**CS 4031 Compiler Construction**

**Assignment 5**

**Section BCS-6A and BCS-8A**

**NOTE:**Don't resort to cheating or any form of plagiarism. Submit the assignment on time. Ask your queries from TA.

**To Submit:** A zipped folder named "group #.zip" (# is your group number). It should contain all files present in the provided template (your code) along with a file named"symbol_table.txt" (generated in previous assignment), "TAC.txt" (containing the three-address code) and "Grammar.txt" filecontaining your grammar along with your translation scheme. Only 1 student in a group has to submit the assignment.

**Penalties:**

- -5 marks for not following submission instructions
- -5 for messy coding
- Maximum late penalty is 25
- Grammar.txt should contain your grammar along with translation scheme else (-10)

**Instructions:**

- Code your translation scheme (adding code to your parser) so that your parser generates Three Address code of the source code
- There is no TAC for declaration statement it just adds an entry in symbol table
- Your parser should dynamically generate TAC
- *Sample codes do not handle every construct in our language. e.g.elif, multiple parameters etc. You are required to implement every construct in our language keeping bonus work in mind*
- Your program may be tested on different sample codes
- **(Insight for Bonus Work)** Function address (line number in our case) is stored in the symbol table. If you want to execute main function lookup in symbol table and start execution from the specified line number. Return statements ends the execution.
- **Food for thought (bonus):**Knowing the number of parameters is enough for a function call? (In our case) Or do we need more information?

**TAC generation:**

→For source_code0.mc – source_code2.mc

```
1  x = 0;
2  y = 1;
3  z = 0;
4  out "Enter the number :";
5  in num;
6  if num < 0 goto 8;
7  goto 10;
8  out "negative number entered\n";
9  ret 0;
10 out "\nThefibonacciseries :";
11 i = 0;
12 if i< num goto 14;
13 goto 21;
14 out x;
15 out " ";
16 z = x + y;
17x = y;
18y = z;
19i = i + 1;
20goto 12;
21ret 0;
```

→For source_code3.mc (bonus)

```
1  x = 0;
2  y = 1;
3  z = 0;
4  out "Enter the number :";
5  in num;
6  if num < 0 goto8;
7  goto 10;
8  out "negative number entered\n";
9  ret 0;
10 out "\nThefibonacciseries :";
11 i = 0;
12 if i< num goto 14;
13 goto 21;
14 out x;
15 out " ";
16 z = x + y;
17 x = y;
18 y = z;
19 i = i + 1;
20 goto 12;
21 ret 0;
22 out "Enter the number :";
23 in num;
24 param num
25 call calculateFib, 1, t1;
26 ret 0;
```

**Bonus Work:(given when project is complete)**

Run source_code0 for full credit and source_code1 to source_code3 for bonus.

**Assignment Details**

Implement Translation Scheme for mc language keeping the Tac files in mind. If you want to do bonus work, you should be able to run that specific sample code without errors. Rest samples are for bonus work. Code (to be executed) can be changed during evaluation.**Read above guidelines carefully, otherwise you may lose marks.**

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