

In this problem we were given a text file that is corrupted by a backup program. The backup program would add a control C at the beginning, and a control B at the end. Inside of this code could be at most 4 carriage returns and other garbage characters. My job was to write code in PERL, Java, and Python to remove the added segments and restore the original file.

Below are the programs and the picture of the output after running them on the computer.

#### Perl

```
#!/usr/bin/perl
# Name: Marco Salazar
# Date: 11/1/20
# Purpose: To remove all Characters included between ^C and ^B inclusive that were added
erroneously to the file.
# Inputs: The corrupted Back up file
# Output: The fixed file with none of the added data is printed out.
# Code adapted from https://blog.udemy.com/perl-read-file/
#

open FILE1, "control-char.txt" or die $!;
my ($buf, $data, $n);
# variable to keep track of whether we should print a character out.
$throwaway = 0;
while (($n = read FILE1, $data, 1) != 0)
{
    # Convert the character into its ascii value
    $num = ord($data);

    # if it is ^C then initiate the throwaway section
    if($num == 3) {
        $throwaway = 1;
    }
    # if it is ^B then turn off the throw away section but don't print out ^B
    if($num == 2 && $throwaway){
        $throwaway = 0;
    }
    elsif($throwaway == 0){
        print $data;
    }
}
```

```
# Close the file
```

```
close(FILE1);
```

```
marco@DESKTOP-625N2SQ:/mnt/c/schoollinux/cs471/file$ perl remove.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
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This is line 36 This is line 36 This is line 36
This is line 37 This is line 37 This is line 37
This is line 38 This is line 38 This is line 38
This is line 39 This is line 39 This is line 39
This is line 40 This is line 40 This is line 40
This is line 41 This is line 41 This is line 41
This is line 42 This is line 42 This is line 42
This is line 43 This is line 43 This is line 43
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
marco@DESKTOP-625N2SQ:/mnt/c/schoollinux/cs471/file$
```

## Java

```
/*
 * Name: Marco Salazar
 * Date: 11/1/2020
 * Purpose: To remove all Characters included between ^C and ^B inclusive that were added
 erroneusly to the file.
 * Inputs: The corrupted Back up file
 * Output: The fixed file with none of the added data is printed out.
 * Code was adapted from https://stackoverflow.com/questions/811851/how-do-i-read-input-character-by-character-in-java
 */
```

```
import java.io.*;
import java.nio.charset.Charset;
```

```
public class Remove {  
  
    public static void main(String[] args) {  
        // Open the file with a reader to read line by line.  
        Charset encoding = Charset.defaultCharset();  
        File file = new File("control-char.txt");  
        try {  
            InputStream stream = new FileInputStream(file);  
            Reader reader = new InputStreamReader(stream, encoding);  
            Reader buffer = new BufferedReader(reader);  
            int r;  
            // If we are in the throw away section, we need to throw away the data.  
            boolean throwAway = false;  
            while((r = reader.read()) != -1) {  
                char ch = (char) r;  
                // If the Character is ^C  
                if(r == 3) throwAway = true;  
                // If the Character is ^B  
                if(r == 2 && throwAway) {  
                    throwAway = false;  
                    continue;  
                }  
  
                // If we are not in a throw away section, then print out the data.  
                if(!throwAway) {  
                    System.out.print(ch);  
                }  
            }  
        } catch(Exception e) {  
            System.out.println(e.toString());  
        }  
    }  
}
```

```
marco@DESKTOP-625N2SQ:/mnt/c/schoollinux/cs471/file$ java Remove
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
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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 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
marco@DESKTOP-625N2SQ:/mnt/c/schoollinux/cs471/file$
```

## Python

# Name: Marco Salazar

# Date: 11/2/20

# Purpose: To remove all Characters included between ^C and ^B inclusive that were added erroneously to the file.

# Inputs: The corrupted Back up file

# Output: The fixed file with none of the added data is printed out.

# Code adapted from <https://www.geeksforgeeks.org/python-program-to-read-character-by-character-from-a-file/>

#

file = open('control-char.txt', 'r')

throwaway = 0

while 1:

    # read by character

    char = file.read(1)

    if not char:

```
        break
    # convert the char to an ascii character
    num = ord(char)

    # if num is ^C then set the flag and throw away the value
    if num == 3:
        throwaway = 1
    # if num is ^B then it is the end of the throw away section, and this is the last variable to be
    thrown away
    if num == 2 and throwaway == 1:
        throwaway = 0
        continue
    if throwaway == 0:
        print(char, end=")

file.close()
```

```
marco@DESKTOP-625N2SQ:/mnt/c/schoollinux/cs471/file$ python3 remove.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
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This is line 15 This is line 15 This is line 15 B
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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
marco@DESKTOP-625N2SQ:/mnt/c/schoollinux/cs471/file$
```