**BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI**

**DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION SYSTEMS**

**Principles of Programming Languages (CS F301)**

**Group No. 40**

**I Semester 2020-21**

**Assignment-1 Code Submission**

**Coding Details**

**(October 29, 2020)**

1. IDs and Names of team members :

ID: 2018A7PS0220P Name: Rahul Barigidad

ID:2018A7PS0280P Name: Tejas Tiwari

ID:2018A7PS0261P Name: Bir Anmol Singh

ID:2018A7PS0163P Name: Gitansh Pujari

1. Mention the names of the Submitted files :

1\_\_\_codeFile.c\_\_\_\_\_\_\_ 7\_\_dataStructures.h\_\_\_\_ 13\_\_\_\_t5.txt\_\_\_\_\_\_\_\_

2\_\_\_\_funcitons.c\_\_\_\_\_\_\_\_ 8\_\_\_\_\_Traversal.c\_\_\_\_\_\_ 14\_\_\_\_t6.txt\_\_\_\_\_\_\_\_

3\_\_\_\_\_functions.h\_\_\_\_\_\_\_ 9\_\_\_\_\_\_t1.txt\_\_\_\_\_\_\_\_\_\_ 15\_\_\_grammar.txt\_\_\_

4\_\_\_parseTree.c\_\_\_\_\_\_\_\_ 10\_\_\_\_\_t2.txt\_\_\_\_\_\_\_\_\_ 16\_\_\_\_makefile\_\_\_\_

5\_\_parseTreeFunctions.h\_ 11\_\_\_\_\_\_t3.txt\_\_\_\_\_\_\_\_\_\_

6\_\_\_dataStructures.c\_\_\_\_ 12\_\_\_\_\_\_t4.txt\_\_\_\_\_\_\_\_

1. Total number of submitted files: \_\_\_\_16 + 1(proforma)\_\_\_\_\_ (All files should be in **ONE folder** named exactly as Group\_#, # is your group number)
2. Have you mentioned your names and IDs at the top of each file (and commented well)? (Yes/ no) \_\_\_yes\_\_\_\_ [Note: Files without names will not be evaluated]
3. Have you compressed the folder as specified in the submission guidelines? (yes/no)\_\_\_\_\_\_yes\_\_\_\_\_\_\_
4. Have you ensured that the folder does not have any \*.o file or any executable file? (yes/no)\_\_\_\_\_\_yes\_\_\_\_\_\_
5. **Grammar and token stream**

Total number of production rules: \_\_\_\_\_\_\_60\_\_\_\_\_\_\_\_

Total number of nonterminals: \_\_\_\_\_\_\_27\_\_\_\_\_\_\_\_\_\_

Total number of terminals: \_\_\_\_\_\_\_\_\_\_29\_\_\_\_\_\_\_\_\_\_

Grammar.txt file created [yes/no]:\_\_\_\_\_\_yes\_\_\_\_\_\_\_\_

Nonterminal symbols enumerated [yes/no]:\_\_yes\_\_\_\_\_\_\_\_\_\_\_\_

Terminal symbols enumerated [yes/no]:\_\_\_\_\_\_\_yes\_\_\_\_\_\_\_\_\_\_

Grammar data structure populated successfully [yes/no]:\_\_\_yes\_\_\_\_\_\_\_\_\_\_\_\_\_

Tokenstream created [yes/no]:\_\_\_\_\_\_\_\_yes\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Which functions have you implemented?**
   1. ***readGrammar ( ) [yes/no] \_\_\_\_\_\_\_\_\_yes\_\_\_\_\_\_\_\_\_\_***
   2. ***tokeniseSourcecode ( ) [yes/no] \_\_\_\_\_\_yes\_\_\_\_\_\_\_\_\_\_\_\_\_***
   3. ***createParseTree ( ) [yes/no] \_\_\_\_\_\_\_\_yes\_\_\_\_\_\_\_\_\_\_\_***
   4. ***traverseParseTree ( ) [yes/no] \_\_\_\_\_\_yes\_\_\_\_\_\_\_\_\_\_\_\_\_***
   5. ***printParseTree ( ) [yes/no] \_\_\_\_\_\_\_\_\_yes\_\_\_\_\_\_\_\_\_\_\_***
   6. ***printTypeExpressionTable ( ) [yes/no] \_\_\_\_\_\_yes\_\_\_\_\_\_\_\_\_\_\_\_\_***
2. **Parse tree** 
   1. Constructed (yes/no):\_yes\_\_\_
   2. Printing as per the given format (yes/no): \_no (one of our rules derives a list of non terminals that doesn’t fit the in width of the terminal, only grammar rules are omitted, rest of requirements preserved)\_\_\_
   3. Describe the order you have adopted for printing the parse tree nodes (in maximum two lines)

\_\_\_\_Pre-Order Traversal for an n-ary tree.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Type Expression Table**

[A]. Constructed (yes/no):\_yes\_\_\_

[B]. Implemented as (lookup table/ hash table):\_\_\_\_\_\_lookup table\_\_\_\_\_\_\_\_\_\_

[C]. Printing as per the given format (yes/no): \_\_\_\_\_\_\_yes\_\_\_\_\_\_\_

[C]. Describe the structure of the type expression accommodating all types (in maximum two lines)

\_\_Union holding values for Primitive expression, RectArr type expression, Jagged Arr type expression.\_\_\_

\_\_Each of the above are stored in struct(enum for primitive type).\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Compilation Details:**
   1. Implemented in multiple files / single file:\_\_\_\_\_\_\_\_multiple files\_\_\_\_\_\_\_\_\_\_
   2. Makefile works (yes/no):\_\_\_\_\_yes\_\_\_
   3. Code Compiles (yes/ no):\_\_\_\_yes\_\_\_\_\_\_\_
   4. Mention the .c files that do not compile:\_\_\_\_\_\_\_\_\_\_\_\_None.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   5. Any specific function that does not compile:\_\_\_\_\_\_\_\_\_\_\_\_\_None.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   6. Ensured the compatibility of your code with the specified gcc version(yes/no)\_\_yes\_\_\_\_\_\_\_
   7. Give below the exact commands to compile your code :

\_\_”make”, then pass command “./exec <filename>”, where <filename> is the actual name of file.\_\_\_

1. **Driver Details**: Does it take care of the options specified earlier(yes/no):\_\_\_yes\_\_\_\_\_
2. **Execution** 
   1. Status (describe in maximum 2 lines):\_\_\_\_Works completely fine.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. Gives segmentation fault with any of the test cases (1-6) uploaded on the course page. If yes, specify the testcase file name:\_\_\_\_No fault.\_\_\_\_\_\_
  2. Command line arguments used for input file (yes/no):\_\_\_\_\_\_\_\_Yes\_\_\_\_\_\_\_\_\_

1. Specify the language features your code is not able to handle (in maximum one line)\_\_None, that we have observed, however there may be some boundary cases that aren’t handled.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Are you availing the lifeline (Yes/No): \_\_\_\_\_yes\_\_\_\_\_\_
3. Declaration: We, Rahul Barigidad, Tejas Tiwari, Bir Anmol Singh, Gitansh Pujari\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (your names) declare that we have put our genuine efforts in creating the code and have submitted the code developed only by our group. We have not copied any piece of code from any source. If our code is found plagiarized in any form or degree, we understand that a disciplinary action as per the institute rules will be taken against us and we will accept the penalty as decided by the department of Computer Science and Information Systems, BITS, Pilani. [Write your ID and names below]

ID 2018A7PS0220P Name: Rahul Barigidad

ID 2018A7PS0280P Name: Tejas Tiwari

ID 2018A7PS0261P Name: Bir Anmol Singh

ID 2018A7PS0163P Name: Gitansh Pujari

Date: \_\_30/10/2020\_\_\_

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Should not exceed 3 pages.