

## CSE 3302: Programming Languages

Spring 2020

### Programming Assignment 03 – Nesting depth of curly braces using Python

100 points

Due on 04/7/2020 [ before 11:59 pm]

#### INSTRUCTIONS

1. Do NOT plagiarize.
2. No group work. All work should be your own.
3. Do not discuss your work with other students in the class.
4. You CANNOT borrow code from online sources.
5. Turn in your program using Canvas. Do not email your program to the TA or the instructor.
6. Name your document as **netid\_PA3.py** where netid is your UTA netid. If you do not know your netid, check what it is using NetID Self Service. Your 1000 number is NOT your netid. If your file name is wrong, your assignment will not be graded.
7. All code should be your own. You may not copy code from the slides, book, others, or the internet unless specified.
8. Display your results as in the sample output.
9. Write an explanation of your code using comments. If the explanation is not clear, you will NOT receive full credit.
10. The code should have your name, 1000 number, the date you turn in your assignment, and OS used as the first 4 lines in order.
11. Use Python 3.6.2. You can download it for free at [python.org](https://python.org). If you use a different version than Python 3.6.2, document it in your code with a comment, and mention it in your submission so the TA will know.
12. You can only use the `os` package. No other packages/modules/external files or libraries are allowed.

Write a program that will take an input file called `input.txt` which will contain a Java program and parse it and output an annotated version.

Your program will track the nesting depth of the braces of the input file and will output an annotated version of the file.

Your final program will

1. List the nesting depth of curly braces
2. Ignore braces inside quotes or comments

### Use Python

Assume that all quoted strings begin and end on the same line.

Sample INPUT:

```
-----  
import blah;  
class Foo  
{  
    void Foo()  
    {  
        System.out.println("braces are fun! {{{{}}"); // ignored  
        if (condition)  
        {  
            // also ignored: {  
            int a = 1;  
            // as is this: }  
        }  
    }  
}  
//end of program
```

Sample annotated OUTPUT:

```
-----  
0 import blah;  
0 class Foo  
1 {  
1   void Foo()  
2   {  
2     System.out.println("braces are fun! {{{{}}"); // ignored  
2     if (condition)  
3     {  
3       // also ignored: {  
3       int a = 1;  
3       // as is this: }  
3     }
```

```
2  }  
1  }  
0 // end of program
```

**Extra credit**

Handle block comments that cross multiple lines of the input file.

```
/* comment with  
ignored brace { */
```

**If you work on the extra credit your code file should be named netid\_PA3\_EC.py and your input file will be input\_EC.txt.**

**Note :- The sample input and output will not be the only test case used to test the working of your code. Do NOT contact the TA or instructor regarding the test cases.**