Flex-Bison Compiler

Features

- Arithmetic expressions
- Boolean expressions (if, else, while, true, false)
- Relational operations
- Functions and function calls, multi functions.
- type declaration of variables (Boolean, char, integer, int pointer, char pointer, string)
- Comments

Pre-conditions:
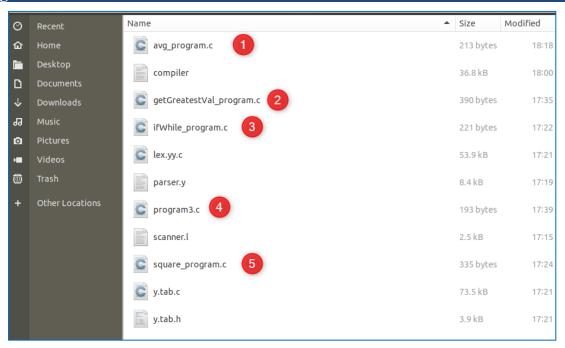
- Bison 3.0.2
- Cc 4.8.4
- Flex 2.5.3

Compile (in order)

- Create(lex) "lex.yy.c" by running: **lex scanner.l**
- Create(bison) "y.tab.c" and "y.tab.h", run: **yacc parser.y -d**
- To compile scanner and parser into a "compiler" run file, run: **cc lex.yy.c y.tab.c -o compiler -ll**

Run a Program

- To compile a program file, run: **./compiler < myProgramFile.c**

Test Programs

Name		Size	Modified
C avg_program.c ①		213 bytes	18:18
compiler		36.8 kB	18:00
C getGreatestVal_program.c ②		390 bytes	17:35
C ifWhile_program.c ③		221 bytes	17:22
C lex.yy.c		53.9 kB	17:21
parser.y		8.4 kB	17:19
C program3.c ④		193 bytes	17:39
scanner.l		2.5 kB	17:15
C square_program.c ⑤		335 bytes	17:24
C y.tab.c		73.5 kB	17:21
y.tab.h		3.9 kB	17:21

Sidebar: Recent, Home, Desktop, Documents, Downloads, Music, Pictures, Videos, Trash, Other Locations

- ## ifWhile_Program.c

```
File  Edit  View  Search  Terminal  Help
shawesh@shawesh-VirtualBox:~/Desktop/comp_Project2$ ./compiler < ifWhile_program.c
-> Program
  |-> Multi Functions
  |    |-> FUNCTION
  |    |    |-> INPUT
  |    |    |    |-> foo
  |    |    |-> OUTPUT
  |    |    |    |-> integer
  |    |    |-> BLOCK WITH RETURN
  |    |    |    |-> MULTI STATEMENT
  |    |    |    |    |-> MULTI STATEMENT
  |    |    |    |    |    |-> STATEMENT
  |    |    |    |    |    |    |-> VARIABLES
  |    |    |    |    |    |    |    |-> l
  |    |    |    |    |    |    |    |-> integer
  |    |    |    |    |    |-> STATEMENT
  |    |    |    |    |    |    |-> IF ELSE CONDITION
  |    |    |    |    |    |    |    |-> BOOLEAN
  |    |    |    |    |    |    |    |    |-> true
  |    |    |    |    |    |    |    |-> TRUE / FALSE
  |    |    |    |    |    |    |    |    |-> BLOCK
  |    |    |    |    |    |    |    |    |    |-> STATEMENT
  |    |    |    |    |    |    |    |    |    |    |-> ASSIGNMENT
  |    |    |    |    |    |    |    |    |    |    |    |-> ASSIGNMENT TARGET: VARIABLE
  |    |    |    |    |    |    |    |    |    |    |    |    |-> j
  |    |    |    |    |    |    |    |    |    |    |    |-> INTEGER
  |    |    |    |    |    |    |    |    |    |    |    |    |-> 3
  |    |    |    |    |    |    |    |    |-> BLOCK
  |    |    |    |    |    |    |    |    |    |-> STATEMENT
  |    |    |    |    |    |    |    |    |    |    |-> ASSIGNMENT
  |    |    |    |    |    |    |    |    |    |    |    |-> ASSIGNMENT TARGET: VARIABLE
  |    |    |    |    |    |    |    |    |    |    |    |    |-> k
  |    |    |    |    |    |    |    |    |    |    |    |-> INTEGER
  |    |    |    |    |    |    |    |    |    |    |    |    |-> 4
  |    |    |    |    |-> STATEMENT
  |    |    |    |    |    |-> WHILE STATEMENT
  |    |    |    |    |    |    |-> BOOLEAN
  |    |    |    |    |    |    |    |-> true
  |    |    |    |    |    |    |-> BLOCK
  |    |    |    |    |    |    |    |-> STATEMENT
  |    |    |    |    |    |    |    |    |-> ASSIGNMENT
  |    |    |    |    |    |    |    |    |    |-> ASSIGNMENT TARGET: VARIABLE
  |    |    |    |    |    |    |    |    |    |    |-> l
  |    |    |    |    |    |    |    |    |    |-> INTEGER
  |    |    |    |    |    |    |    |    |    |    |-> 2
  |    |    |    |    |-> RETURN STATEMENT
  |    |    |    |    |    |-> INTEGER
  |    |    |    |    |    |    |-> 0
  |    |-> FUNCTION
```

```
  |    |-> FUNCTION
  |    |    |-> INPUT
  |    |    |    |-> Main
  |    |    |-> OUTPUT
  |    |    |    |-> integer
  |    |    |-> BLOCK WITH RETURN
  |    |    |    |-> MULTI STATEMENT
  |    |    |    |    |-> STATEMENT
  |    |    |    |    |    |-> VARIABLES
  |    |    |    |    |    |    |-> a
  |    |    |    |    |    |    |-> integer
  |    |    |    |    |-> STATEMENT
  |    |    |    |    |    |-> ASSIGNMENT
  |    |    |    |    |    |    |-> ASSIGNMENT TARGET: VARIABLE
  |    |    |    |    |    |    |    |-> a
  |    |    |    |    |    |    |-> Function Call No Params
  |    |    |    |    |    |    |    |-> foo
  |    |    |    |-> RETURN STATEMENT
  |    |    |    |    |-> INTEGER
  |    |    |    |    |    |-> 0
shawesh@shawesh-VirtualBox:~/Desktop/comp_Project2$
```

- ## avg_program.c

```
File  Edit  View  Search  Terminal  Help
shawesh@shawesh-VirtualBox:~/Desktop/comp_Project2$ ./compiler < avg_program.c
-> Program
  |-> FUNCTION
  |    |-> INPUT
  |    |    |-> avg
  |    |-> OUTPUT
  |    |    |-> integer
  |    |-> BLOCK WITH RETURN
  |    |    |-> MULTI STATEMENT
  |    |    |    |-> MULTI STATEMENT
  |    |    |    |    |-> MULTI STATEMENT
  |    |    |    |    |    |-> MULTI STATEMENT
  |    |    |    |    |    |    |-> MULTI STATEMENT
  |    |    |    |    |    |    |    |-> MULTI STATEMENT
  |    |    |    |    |    |    |    |    |-> MULTI STATEMENT
  |    |    |    |    |    |    |    |    |    |-> STATEMENT
  |    |    |    |    |    |    |    |    |    |    |-> VARIABLES
  |    |    |    |    |    |    |    |    |    |    |    |-> a
  |    |    |    |    |    |    |    |    |    |    |    |-> integer
  |    |    |    |    |    |    |    |    |    |-> STATEMENT
  |    |    |    |    |    |    |    |    |    |    |-> VARIABLES
  |    |    |    |    |    |    |    |    |    |    |    |-> b
  |    |    |    |    |    |    |    |    |    |    |    |-> integer
  |    |    |    |    |    |    |    |    |-> STATEMENT
  |    |    |    |    |    |    |    |    |    |-> VARIABLES
  |    |    |    |    |    |    |    |    |    |    |-> avg
  |    |    |    |    |    |    |    |    |    |    |-> integer
  |    |    |    |    |    |    |    |-> STATEMENT
  |    |    |    |    |    |    |    |    |-> VARIABLES
  |    |    |    |    |    |    |    |    |    |-> sum
  |    |    |    |    |    |    |    |    |    |-> integer
  |    |    |    |    |    |    |-> STATEMENT
  |    |    |    |    |    |    |    |-> ASSIGNMENT
  |    |    |    |    |    |    |    |    |-> ASSIGNMENT TARGET: VARIABLE
  |    |    |    |    |    |    |    |    |    |-> x
  |    |    |    |    |    |    |    |    |-> INTEGER
  |    |    |    |    |    |    |    |    |    |-> 5
  |    |    |    |    |    |-> STATEMENT
  |    |    |    |    |    |    |-> ASSIGNMENT
  |    |    |    |    |    |    |    |-> ASSIGNMENT TARGET: VARIABLE
  |    |    |    |    |    |    |    |    |-> n
  |    |    |    |    |    |    |    |-> INTEGER
  |    |    |    |    |    |    |    |    |-> 1
  |    |    |    |    |-> STATEMENT
  |    |    |    |    |    |-> ASSIGNMENT
  |    |    |    |    |    |    |-> ASSIGNMENT TARGET: VARIABLE
  |    |    |    |    |    |    |    |-> sum
  |    |    |    |    |    |    |-> +
  |    |    |    |    |    |    |    |-> IDENTIFIER
```

```
  |    |    |    |    |    |    |    |    |-> IDENTIFIER
  |    |    |    |    |    |    |    |    |    |-> a
  |    |    |    |    |    |    |    |    |-> IDENTIFIER
  |    |    |    |    |    |    |    |    |    |-> b
  |    |    |    |    |-> STATEMENT
  |    |    |    |    |    |-> ASSIGNMENT
  |    |    |    |    |    |    |-> ASSIGNMENT TARGET: VARIABLE
  |    |    |    |    |    |    |    |-> avg
  |    |    |    |    |    |    |-> /
  |    |    |    |    |    |    |    |-> PARANTHESES EXPRESSION
  |    |    |    |    |    |    |    |    |-> +
  |    |    |    |    |    |    |    |    |    |-> IDENTIFIER
  |    |    |    |    |    |    |    |    |    |    |-> a
  |    |    |    |    |    |    |    |    |    |-> IDENTIFIER
  |    |    |    |    |    |    |    |    |    |    |-> b
  |    |    |    |    |    |    |    |-> INTEGER
  |    |    |    |    |    |    |    |    |-> 2
  |    |    |    |-> RETURN STATEMENT
  |    |    |    |    |-> INTEGER
  |    |    |    |    |    |-> 0
Show Applications shawesh@shawesh-VirtualBox:~/Desktop/comp_Project2$
```

- ## square_program.c

```
File  Edit  View  Search  Terminal  Help
shawesh@shawesh-VirtualBox:~/Desktop/comp_Project2$ ./compiler < square_program.c
-> Program
   |-> FUNCTION
   |    |-> INPUT
   |    |    |-> foo
   |    |    |-> PARAMETER
   |    |    |    |-> MULTIPLE IDENTIFIERS
   |    |    |    |    |-> MULTIPLE IDENTIFIERS
   |    |    |    |    |    |-> i
   |    |    |    |    |    |-> j
   |    |    |    |    |-> k
   |    |    |    |-> integer
   |    |-> OUTPUT
   |    |    |-> integer
   |    |    |-> BLOCK WITH RETURN
   |    |    |    |-> MULTI STATEMENT
   |    |    |    |    |-> MULTI STATEMENT
   |    |    |    |    |    |-> STATEMENT
   |    |    |    |    |    |    |-> FUNCTION
   |    |    |    |    |    |    |    |-> INPUT
   |    |    |    |    |    |    |    |    |-> square
   |    |    |    |    |    |    |    |    |-> PARAMETER
   |    |    |    |    |    |    |    |    |    |-> t
   |    |    |    |    |    |    |    |    |    |-> integer
   |    |    |    |    |    |    |    |-> OUTPUT
   |    |    |    |    |    |    |    |    |-> integer
   |    |    |    |    |    |    |    |-> BLOCK WITH RETURN
   |    |    |    |    |    |    |    |    |-> MULTI STATEMENT
   |    |    |    |    |    |    |    |    |    |-> STATEMENT
   |    |    |    |    |    |    |    |    |    |    |-> VARIABLES
   |    |    |    |    |    |    |    |    |    |    |    |-> temp
   |    |    |    |    |    |    |    |    |    |    |    |-> integer
   |    |    |    |    |    |    |    |    |    |-> STATEMENT
   |    |    |    |    |    |    |    |    |    |    |-> ASSIGNMENT
   |    |    |    |    |    |    |    |    |    |    |    |-> ASSIGNMENT TARGET: VARIABLE
   |    |    |    |    |    |    |    |    |    |    |    |    |-> temp
   |    |    |    |    |    |    |    |    |    |    |    |-> *
   |    |    |    |    |    |    |    |    |    |    |    |    |-> IDENTIFIER
   |    |    |    |    |    |    |    |    |    |    |    |    |    |-> t
   |    |    |    |    |    |    |    |    |    |    |    |    |-> IDENTIFIER
   |    |    |    |    |    |    |    |    |    |    |    |    |    |-> t
   |    |    |    |    |    |    |    |    |-> RETURN STATEMENT
   |    |    |    |    |    |    |    |    |    |-> INTEGER
   |    |    |    |    |    |    |    |    |    |    |-> 0
   |    |    |    |    |    |-> STATEMENT
   |    |    |    |    |    |    |-> VARIABLES
   |    |    |    |    |    |    |    |-> total
   |    |    |    |    |    |    |    |-> integer
   |    |    |    |-> STATEMENT
```

```
   |    |    |    |    |    |    |-> ASSIGNMENT
   |    |    |    |    |    |    |    |-> ASSIGNMENT TARGET: VARIABLE
   |    |    |    |    |    |    |    |    |-> total
   |    |    |    |    |    |    |    |-> INTEGER
   |    |    |    |    |    |    |    |    |-> 1
   |    |    |    |    |-> RETURN STATEMENT
   |    |    |    |    |    |-> INTEGER
   |    |    |    |    |    |    |-> 0
shawesh@shawesh-VirtualBox:~/Desktop/comp_Project2$
```

- ## program2.c

```
File  Edit  View  Search  Terminal  Help
shawesh@shawesh-VirtualBox:~/Desktop/comp_Project2$ ./compiler < program3.c
-> Program
   |-> FUNCTION
   |    |-> INPUT
   |    |    |-> foo
   |    |-> OUTPUT
   |    |    |-> integer
   |    |    |-> BLOCK WITH RETURN
   |    |    |    |-> MULTI STATEMENT
   |    |    |    |    |-> STATEMENT
   |    |    |    |    |    |-> VARIABLES
   |    |    |    |    |    |    |-> x
   |    |    |    |    |    |    |-> integer
   |    |    |    |    |-> STATEMENT
   |    |    |    |    |    |-> BLOCK
   |    |    |    |    |    |    |-> MULTI STATEMENT
   |    |    |    |    |    |    |    |-> MULTI STATEMENT
   |    |    |    |    |    |    |    |    |-> MULTI STATEMENT
   |    |    |    |    |    |    |    |    |    |-> MULTI STATEMENT
   |    |    |    |    |    |    |    |    |    |    |-> STATEMENT
   |    |    |    |    |    |    |    |    |    |    |    |-> VARIABLES
   |    |    |    |    |    |    |    |    |    |    |    |    |-> y
   |    |    |    |    |    |    |    |    |    |    |    |    |-> integer
   |    |    |    |    |    |    |    |    |    |    |-> STATEMENT
   |    |    |    |    |    |    |    |    |    |    |    |-> ASSIGNMENT
   |    |    |    |    |    |    |    |    |    |    |    |    |-> ASSIGNMENT TARGET: VARIABLE
   |    |    |    |    |    |    |    |    |    |    |    |    |    |-> x
   |    |    |    |    |    |    |    |    |    |    |    |    |-> INTEGER
   |    |    |    |    |    |    |    |    |    |    |    |    |    |-> 1
   |    |    |    |    |    |    |    |    |-> STATEMENT
   |    |    |    |    |    |    |    |    |    |-> ASSIGNMENT
   |    |    |    |    |    |    |    |    |    |    |-> ASSIGNMENT TARGET: VARIABLE
   |    |    |    |    |    |    |    |    |    |    |    |-> y
   |    |    |    |    |    |    |    |    |    |    |-> INTEGER
   |    |    |    |    |    |    |    |    |    |    |    |-> 2
   |    |    |    |    |    |    |    |-> STATEMENT
   |    |    |    |    |    |    |    |    |-> BLOCK
   |    |    |    |    |    |    |    |    |    |-> STATEMENT
   |    |    |    |    |    |    |    |    |    |    |-> ASSIGNMENT
   |    |    |    |    |    |    |    |    |    |    |    |-> ASSIGNMENT TARGET: VARIABLE
   |    |    |    |    |    |    |    |    |    |    |    |    |-> x
   |    |    |    |    |    |    |    |    |    |    |    |-> INTEGER
   |    |    |    |    |    |    |    |    |    |    |    |    |-> 2
   |    |    |    |    |    |    |-> STATEMENT
   |    |    |    |    |    |    |    |-> ASSIGNMENT
   |    |    |    |    |    |    |    |    |-> ASSIGNMENT TARGET: VARIABLE
   |    |    |    |    |    |    |    |    |    |-> y
   |    |    |    |    |    |    |    |    |-> INTEGER
   |    |    |    |    |    |    |    |    |    |-> 3
   |    |    |    |-> RETURN STATEMENT
   |    |    |    |    |-> INTEGER
   |    |    |    |    |    |-> 0
```

- **getGreatestVal_program.c**

```
shawesh@shawesh-VirtualBox:~/Desktop/comp_Project2$ ./compiler < getGreatestVal_program.c
-> Program
   |-> FUNCTION
   |   |-> INPUT
   |   |   |-> Main
   |   |-> OUTPUT
   |   |-> integer
   |   |-> BLOCK WITH RETURN
   |   |   |-> MULTI STATEMENT
   |   |   |   |-> MULTI STATEMENT
   |   |   |   |   |-> MULTI STATEMENT
   |   |   |   |   |   |-> MULTI STATEMENT
   |   |   |   |   |   |   |-> MULTI STATEMENT
   |   |   |   |   |   |   |   |-> MULTI STATEMENT
   |   |   |   |   |   |   |   |   |-> MULTI STATEMENT
   |   |   |   |   |   |   |   |   |   |-> MULTI STATEMENT
   |   |   |   |   |   |   |   |   |   |   |-> MULTI STATEMENT
   |   |   |   |   |   |   |   |   |   |   |   |-> STATEMENT
   |   |   |   |   |   |   |   |   |   |   |   |   |-> VARIABLES
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> A
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> integer
   |   |   |   |   |   |   |   |   |   |   |   |-> STATEMENT
   |   |   |   |   |   |   |   |   |   |   |   |   |-> VARIABLES
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> B
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> integer
   |   |   |   |   |   |   |   |   |   |   |   |-> STATEMENT
   |   |   |   |   |   |   |   |   |   |   |   |   |-> VARIABLES
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> C
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> integer
   |   |   |   |   |   |   |   |   |   |   |   |-> STATEMENT
   |   |   |   |   |   |   |   |   |   |   |   |   |-> VARIABLES
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> greatestVal
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> integer
   |   |   |   |   |   |   |   |   |   |   |   |-> STATEMENT
   |   |   |   |   |   |   |   |   |   |   |   |   |-> ASSIGNMENT
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> ASSIGNMENT TARGET: VARIABLE
   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> A
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> INTEGER
   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> 1
   |   |   |   |   |   |   |   |   |   |   |   |-> STATEMENT
   |   |   |   |   |   |   |   |   |   |   |   |   |-> ASSIGNMENT
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> ASSIGNMENT TARGET: VARIABLE
   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> B
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> INTEGER
   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> 2
   |   |   |   |   |   |   |   |   |   |   |   |-> STATEMENT
   |   |   |   |   |   |   |   |   |   |   |   |   |-> ASSIGNMENT
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> ASSIGNMENT TARGET: VARIABLE
   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> C
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> INTEGER
   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> 3
   |   |   |   |   |   |   |   |   |   |   |   |-> STATEMENT
   |   |   |   |   |   |   |   |   |   |   |   |   |-> ASSIGNMENT TARGET: VARIABLE
```

```
   |   |   |   |   |   |   |   |   |   |   |   |   |-> IDENTIFIER
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> C
   |   |   |   |   |   |   |   |   |   |   |   |   |-> &&
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> IDENTIFIER
   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> A
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> IDENTIFIER
   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> C
   |   |   |   |   |   |   |   |   |   |   |   |   |-> IDENTIFIER
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> B
   |   |   |   |   |   |   |   |   |   |   |   |-> BLOCK
   |   |   |   |   |   |   |   |   |   |   |   |   |-> STATEMENT
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> ASSIGNMENT
   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> ASSIGNMENT TARGET: VARIABLE
   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> greatestVal
   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> IDENTIFIER
   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> C
   |   |   |   |   |-> RETURN STATEMENT
   |   |   |   |   |   |-> INTEGER
   |   |   |   |   |   |   |-> 0
wesh@shawesh-VirtualBox:~/Desktop/comp_Project2$
```

```
   |   |   |   |   |   |   |   |   |   |   |   |   |-> A
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> INTEGER
   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> 1
   |   |   |   |   |   |   |   |   |   |   |   |-> STATEMENT
   |   |   |   |   |   |   |   |   |   |   |   |   |-> ASSIGNMENT
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> ASSIGNMENT TARGET: VARIABLE
   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> B
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> INTEGER
   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> 2
   |   |   |   |   |   |   |   |   |   |   |-> STATEMENT
   |   |   |   |   |   |   |   |   |   |   |   |-> ASSIGNMENT
   |   |   |   |   |   |   |   |   |   |   |   |   |-> ASSIGNMENT TARGET: VARIABLE
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> C
   |   |   |   |   |   |   |   |   |   |   |   |   |-> INTEGER
   |   |   |   |   |   |   |   |   |   |   |   |   |   |-> 3
   |   |   |   |   |   |   |   |   |-> STATEMENT
   |   |   |   |   |   |   |   |   |   |-> ASSIGNMENT
   |   |   |   |   |   |   |   |   |   |   |-> ASSIGNMENT TARGET: VARIABLE
   |   |   |   |   |   |   |   |   |   |   |   |-> greatestVal
   |   |   |   |   |   |   |   |   |   |   |-> INTEGER
   |   |   |   |   |   |   |   |   |   |   |   |-> 0
   |   |   |   |   |   |   |-> STATEMENT
   |   |   |   |   |   |   |   |-> IF CONDITION
   |   |   |   |   |   |   |   |   |-> >=
   |   |   |   |   |   |   |   |   |   |-> >=
   |   |   |   |   |   |   |   |   |   |   |-> IDENTIFIER
   |   |   |   |   |   |   |   |   |   |   |   |-> A
   |   |   |   |   |   |   |   |   |   |   |-> &&
   |   |   |   |   |   |   |   |   |   |   |   |-> IDENTIFIER
   |   |   |   |   |   |   |   |   |   |   |   |   |-> B
   |   |   |   |   |   |   |   |   |   |   |   |-> IDENTIFIER
   |   |   |   |   |   |   |   |   |   |   |   |   |-> A
   |   |   |   |   |   |   |   |   |   |-> IDENTIFIER
   |   |   |   |   |   |   |   |   |   |   |-> C
   |   |   |   |   |   |   |   |   |-> BLOCK
   |   |   |   |   |   |   |   |   |   |-> STATEMENT
   |   |   |   |   |   |   |   |   |   |   |-> ASSIGNMENT
   |   |   |   |   |   |   |   |   |   |   |   |-> ASSIGNMENT TARGET: VARIABLE
   |   |   |   |   |   |   |   |   |   |   |   |   |-> greatestVal
   |   |   |   |   |   |   |   |   |   |   |   |-> IDENTIFIER
   |   |   |   |   |   |   |   |   |   |   |   |   |-> A
   |   |   |   |   |-> STATEMENT
   |   |   |   |   |   |-> IF CONDITION
   |   |   |   |   |   |   |-> >=
   |   |   |   |   |   |   |   |-> >=
   |   |   |   |   |   |   |   |   |-> IDENTIFIER
   |   |   |   |   |   |   |   |   |   |-> B
   |   |   |   |   |   |   |   |   |-> &&
   |   |   |   |   |   |   |   |   |   |-> IDENTIFIER
   |   |   |   |   |   |   |   |   |   |   |-> A
   |   |   |   |   |   |   |   |   |   |-> IDENTIFIER
   |   |   |   |   |   |   |   |   |   |   |-> B
   |   |   |   |   |   |   |   |-> IDENTIFIER
   |   |   |   |   |   |   |   |   |-> C
   |   |   |   |   |   |-> BLOCK
   |   |   |   |   |   |   |-> STATEMENT
```