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

Batch No. :

**DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION SYSTEMS**

**Compiler Construction (CS F363)**

**II Semester 2017-18**

**Compiler Project (Stage-2 Submission)**

**Coding Details**

**(April 20, 2018)**

*Instruction: Write the details precisely and neatly. Places where you do not have anything to mention, please write NA for Not Applicable.*

1. ID Number: \_\_\_\_\_2014B2A70220P\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name: \_\_\_\_\_\_\_\_Maitri Shastri\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Mention the names of the Submitted files ( Include Stage-1 and Stage-2 both)
2. Mention the names of the Submitted files :

1 lexer.c 7 parser.c 13 trieDef.h

2 lexerDef.h 8 parser.h 14 trieadt.h

3 lexer.h 9 parserDef.h 15 trie.c

4 stack.c 10 driver.c

5 stackadt.h 11 makefile

6 stackDef.h 12 grammar.txt

1. Total number of submitted files: \_\_\_\_15\_\_\_\_\_\_\_ (All files should be in ONE folder named exactly as your ID)
2. Have you compressed the folder as specified in the submission guidelines? (yes/no)\_\_\_\_\_\_\_yes\_\_\_\_\_\_\_\_
3. **Status of Code development**: Mention 'Yes' if you have developed the code for the given module, else mention 'No'.
   1. Lexer (Yes/No): \_\_\_\_\_\_\_\_\_\_\_\_yes\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Parser (Yes/No):\_\_\_\_\_\_\_\_\_\_\_\_\_\_yes\_\_\_\_\_\_\_\_\_\_\_\_
   3. Abstract Syntax tree (Yes/No):\_\_\_\_\_yes\_\_\_\_\_\_\_\_\_\_
   4. Symbol Table (Yes/ No):\_\_\_\_\_\_\_\_\_\_\_\_\_no\_\_\_\_\_\_\_
   5. Type checking Module (Yes/No):\_\_\_\_\_\_\_\_no\_\_\_\_\_\_\_\_\_\_\_
   6. Semantic Analysis Module (Yes/ no):\_\_\_\_\_\_\_no\_\_\_\_\_(reached LEVEL \_\_\_\_ as per the details uploaded)
   7. Code Generator (Yes/No):\_\_\_\_\_\_\_\_\_no\_\_\_\_\_\_\_\_
4. **Execution Status**:
   1. Code generator produces code.asm (Yes/ No): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. code.asm produces correct output using NASM for testcases (C#.txt, #:1-3):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. Semantic Analyzer produces semantic errors appropriately (Yes/No):\_\_\_\_\_\_\_\_\_\_\_\_
   4. Type Checker reports type mismatch errors appropriately (Yes/ No):\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   5. Symbol Table is constructed (yes/no)\_\_\_\_\_\_\_\_\_and printed appropriately (Yes /No):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   6. AST is constructed (yes/ no) \_\_yes\_\_\_\_\_\_\_\_\_\_and printed (yes/no) \_\_\_\_\_\_\_\_yes\_\_
   7. Name the test cases out of 9 as uploaded on the course website for which you get the segmentation fault (testcase#.txt ; # 1-6 and c@.txt ; @:1-3):\_\_\_\_\_\_\_all except 4\_\_\_\_\_\_\_\_\_\_\_\_
5. **Data Structures** (Describe in maximum 2 lines and avoid giving C definition of it)
   1. AST node structure\_\_\_Same as parse treenode structure where an extra parameter has been included for those terminal symbols that are acting as non- terminals
6. **Semantic Checks:** Mention your scheme NEATLY for testing the following major checks (in not more than 5-10 words)[ Hint: You can use simple phrases such as 'symbol table entry empty', 'symbol table entry already found populated', 'traversal of linked list of parameters and respective types' etc.]N.A.
   1. Variable not Declared :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Multiple declarations: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. Number and type of input and output parameters:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. assignment of value to the output parameter in a function \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   5. function call semantics:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   6. type checking :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   7. return semantics:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   8. Recursion :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   9. module overloading:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   10. 'If' semantics :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   11. Matrix semantics and type checking of matrix type variables: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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* 1. register allocation (your manually selected heuristic) :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  2. Scope of variables and their visibility :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **Compilation Details**:
   1. Makefile works (yes/No):\_\_yes\_\_\_\_\_\_\_\_\_
   2. Code Compiles (Yes/ No):\_\_\_\_\_yes\_\_\_\_\_\_\_\_\_
   3. Mention the .c files that do not compile:\_\_n.a.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. Any specific function that does not compile:\_\_n.a.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   5. Ensured the compatibility of your code with the specified gcc version(yes/no)\_\_\_\_yes\_\_\_\_\_\_\_\_
2. **Driver Details**: Does it take care of the options specified earlier?(yes/no):\_\_\_\_\_\_yes\_\_\_\_\_
3. Specify the language features your compiler is not able to handle (in maximum one line)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Semantic Analysis\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Are you availing the lifeline (Yes/No): \_\_\_\_\_\_\_\_\_\_\_\_\_\_yes
2. Write exact command you expect to be used for executing the code.asm using NASM simulator [We will use these directly while evaluating your NASM created code]

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1. **Strength of your code**(Strike off where not applicable): (a) readable (f) strong data structure (f) Good programming style (indentation, avoidance of goto stmts etc) (g)
2. **Declaration:** I, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (your name) declare that I have put my genuine efforts in creating the compiler project code and have submitted the code developed by me. I have not copied any piece of code from any source. If my code is found plagiarized in any form or degree, I understand that a disciplinary action as per the institute rules will be taken against me and I will accept the penalty as decided by the department of Computer Science and Information Systems, BITS, Pilani.

Sign:\_\_\_\_\_Maitri Shastri\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

ID\_\_\_\_\_\_\_2014B2A70220P\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name:\_\_\_Maitri Shastri\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_21/April\_\_\_\_\_\_\_\_\_\_\_

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/\*not to exceed three pages\*/