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

**DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION SYSTEMS**

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

**Group No.**

**21**

**I Semester 2020-21**

**Assignment-1 Code Submission**

**Coding Details**

**(October 29, 2020)**

1. IDs and Names of team members

ID: 2017B3A70507P Name: Syed Ahsan Abbas

ID: 2017B3A70452P Name: Sarthak Sehgal

1. Mention the names of the Submitted files:

Makefile    |    errors.h    |    general.c  
general.h    |    grammar.c    |    grammar.h  
grammar.txt    |    grammar\_reader.c    |    grammar\_reader.h  
hash\_map.c    |    hash\_map.h    |    nonterminal\_map.c  
nonterminal\_map.h    |    nonterminal\_name.c    |    nonterminal\_name.h  
parse\_tree.c    |    parse\_tree.h    |    parser.c  
parser.h    |    pda\_stack.c    |    pda\_stack.h  
print.c    |    print.h    |    t1.txt  
t2.txt    |    t3.txt    |    t4.txt  
t5.txt    |    t6.txt    |    t7.txt  
t8.txt    |    terminal\_map.c    |    terminal\_map.h  
terminal\_name.c    |    terminal\_name.h    |    token\_map.c  
token\_map.h    |    token\_stream.c    |    token\_stream.h  
entities.h    |    tokeniser.c    |    errors.c  
tokeniser.h    |    type\_exp\_table.c    |    driver.c

type\_exp\_table.h | driver.h

1. Total number of submitted files: \_\_\_\_\_47\_\_\_\_\_\_ (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: \_\_\_\_\_\_\_\_53\_\_\_\_\_\_\_\_

Total number of nonterminals: \_\_\_\_\_\_\_\_\_\_28\_\_\_\_\_\_\_\_\_

Total number of terminals: \_\_\_\_\_\_\_\_\_\_\_\_33\_\_\_\_\_\_\_\_\_\_

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): \_\_\_Yes\_\_\_\_
   3. Describe the order you have adopted for printing the parse tree nodes (in maximum two lines)

We have printed it like a normal n-ary tree using depth first traversal - just like file system trees are shown in code editors. Depths are differentiated by indentation and each depth has a common vertical line connecting all nodes in it.

1. **Type Expression Table**

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

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

Variant record with tagged unions with different types for primitive, array and jagged array entries. Each of those is a record having their own specific fields (all defined in **entities.h**)

1. **Compilation Details:**
   1. Implemented in multiple files / single file:\_\_\_\_\_\_\_\_\_\_Multiple\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Makefile works (yes/no):\_\_\_\_\_Yes\_\_\_\_\_\_
   3. Code Compiles (yes/ no):\_\_\_\_\_Yes\_\_\_\_\_\_\_\_\_
   4. Mention the .c files that do not compile:
   5. Any specific function that does not compile:
   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 run && ./output t1.txt**
2. **Driver Details**: Does it take care of the options specified earlier(yes/no):\_\_\_\_Yes\_\_\_\_\_\_\_
3. **Execution** 
   1. Status (describe in maximum 2 lines) :

All the 5 options work and all files compile and execute successfully.

* 1. Gives segmentation fault with any of the test cases (1-6) uploaded on the course page. If yes, specify the testcase file name: \_\_\_\_\_None\_\_\_\_\_\_\_\_\_
  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
2. Are you availing the lifeline (Yes/No): \_\_\_\_\_\_No\_\_\_\_\_\_\_\_
3. Declaration: We, Syed Ahsan Abbas and Sarthak Sehgal 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.

ID:2017B3A70507P Name: Syed Ahsan Abbas

ID2017B3A70452P Name: Sarthak Sehgal

Date: 29-10-2020

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Should not exceed 3 pages.