output.write("\n");
    }
}

input.close();
output.close();
scan.close();

} catch (IOException e) {
    e.printStackTrace();
    System.exit(1);
}
}
}

```

Output:

```

PROBLEMS 1 OUTPUT TERMINAL DEBUG CONSOLE
caliciaperea@Calicias-MacBook-Pro PAA_CPEREA % /usr/bin/env /Library/J
ava/JavavirtualMachines/16-19-jdk/Contents/Home/bin/java --enable-preview
-Xxi:ShowCodeDetailsInExceptionMessages -cp /Users/caliciaperea/Lib
rary/Application_Support/Code/User/workspaceStorage/c1f166dccc0628a912
1d92cb127054bb/redhat-java/jdt_ws/PAA_CPEREA_31fe163e/bin jav
This is Line 1 This is Line 1 This is Line 1
This is Line 2 This is Line 2 This is Line 2
This is Line 3 This is Line 3 This is Line 3 A
This is Line 4 This is Line 4 This is Line 4
This is Line 5 This is Line 5 This is Line 5
This is Line 6 This is Line 6 This is Line 6
This is Line 7 This is Line 7 This is Line 7
This is Line 8 This is Line 8 This is Line 8 A
This is Line 9 This is Line 9 This is Line 9
This is Line 10 This is Line 10 This is Line 10
This is Line 11 This is Line 11 This is Line 11
This is Line 12 This is Line 12 This is Line 12
This is Line 13 This is Line 13 This is Line 13
This is Line 14 This is Line 14 This is Line 14
This is Line 15 This is Line 15 This is Line 15 B
This is Line 16 This is Line 16 This is Line 16
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This is Line 26 This is Line 26 This is Line 26
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This is Line 45 This is Line 45 This is Line 45
This is Line 46 This is Line 46 This is Line 46
This is Line 47 This is Line 47 This is Line 47
This is Line 48 This is Line 48 This is Line 48
This is Line 49 This is Line 49 This is Line 49 C
This is Line 50 This is Line 50 This is Line 50 D
caliciaperea@Calicias-MacBook-Pro PAA_CPEREA %

```

See javout.txt and jav.java for code and output file.

# Python

Code:

```
# Calicia Perea
# March 21 23
# Language :Python
# The pattern is the corrupt data ALWAYS starts with a
CONTROL-C
# and always ends in a CONTROL-B, and that at most 4 carriage
returns
# are introduced with such an event.

import sys
def main():
    # Taking in the input file
    input = open("control-char.txt", 'r')

    # Storing in the output file
    output = open('python.txt','w')

    #Declaring variables to tell precisely if control starts with
^C
    # and ends with ^B
    opC = False
    endC= False

    #Read input file
    line = input.read()

    #For loop used to convert characters to decimal
    #End of text for ^C == 0x03 in ASCII or 3 in decimal
    #Start of text for ^B == 0x02 in ASCII or 2 in decimal
```



```

#Characters in btwn are not printed
for i in line:
    if not line:
        break

    #conditiono after ^C happens
    if ord(i)==3 and opC == False:
        opC = True
        endC = False

    #condition after ^B happens
    if ord(i) == 2 and opC == True:
        opC = False
        endC = True

    #Print file, except what is inbtwn ^C and ^B
    if opC == False and endC == False:
        sys.stdout.write(i)
        output.write(i)

    if endC ==True:
        endC = False

input.close()
output.close()

if __name__ == "__main__":
    main()

```

Output:

```
caliciaperea@Calicias-MacBook-Pro PA4_CPEREA % /usr/local/bin/python3 /Users/caliciaperea/Desktop/spring23/PROGRAMMINGLANGUAGE/PA4_CPEREA/pyth.py
This is line 1 This is line 1 This is line 1
This is line 2 This is line 2 This is line 2
This is line 3 This is line 3 This is line 3 A
This is line 4 This is line 4 This is line 4
This is line 5 This is line 5 This is line 5
This is line 6 This is line 6 This is line 6
This is line 7 This is line 7 This is line 7
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This is line 9 This is line 9 This is line 9
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This is line 47 This is line 47 This is line 47
This is line 48 This is line 48 This is line 48
This is line 49 This is line 49 This is line 49 C
This is line 50 This is line 50 This is line 50 D
caliciaperea@Calicias-MacBook-Pro PA4_CPEREA %
```

See `pyth.py` and `pythonout.txt` for code and outputs.

## Files Generated

See below image for conclusions of the files generated by Python, Java, and Perl. Java and Python have 2 KB, while Perl has 3 KB which is the same as 'control-char.txt'.



WordCount from terminal for the txt files.

```
● caliciaperea@Calicias-MacBook-Pro PA4_CPEREA % wc *.txt
    62     628    2618 control-char.txt
    50     607    2483 javout.txt
    50     607    2533 perlout.txt
    50     607    2483 pythonout.txt
   212    2449   10117 total
○ caliciaperea@Calicias-MacBook-Pro PA4_CPEREA %
```