

GTU Department of Computer Engineering
CSE341 - Fall 2020
Homework 3(Yacc and Lisp Interpreter) Report

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if command line argument exists read input from file otherwise read input from terminal until you give an empty string.

For yacc:

Usage:

make

./gpp_interpreter.out filename

or

./gpp_interpreter.out

output: write file named "parsed_cpp.txt"

For lisp:

Usage clisp gpp_interpreter.lisp filename

or

clisp gpp_interpreter.lisp

output: write file named "parsed_lisp.txt"

1) Parts or properties you have implemented and you did not implemented.

I implemented part 1 and big part of part2 because of time constraint.

In detail

Part 1:

Working syntax;

and, or, not, equal, less, nil, list, append, concat, set, if, exit, disp, true, false

+, -, /, *, (), **, ;;

Not Working syntax;

deffun, for, load

Note: append and concat is working, if they are not in same process, otherwise lists will be mixed, but there will not be a syntax error. I didn't find reason.

2) Assumptions about the parts you have implemented. Ambiguities and how you handled them.

Note: After syntax error program stops.

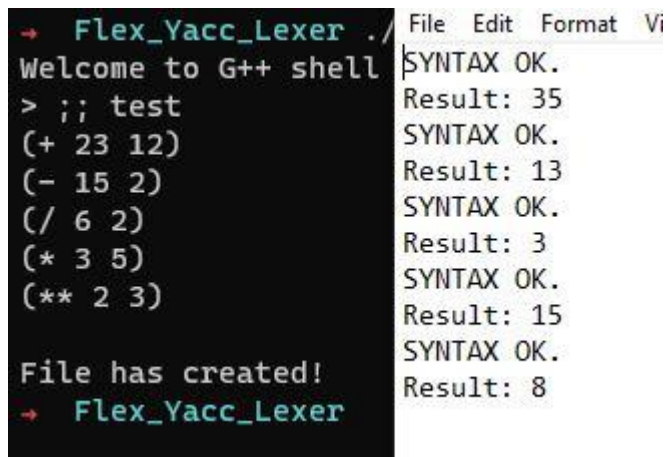
Part 1:

While doing **set keyword for assignment** I used linked list to keep each variable and its data

```
/*This Linked List is to keep variables for set operation*/
typedef struct node_s
{
    int data;
    char name[30];
    struct node_s *next;
}node_t;
```

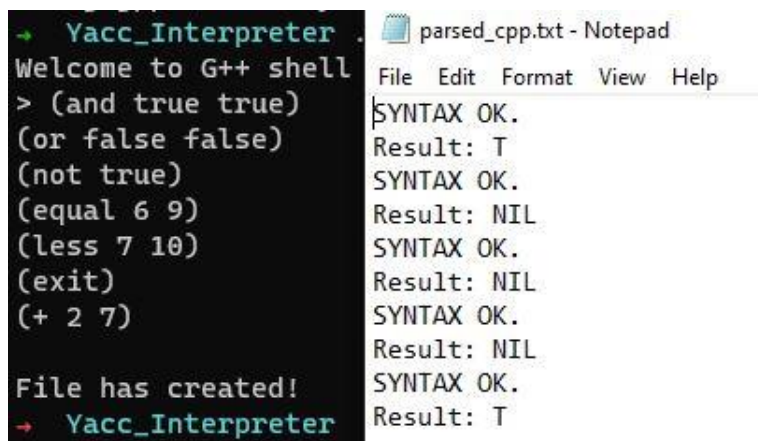
Also, for append operation again I used this linked list.

Results for each operation;



The screenshot shows a terminal window titled "Flex_Yacc_Lexer ./" with a menu bar containing "File", "Edit", "Format", and "Vi". The terminal displays the following interactions:

```
Welcome to G++ shell
> ;; test
(+ 23 12)
Result: 35
(- 15 2)
Result: 13
(/ 6 2)
Result: 3
(* 3 5)
Result: 15
(** 2 3)
Result: 8
File has created!
→ Flex_Yacc_Lexer
```



The screenshot shows a terminal window titled "Yacc_Interpreter ." with a menu bar containing "File", "Edit", "Format", "View", and "Help". The terminal displays the following interactions:

```
Welcome to G++ shell
> (and true true)
Result: T
(or false false)
Result: NIL
(not true)
Result: T
(equal 6 9)
Result: NIL
(less 7 10)
Result: T
(exit)
Result: NIL
(+ 2 7)
Result: 9
File has created!
→ Yacc_Interpreter
```

*After exit keyword program stops working as expected.

```

→ Flex_Yacc_Lexer
Welcome to G++ shell
> (list 1 2 123)
(set x 12)
x
(set b 15)
b
(disg (** 4 3))

File has created!
→ Flex_Yacc_Lexer

```

parsed_cpp.txt - Notepad

File Edit Format View Help

```

SYNTAX OK.
Result: (1 2 123)
SYNTAX OK.
Result: 12
SYNTAX OK.
Result: 12
SYNTAX OK.
Result: 15
SYNTAX OK.
Result: 15
Display : 64
SYNTAX OK.
Result: 64

```

```

→ Flex_Yacc_Lexer ./gpp_lexer
Welcome to G++ shell made by Akif
> (append 5 (list 1 2 3 4))

File has created!
→ Flex_Yacc_Lexer

```

parsed_cpp.txt - Notepad

File Edit Format View Help

```

SYNTAX OK.
Result: (1 2 3 4 5)

```

```

→ Flex_Yacc_Lexer ./gpp_lexer.out
Welcome to G++ shell made by Akif with Flex and Yacc
> (concat (list 10 11 12) (list 15 16 17 18))

File has created!
→ Flex_Yacc_Lexer

```

parsed_cpp.txt - Notepad

File Edit Format View Help

```

SYNTAX OK.
Result: (10 11 12 15 16 17 18)

```

```

→ Flex_Yacc_Lexer ./gpp_lexer.out
Welcome to G++ shell made by Akif with Flex and Yacc
> (if (or true false) (- 5 2) (* 7 3))

File has created!
→ Flex_Yacc_Lexer

```

parsed_cpp.txt - Notepad

File Edit Format View

```

SYNTAX OK.
Result: 3

```

```

→ Yacc_Interpreter
Welcome to G++ shell
> (++ 14 5)

File has created!
→ Yacc_Interpreter

```

parsed_cpp.txt - Notepad

File Edit Format View

```

SYNTAX ERROR

```

Part2(Lisp):

Working syntax;

and, or, not, equal, less, nil, list, set, exit, disp, true, false

+, -, /, *, (), **, ;;

Not Working syntax;

deffun, for, load, append, concat, if

Results:

```
→ Lisp_Interpreter clisp gpp_interpreter.lisp test.txt

"File has created."
→ Lisp_Interpreter
```

*After exit keyword program stops working as expected.