

In order to remove control characters (of colors) you may use the command:

```
sed -r 's/\x1B\[([0-9;]*[mGK])//g' "tmp.txt" > "output.txt"
```

run examples

```
omer@LAPTOP-OMER:/mnt/c/Users/OMER/OneDrive/c&c++/openu/project - mama14/runExamples/noErrors$ ../../assembler preAssemblerTest/preAssemblerTest firstPassTest/firstPassTest seconPassTest/seconPassTest
===== [ Processing | preAssemblerTest/preAssemblerTest.as ] =====
-- preAssemblerTest/preAssemblerTest.am created
-- preAssemblerTest/preAssemblerTest.ob created
Ended successfully

===== [ Processing | firstPassTest/firstPassTest.as ] =====
-- firstPassTest/firstPassTest.am created
-- firstPassTest/firstPassTest.ob created
-- firstPassTest/firstPassTest.ent created
-- firstPassTest/firstPassTest.ext created
Ended successfully

===== [ Processing | seconPassTest/seconPassTest.as ] =====
-- seconPassTest/seconPassTest.am created
-- seconPassTest/seconPassTest.ob created
-- seconPassTest/seconPassTest.ent created
-- seconPassTest/seconPassTest.ext created
Ended successfully
```

pre assembler errors

```
omer@LAPTOP-OMER:/mnt/c/Users/OMER/OneDrive/c&c++/openu/project - mama14/runExamples$ ../assembler
Error: must give at least one file to process
omer@LAPTOP-OMER:/mnt/c/Users/OMER/OneDrive/c&c++/openu/project - mama14/runExamples$ ../assembler unexistFile
===== [ Processing | unexistFile.as ] =====
*** Error while opening 'unexistFile.as'. Stop current process.
omer@LAPTOP-OMER:/mnt/c/Users/OMER/OneDrive/c&c++/openu/project - mama14/runExamples$ |
```

```
omer@LAPTOP-OMER: /mnt/ × + ▾
omer@LAPTOP-OMER:/mnt/c/Users/OMER/OneDrive/c&c++/openu/project - mama14/runExamples/errors/preAssemblerErrors$ ../../../../assembler 1_empty_mcr_d
eclaration 2_mcr_start_with_non_alphabetic 3_mcr_saved_word 4_redeclaration_mcr 5_extra_txt_after_mcr 6_extra_txt_after_endmcr 7_unexpected_endm
cr 8_no_endmcr_before_eof 9_nested_macro 10_too_long_line
===== [ Processing | 1_empty_mcr_declaration.as ] =====

1_empty_mcr_declaration.as:7 error: empty macro declaration
 7 | mcr
   | ^

*** Processing failed.
===== [ Processing | 2_mcr_start_with_non_alphabetic.as ] =====

2_mcr_start_with_non_alphabetic.as:7 error: '1MAC' starts with a non-alphabetic character
 7 | mcr 1MAC
   | ^~~~

*** Processing failed.
===== [ Processing | 3_mcr_saved_word.as ] =====

3_mcr_saved_word.as:7 error: 'mov' is a reserved keyword that cannot be used as an identifier
 7 | mcr mov
   | ^~~

*** Processing failed.
===== [ Processing | 4_redeclaration_mcr.as ] =====

4_redeclaration_mcr.as:14 error: redeclaration of 'MAC'
14 | mcr MAC
   | ^~~

*** Processing failed.
===== [ Processing | 5_extra_txt_after_mcr.as ] =====

5_extra_txt_after_mcr.as:8 error: unexpected text: '//extra-text'
 8 | mcr MAC //extra-text
   | ^~~~~~

*** Processing failed.
```

```
omer@LAPTOP-OMER: /mnt/  ×  +  ▾
===== [ Processing | 6_extra_txt_after_endmcr.as ] =====
6_extra_txt_after_endmcr.as:10 error: unexpected text: '//extra-text'
10 | endmcr //extra-text
   |          ^~~~~~
*** Processing failed.
===== [ Processing | 7_unexpected_endmcr.as ] =====
7_unexpected_endmcr.as:9 error: unexpected 'endmcr'
9  | endmcr
   | ^~~~~
*** Processing failed.
===== [ Processing | 8_no_endmcr_before_eof.as ] =====
8_no_endmcr_before_eof.as:9 error: reached EOF in the middle of macro definition. Expected 'endmcr'
9  | dec r5
   | ^
*** Processing failed.
===== [ Processing | 9_nested_macro.as ] =====
9_nested_macro.as:9 error: 'mcr': nested macro definition is not allowed
9  |     mcr MACRO2
   |     ^~~
*** Processing failed.
===== [ Processing | 10_too_long_line.as ] =====
10_too_long_line.as:6 error: line length is more than 80 characters
6  | mov r2, r3
   | ^
10_too_long_line.as:11 error: line length is more than 80 characters
11 |     sub r2, r3
   | ^
-- 10_too_long_line.am created
```

first pass
warning and errors

```
omer@LAPTOP-OMER: /mnt/  X  +  v
omer@LAPTOP-OMER:/mnt/c/Users/OMER/OneDrive/c&c++/openu/project - mama14/runExamples/errors/warnings$ cd ../
omer@LAPTOP-OMER:/mnt/c/Users/OMER/OneDrive/c&c++/openu/project - mama14/runExamples/errors$ cd ../warnings/
omer@LAPTOP-OMER:/mnt/c/Users/OMER/OneDrive/c&c++/openu/project - mama14/runExamples/errors/warnings$ ../../../../assembler warning
===== [ Processing | warning.as ]=====
-- warning.am created

warning.am:4  warning: variables may be inaccessible without label
4  |  .data 1,2,3
   |  ^

warning.am:5  warning: variables may be inaccessible without label
5  |  .string "a"
   |  ^

warning.am:8  warning: label 'L1:' is ignored
8  |  L1: .extern EXT
   |  ^~~

warning.am:9  warning: label 'L2:' is ignored
9  |  L2: .entry ENT
   |  ^~~

warning.am:12 warning: 'EXT' has already declared in earlier line
12 |  .extern EXT
   |  ^~~

warning.am:13 warning: 'ENT' has already declared in earlier line
13 |  .entry ENT
   |  ^~~

warning.am:16 warning: 'd' has already declared in earlier line
16 |  .define d=1
   |  ^

-- warning.ob created
-- warning.ent created
Ended successfully

omer@LAPTOP-OMER:/mnt/c/Users/OMER/OneDrive/c&c++/openu/project - mama14/runExamples/errors/warnings$ |
```

```
omer@LAPTOP-OMER: /mnt/ X + v
omer@LAPTOP-OMER: /mnt/c/Users/OMER/OneDrive/c&c++/openu/project - mama14/runExamples/errors$ ../../assembler firstPassErrors/
firstPassErrors
===== [ Processing | firstPassErrors/firstPassErrors.as ] =====
-- firstPassErrors/firstPassErrors.am created

firstPassErrors/firstPassErrors.am:8 error: unexpected text: '123'
8 | .extern X 123
  |           ^~~

firstPassErrors/firstPassErrors.am:9 error: unexpected text: 'xxx'
9 | prn EXT xxx
  |         ^~~

firstPassErrors/firstPassErrors.am:12 error: '1L:' starts with a non-alphabetic character
12 | 1L: .data 2,3
   |   ^~~

firstPassErrors/firstPassErrors.am:13 error: '$EN' starts with a non-alphabetic character
13 | .entry $EN
   |       ^~~

firstPassErrors/firstPassErrors.am:14 error: '%x' starts with a non-alphabetic character
14 | .define %x = 3
   |         ^~

firstPassErrors/firstPassErrors.am:17 error: 'mov:' is a reserved keyword that cannot be used as an identifier
17 | mov: .string "a"
   |   ^~~~

firstPassErrors/firstPassErrors.am:18 error: 'r2' is a reserved keyword that cannot be used as an identifier
18 | .extern r2
   |         ^~
```

firstPassErrors/firstPassErrors.am:19 error: 'endmcr' is a reserved keyword that cannot be used as an identifier

```
19 | .define endmcr = 2
    |          ^~~~~~
```

firstPassErrors/firstPassErrors.am:26 error: redeclaration of 'S1:'

```
26 | S1: .string "b"
    |    ^~~
```

firstPassErrors/firstPassErrors.am:28 error: redeclaration of 'DATA'

```
28 | .extern DATA
    |          ^~~~
```

firstPassErrors/firstPassErrors.am:31 error: 'z' undeclared

```
31 | D2: .data 1,z,2
    |              ^
```

firstPassErrors/firstPassErrors.am:32 error: 'z' undeclared

```
32 | mov S2[z], r0
    |      ^
```

firstPassErrors/firstPassErrors.am:36 error: 'LABEL_L:' contains non-alphanumeric characters

```
36 | LABEL_L: hlt
    | ^~~~~~
```

firstPassErrors/firstPassErrors.am:37 error: 'L-A-B-E-L!:' contains non-alphanumeric characters

```
37 | L-A-B-E-L!: rts
    | ^~~~~~
```

firstPassErrors/firstPassErrors.am:40 error: label 'L3:' and '.define' cannot be declared on the same line

```
40 | L3: .define d2 = 5
    |    ^~~
```


firstPassErrors/firstPassErrors.am:43 error: expected ':' after 'LABEL'

```
43 | LABEL add r2,r3
    | ^~~~~~
```

firstPassErrors/firstPassErrors.am:46 error: undefined: '@#\$DQ'

```
46 | @#$DQ mov r0, r3
    | ^~~~~~
```

firstPassErrors/firstPassErrors.am:47 error: undefined:

```
47 | LABEL:
    | ^
```

firstPassErrors/firstPassErrors.am:53 error: expected numeric value or defined constant, but got label 'STR'

```
53 | mov r0, #STR
    |         ^~~
```

firstPassErrors/firstPassErrors.am:54 error: expected numeric value or defined constant, but got label 'STR'

```
54 | add r0, LABEL[STR]
    |                  ^~~
```

firstPassErrors/firstPassErrors.am:57 error: '500000000' exceeds integer bounds [-(2¹¹-1), 2¹¹-1]

```
57 | cmp r0, #500000000
    |          ^~~~~~
```

firstPassErrors/firstPassErrors.am:58 error: '-999999' exceeds integer bounds [-(2¹¹-1), 2¹¹-1]

```
58 | .define d5 = -999999
    |              ^~~~~~
```

firstPassErrors/firstPassErrors.am:59 error: '222222' exceeds integer bounds [-(2¹¹-1), 2¹¹-1]

```
59 | dec EXT[222222]
    |           ^~~~~~
```

```
84 | .string
```

firstPassErrors/firstPassErrors.am:87 error: missing opening " character in 'a'

```
87 | .string a"
    |         ^~
```

firstPassErrors/firstPassErrors.am:90 error: missing terminating " character in "abc'

```
90 | .string "abc'
    |         ^~~~
```

firstPassErrors/firstPassErrors.am:95 error: '\$%#!' invalid operand

```
95 | mov r2, $%#!
    |         ^~~~
```

firstPassErrors/firstPassErrors.am:98 error: passing '#2' is invalid addressing mode to function

```
98 | jmp #2
    |     ^~
```

firstPassErrors/firstPassErrors.am:101 error: too few arguments in instruction

```
101 | jmp
    |     ^
```

firstPassErrors/firstPassErrors.am:102 error: too few arguments in instruction

```
102 | add r2
    |     ^
```

firstPassErrors/firstPassErrors.am:105 error: expected expression before ',' token

```
105 | mov, r2, r3
    |     ^
```

firstPassErrors/firstPassErrors.am:108 error: expected ',' before 'r3'

```
108 | cmp r0 r3
    |     ^~
```

firstPassErrors/firstPassErrors.am:109 **error:** expected ',' before '2'

```
109 | .data 1 2
    |         ^
```

firstPassErrors/firstPassErrors.am:114 **error:** unexpected ',' after end of command

```
114 | .data 1,
    |         ^
```

firstPassErrors/firstPassErrors.am:115 **error:** unexpected text: ','

```
115 | not r0,
    |         ^
```

firstPassErrors/firstPassErrors.am:118 **error:** empty data declaration

```
118 | .data
    |         ^
```

firstPassErrors/firstPassErrors.am:121 **error:** expected numeric value or defined constant before ','

```
121 | .data 1, 2
    |         ^
```

firstPassErrors/firstPassErrors.am:126 **error:** expected identifier after directive

```
126 | .entry
    |         ^
```

firstPassErrors/firstPassErrors.am:127 **error:** expected identifier after directive

```
127 | .extern
    |         ^
```

firstPassErrors/firstPassErrors.am:131 **error:** empty define declaration

```
131 | .define d6
    |         ^
```

```
firstPassErrors/firstPassErrors.am:134 error: expected '=' before numeric token, but got '7'
```

```
134 | .define d7 7  
    |           ^
```

```
firstPassErrors/firstPassErrors.am:137 error: expected numeric expression after '='
```

```
137 | .define x =  
    |           ^
```

```
firstPassErrors/firstPassErrors.am:140 error: '@#$$@' starts with a non-alphabetic character
```

```
140 | .define @#$$@  
    |           ^~~~~
```

```
firstPassErrors/firstPassErrors.am:141 error: 'y' is not a valid numeric expression
```

```
141 | .define x = y  
    |           ^
```

```
*** Processing failed.
```

second pass errors

```
omer@LAPTOP-OMER:/mnt/c/Users/OMER/OneDrive/c&c++/openu/project - mamal4/runExamples/errors$ ../../assembler secondPassErrors/secondPassErrors
===== [ Processing | secondPassErrors/secondPassErrors.as ] =====
-- secondPassErrors/secondPassErrors.am created

secondPassErrors/secondPassErrors.am:4  error: 'STR' undeclared
4  | add r0, STR
   |          ^~~~

secondPassErrors/secondPassErrors.am:5  error: 'STR' undeclared
5  | sub r0, STR
   |          ^~~~

secondPassErrors/secondPassErrors.am:6  error: 'DATA' undeclared
6  | prn DATA[10]
   |          ^~~~~

secondPassErrors/secondPassErrors.am:7  error: 'ENT' undeclared
7  | mov ENT, DATA[2]
   |      ^~~~

secondPassErrors/secondPassErrors.am:8  error: 'ENT' undeclared
8  | .entry ENT
   |      ^~~~

*** Processing failed.
omer@LAPTOP-OMER:/mnt/c/Users/OMER/OneDrive/c&c++/openu/project - mamal4/runExamples/errors$ |
```