**CSE 3302: Programming Languages**

**Fall 2017**

**Programming Assignment 02 – RPN Calculator using Python**

**100 points**

**Due on 10/25/2017 [ 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 Blackboard. Do not email your program to the TA or the instructor.**
6. **Name your document as netid.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 may 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. You are not allowed to use in-built functions other than the ones taught in class for functional programming.**
8. **Display your results for each question in a new line.**
9. **Write an explanation of your code for each line using comments. If the explanation is not clear, you will NOT receive full credit.**
10. **The code should have you 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. Only Python 3.6.2 will be accepted.**
12. **You can only use os package. No other packages are allowed**

Use Python to create a simple calculator that accepts Reverse Polish Notation (RPN) and displays the final answer (Intermediate steps or results need not be displayed). It only accepts 4 operators +, -, \*, /. You should convert the algebraic notation to RPN before using it as input to your program. The input will be provided in a text file called input\_RPN.txt. There will be one RPN expression in each line. Your code should be able to read in the file and print the result for each RPN in a new line.  
Example of RPN: - If you want to compute the answer for the algebraic notation 4 + 2 , your RPN will be 4 2 + and your output should be 6. This is a simple expression. More complex algebraic notations will be used to test your program like the one below.  
Example algebraic notation: ( 4 + 2 \* 5 ) / ( 1 + 3 \* 2 )  
Translated into RPN: 4 2 5 \* + 1 3 2 \* + /

**Extra credit**

Your code will take in an algebraic expression and convert it to RPN and evaluate the RPN. Print the RPN and the result in separate lines. If you are implementing extra credit, your file should be name as netid\_EC.py. The input file name will be input\_RPN\_EC.txt and it will have algebraic expressions.  
  
Note: - Your code should be able to read the input file from the same folder (which has your .py file). Do not hard code the path to the file in your laptop/desktop. Use os to get the path and read the input file.