KeLang Analisador Sintático

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Implementação do Analisador Sintático

Sobre as classes implementadas

O analisador sintático foi feito em apenas uma classe, chamada *SyntaticAnalysis*. E nessa classe, foram descritos uma série de métodos de um parser descendente.

Em primeiro lugar, é importante explicitar o método *private eat(TokenType type)*. Ele é o método responsável por processar o token atual vindo do léxico. Se houve um *eat(token)*, então o sintático executa o procedimento necessário e requisita o próximo token pro léxico.

Assim, logo em seguida, todos os outros métodos são procedimentos associados a cada nãoterminal da gramática. E tais procedimentos possuem cláusulas para cada produção do respectivo símbolo. São esses os métodos:

- public void program()
- public void identifier()
- public void body()
- public void declist()
- public void casePVG()
- public void decl()
- public void identlist()
- public void type()
- public void stmtlist()
- public void stmt()
- public void assignstmt()
- public void ifstmt()
- public void repeatstmt()
- public void stmstsuffix()
- public void whilestmt()
- public void stmtprefix()
- public void readstmt()
- public void writestmt()
- public void writetable()
- public void expresison()
- public void simpleexpr()
- public void term()
- public void factor a()
- public void factor()
- public void relop()
- public void addop()
- public void mulop()
- public void integerconst()
- public void floatconst()
- public void literal()

Realização de testes

Todos os testes foram compilados e executados com o *javac* pelo terminal. Os resultados são apresentados pelos prints colocados nesse relatório, mas existe um arquivo .txt para cada teste, contendo os seus respectivos resultados.

Tanto nos prints, quanto nos *.txts, os resultados podem ser interpretados da seguinte maneira:

- Comi [token] -> o "token" foi reconhecido/processado
- method called [token] -> Com o "token" em processo, o método "method" foi chamado
- method out [token] -> Com o "token" em processo, o método "method" foi finalizado

```
execute called
                                     stmt called [read]
program called [app]
                                     readstmt called [read]
Comi [APP]
                                     Comi [READ]
identifier called [_teste1]
                                     Comi [OPEN_PAR]
                                     identifier called [c]
Comi [ID]
body called [integer]
                                     Comi [ID]
decllist called [integer]
                                     Comi [CLOSE_PAR]
decl called [integer]
                                     stmt out [;]
type called [integer]
                                     Comi [PVG]
Comi [INTEGER]
                                     stmt called [b]
type out [a]
                                     assignstmt called [b]
identlist called [a]
                                     identifier called [b]
identifier called [a]
                                     Comi [ID]
Comi [ID]
                                     Comi [ATRIB]
Comi [VG]
                                     simpleexpr called [10.23]
identifier called [b]
                                     term called [10.23]
Comi [ID]
                                     factor-a called [10.23]
Comi [VG]
                                     factor called [10.23]
identifier called [c]
                                     constant called [10.23]
Comi [ID]
                                     integerconst called [10.23]
identlist out [;]
                                     Comi [NUM_REAL]
decl out [;]
                                     addop called [+]
Comi [PVG]
                                     Comi [PLUS]
decl called [integer]
                                     simpleexpr called [a]
type called [integer]
                                     term called [a]
Comi [INTEGER]
                                     factor-a called [a]
                                     factor called [a]
type out [_result]
identlist called [_result]
                                     identifier called [a]
identifier called [_result]
                                     Comi [ID]
Comi [ID]
                                     addop called [+]
identlist out [start]
                                     Comi [PLUS]
decl out [start]
                                     simpleexpr called [c]
decllist out [start]
                                     term called [c]
Comi [START]
                                     factor-a called [c]
stmtlist called [read]
                                     factor called [c]
stmt called [read]
                                     identifier called [c]
readstmt called [read]
                                     Comi [ID]
Comi [READ]
                                     Sai do assignstmt
Comi [OPEN_PAR]
                                     stmt out [;]
identifier called [a]
                                     Comi [PVG]
Comi [ID]
                                     stmt called [_result]
Comi [CLOSE_PAR]
                                     assignstmt called [_result]
stmt out [;]
                                     identifier called [_result]
```

```
assignstmt called [_result]
identifier called [_result]
Comi [ID]
Comi [ATRIB]
simpleexpr called [(]
term called [(]
factor-a called [(]
factor called [(]
Comi [OPEN_PAR]
expression called [a]
simpleexpr called [a]
term called [a]
factor-a called [a]
factor called [a]
identifier called [a]
Comi [ID]
addop called [+]
Comi [PLUS]
simpleexpr called [b]
term called [b]
factor-a called [b]
factor called [b]
identifier called [b]
Comi [ID]
Comi [CLOSE_PAR]
addop called [-]
Comi [MINUS]
simpleexpr called [1]
term called [1]
factor-a called [1]
factor called [1]
constant called [1]
integerconst called [1]
Comi [NUM_INT]
Sai do assignstmt
stmt out [;]
Comi [PVG]
stmt called [write]
writestmt called [write]
Comi [WRITE]
Comi [OPEN_PAR]
writable called [_result]
```

simpleexpr called [_result]

term called [1]
factor-a called [1]
factor called [1]
constant called [1]
integerconst called [1]
Comi [NUM_INT]
Sai do assignstmt
stmt out [stop]
stmtlist out [stop]
Comi [STOP]

execute called	stmt called [read]
program called [app]	readstmt called [read]
Comi [APP]	Comi [READ]
identifier called [_huebr]	Comi [OPEN_PAR]
Comi [ID]	identifier called [f]
body called [integer]	Comi [ID]
decllist called [integer]	Comi [CLOSE_PAR]
decl called [integer]	stmt out [;]
type called [integer]	Comi [PVG]
Comi [INTEGER]	stmt called [f]
type out [a]	assignstmt called [f]
identlist called [a]	identifier called [f]
identifier called [a]	Comi [ID]
Comi [ID]	Comi [ATRIB]
identlist out [;]	simpleexpr called [a]
decl out [;]	term called [a]
Comi [PVG]	factor-a called [a]
decl called [integer]	factor called [a]
type called [integer]	identifier called [a]
Comi [INTEGER]	Comi [ID]
type out [b]	mulop called [*]
identlist called [b]	Comi [MUL]
identifier called [b]	term called [a]
Comi [ID]	factor-a called [a]
identlist out [;]	factor called [a]
decl out [;]	identifier called [a]
Comi [PVG]	Comi [ID]
decl called [real]	Sai do assignstmt
type called [real]	stmt out [;]
Comi [REAL]	Comi [PVG]
type out [f]	stmt called [b]
identlist called [f]	assignstmt called [b]
identifier called [f]	identifier called [b]
Comi [ID]	Comi [ID]
Comi [VG]	Comi [ATRIB]
identifier called [_f]	simpleexpr called [b]
Comi [ID]	term called [b]
identlist out [start]	factor-a called [b]
decl out [start]	factor called [b]
decllist out [start]	identifier called [b]
Comi [START]	Comi [ID]
stmtlist called [read]	addop called [+]
stmt called [read]	Comi [PLUS]
readstmt called [read]	simpleexpr called [a]
Comi [READ]	term called [a]
Comi [OPEN_PAR]	factor-a called [a]
identifier called [a]	factor called [a]
Comi [ID]	identifier called [a]
Comi [CLOSE_PAR]	Comi [ID]
stmt out [;]	mulop called [/]
Comi [PVG]	Comi [DIV]

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term called [2]
factor-a called [2]
factor called [2]
constant called [2]
integerconst called [2]
Comi [NUM_INT]
addop called [+]
Comi [PLUS]
simpleexpr called [(]
term called [(]
factor-a called [(]
factor called [(]
Comi [OPEN_PAR]
expression called [3]
simpleexpr called [3]
term called [3]
factor-a called [3]
factor called [3]
constant called [3]
integerconst called [3]
Comi [NUM_INT]
addop called [+]
Comi [PLUS]
simpleexpr called [5]
term called [5]
factor-a called [5]
factor called [5]
constant called [5]
integerconst called [5]
Comi [NUM_INT]
Comi [CLOSE_PAR]
Sai do assignstmt
stmt out [;]
Comi [PVG]
stmt called [write]
writestmt called [write]
Comi [WRITE]
Comi [OPEN_PAR]
writable called [b]
simpleexpr called [b]
term called [b]
factor-a called [b]
factor called [b]
identifier called [b]
Comi [ID]
Comi [CLOSE_PAR]
stmt out [;]
Comi [PVG]
stmt called [write]
writestmt called [write]
Comi [WRITE]
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```
Comi [WRITE]
Comi [OPEN_PAR]
writable called [f]
simpleexpr called [f]
term called [f]
factor-a called [f]
factor called [f]
identifier called [f]
Comi [ID]
Comi [CLOSE_PAR]
stmt out [;]
Comi [PVG]
stmt called [stop]
Not a valid statement, returning false
stmt out [stop]
stmtlist out [stop]
Comi [STOP]
```

execute called program called [app] stmt called [read] program called [app] readstmt called [read] comi [APP] readstmt called [read] comi [ID] comi [INTEGER] comi [INTEGER] comi [INTEGER] comi [INTEGER] comi [ID] com		
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Identifier called [_teste4]		stmt called [read]
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body called [integer] declist called [integer] decl called [integer] type called [integer] type called [integer] type called [integer] comi [CLOSE_PAR] type called [integer] comi [PVG] type out [i] identifist called [i] identifier called [i] comi [ID] comi [IVG] identifier called [k] comi [IVG] identifier called [k] comi [IVG] comi	identifier called [_teste4]	Comi [READ]
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decl called [integer] type called [integer] stmt out [;] Comi [INTEGER] type out [i] identlist called [i] comi [INTEGER] comi [INTEGER] type out [i] identlist called [i] comi [ID] comi [body called [integer]	identifier called [i]
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type called [integer]	decl called [integer]	Comi [CLOSE_PAR]
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Comi [ID] integerconst called [4] Comi [VG] Comi [NUM_INT] identifier called [a] mulop called [*] Comi [ID] Comi [MUL] identlist out [start] term called [(] decl out [start] factor—a called [(] decllist out [start] factor called [(]		
Comi [VG] identifier called [a] Comi [ID] identlist out [start] decl out [start] decllist out [start] Comi [NUM_INT] mulop called [*] Comi [MUL] term called [(] factor—a called [(]		
identifier called [a] mulop called [*] Comi [ID] Comi [MUL] identlist out [start] term called [(] decl out [start] factor—a called [(] decllist out [start] factor called [(]		_
Comi [ID] Comi [MUL] identlist out [start] term called [(] decl out [start] factor—a called [(] decllist out [start] factor called [(]		
identlist out [start] term called [(] decl out [start] factor—a called [(] decllist out [start] factor called [(]		l ·
decl out [start] factor-a called [(] factor called [(]		
decllist out [start] factor called [(]		
Comi [START] Comi [OPEN_PAR]		
	Comi [START]	COM1 [OPEN_PAR]

expression called [5]	identifier called [i]
simpleexpr called [5]	Comi [ID]
term called [5]	mulop called [*]
factor-a called [5]	Comi [MUL]
factor called [5]	term called [10]
constant called [5]	factor-a called [10]
integerconst called [5]	factor called [10]
Comi [NUM_INT]	constant called [10]
addop called [-]	integerconst called [10]
Comi [MINUS]	Comi [NUM_INT]
simpleexpr called [3]	Sai do assignstmt
term called [3]	stmt out [;]
factor-a called [3]	Comi [PVG]
factor called [3]	stmt called [k]
constant called [3]	assignstmt called [k]
integerconst called [3]	identifier called [k]
Comi [NUM_INT]	Comi [ID]
mulop called [*]	Comi [ATRIB]
Comi [MUL]	simpleexpr called [i]
term called [50]	term called [i]
factor-a called [50]	factor-a called [i]
factor called [50]	factor called [i]
constant called [50]	identifier called [i]
integerconst called [50]	Comi [ID]
Comi [NUM_INT]	mulop called [*]
Comi [CLOSE_PAR]	Comi [MUL]
mulop called [/]	term called [j]
Comi [DIV]	factor-a called [j]
term called [10]	factor called [j]
factor-a called [10]	identifier called [j]
factor called [10]	Comi [ID]
constant called [10]	mulop called [/]
integerconst called [10]	Comi [DIV]
Comi [NUM_INT]	term called [k]
Sai do assignstmt	factor-a called [k]
stmt out [;]	factor called [k]
Comi [PVG]	identifier called [k]
stmt called [j]	Comi [ID]
assignstmt called [j]	Sai do assignstmt
identifier called [j]	stmt out [;]
Comi [ID]	Comi [PVG]
Comi [ATRIB]	stmt called [k]
simpleexpr called [i]	assignstmt called [k]
term called [i]	identifier called [k]
factor-a called [i]	Comi [ID]
factor called [i]	Comi [ATRIB]

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simpleexpr called [4]
term called [4]
factor-a called [4]
factor called [4]
constant called [4]
integerconst called [4]
Comi [NUM_INT]
addop called [+]
Comi [PLUS]
simpleexpr called [a]
term called [a]
factor-a called [a]
factor called [a]
identifier called [a]
Comi [ID]
Sai do assignstmt
stmt out [;]
Comi [PVG]
stmt called [write]
writestmt called [write]
Comi [WRITE]
Comi [OPEN_PAR]
writable called [i]
simpleexpr called [i]
term called [i]
factor-a called [i]
factor called [i]
identifier called [i]
Comi [ID]
Comi [CLOSE_PAR]
stmt out [;]
Comi [PVG]
stmt called [write]
writestmt called [write]
Comi [WRITE]
Comi [OPEN_PAR]
writable called [j]
simpleexpr called [j]
term called [j]
factor-a called [j]
factor called [j]
identifier called [j]
Comi [ID]
Comi [CLOSE_PAR]
stmt out [;]
Comi [PVG]
```

stmt called [write]
writestmt called [write]
Comi [WRITE]
Comi [OPEN_PAR]
writable called [k]
simpleexpr called [k]
term called [k]
factor—a called [k]
identifier called [k]
identifier called [k]
comi [ID]
Comi [CLOSE_PAR]
stmt out [stop]
stmtlist out [stop]

execute called	Comi [OPEN_PAR]
program called [app]	identifier called [i]
Comi [APP]	Comi [ID]
identifier called [_teste4]	Comi [CLOSE_PAR]
Comi [ID]	stmt out [;]
body called [integer]	Comi [PVG]
decllist called [integer]	stmt called [read]
decl called [integer]	readstmt called [read]
type called [integer]	Comi [READ]
Comi [INTEGER]	Comi [OPEN_PAR]
type out [i]	identifier called [j]
identlist called [i]	Comi [ID]
identifier called [i]	Comi [CLOSE_PAR]
Comi [ID]	stmt out [;]
Comi [VG]	Comi [PVG]
identifier called [j]	stmt called [read]
Comi [ID]	readstmt called [read]
Comi [VG]	Comi [READ]
identifier called [k]	Comi [OPEN_PAR]
Comi [ID]	identifier called [k]
Comi [VG]	Comi [ID]
identifier called [_total]	Comi [CLOSE_PAR]
Comi [ID]	stmt out [;]
Comi [VG]	Comi [PVG]
identifier called [_1soma]	stmt called [i]
Comi [ID]	assignstmt called [i]
Comi [VG]	identifier called [i]
identifier called [_teste4]	Comi [ID]
Comi [ID]	Comi [ATRIB]
identlist out [;]	simpleexpr called [4]
decl out [;]	term called [4]
Comi [PVG]	factor-a called [4]
decl called [real]	factor called [4]
type called [real]	constant called [4]
Comi [REAL]	integerconst called [4]
type out [i]	Comi [NUM_INT]
identlist called [i]	mulop called [*]
identifier called [i]	Comi [MUL]
Comi [ID]	term called [(]
Comi [VG]	factor-a called [(]
identifier called [a]	factor called [(]
Comi [ID]	Comi [OPEN_PAR]
identlist out [start]	expression called [5]
decl out [start]	simpleexpr called [5]
decllist out [start]	term called [5]
Comi [START]	factor-a called [5]
stmtlist called [read]	factor called [5]
stmt called [read]	constant called [5]
readstmt called [read]	integerconst called [5]
Comi [READ]	Comi [NUM_INT]
OOMIT [INEND]	COME [HOM_INT]

addop called [-] Comi [MINUS] simplexpr called [3] factor called [3] factor called [3] constant called [3] comi [NUM_INT] comi [NUM_INT] factor called [50] comi [NUM_INT] comi [CLOSE_PAR] mulop called [/] Comi [CLOSE_PAR] mulop called [10] factor-a called [10] constant called [10] coni [NUM_INT] Sai do assignstmt stmt out [;] Comi [PVG] stmt called [j] simplexpr called [j] comi [ATRIB] simplexpr called [i] factor-a	-4421-4 []	0
simpleexpr called [3] term called [3] factor called [3] factor called [3] constant called [3] constant called [3] integerconst called [3] comi [NUM_INT] mulop called [4] factor called [50] comi [NUM_INT] constant called [50] constant called [50] factor called [50] constant called [50] coni [NUM_INT] coni [CLOSE_PAR] mulop called [7] comi [CLOSE_PAR] mulop called [7] comi [CLOSE_PAR] mulop called [7] comi [DIV] term called [10] factor called [10] constant called [10] constant called [10] factor called [10] constant called [10] coni [NUM_INT] Sai do assignstmt stmt out [;] Comi [PVG] stmt called [j] stmt called [j] stmt called [j] stmt called [k] comi [ID] Comi [ATRIB] comi [ID]	addop called [-]	Comi [PVG]
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integerconst called [50] Comi [NUM_INT] Comi [CLOSE_PAR] mulop called [/] Comi [DIV] term called [10] factor-a called [1] Sai do assignstmt stmt out [;] Comi [NUM_INT] Sai do assignstmt stmt out [;] Comi [PVG] stmt called [j] assignstmt called [j] identifier called [k] comi [ID] Comi [ATRIB] simpleexpr called [i] factor-a called [4] comi [NUM_INT] Comi [MUL] term called [1] factor-a called [4] comi [NUM_INT] comi [MUL] term called [1] factor-a called [1]		
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Comi [PVG] stmt called [j] assignstmt called [j] identifier called [j] identifier called [j] Comi [ID] Comi [ID] Comi [ATRIB] simpleexpr called [i] term called [i] factor—a called [i] factor called [i] factor called [i] factor called [i] foomi [ID] Comi [ID] Comi [ID] factor called [i] factor called [4] factor called [4] identifier called [i] constant called [4] comi [ID] mulop called [*] Comi [MUL] term called [10] factor—a called [10] constant called [10] factor—a called [10] factor—a called [10] factor—a called [10] coni [NUM_INT] identifier called [10] Comi [ID]	-	_
stmt called [j] assignstmt called [j] identifier called [j] Comi [ID] Comi [ID] Comi [ATRIB] simpleexpr called [i] term called [i] factor—a called [i] factor called [i] factor called [i] identifier called [4] factor called [i] factor called [i] constant called [4] fomi [ID] mulop called [*] Comi [MUL] term called [10] factor—a called [10] Comi [NUM_INT] sidentifier called [10] Comi [ID]		
assignstmt called [j] identifier called [j] Comi [ID] Comi [ID] Comi [ATRIB] Simpleexpr called [i] factor—a called [i] factor called [i] factor called [i] factor called [i] factor called [i] identifier called [i] mulop called [*] Comi [MUL] comi [MUL] term called [10] factor—a called [10] Comi [NUM_INT] sidentifier called [10] Comi [ID]		
identifier called [j] Comi [ID] Comi [ATRIB] simpleexpr called [i] term called [i] factor—a called [i] identifier called [4] factor called [i] factor called [i] factor called [i] identifier called [i] Comi [ID] mulop called [*] Comi [NUM_INT] Comi [MUL] term called [10] factor—a called [a] constant called [10] factor—a called [a] factor called [a] Comi [NUM_INT] identifier called [a] Comi [NUM_INT] Sai do assignstmt Comi [ID]		assignstmt called [k]
Comi [ID] Comi [ATRIB] simpleexpr called [i] term called [i] factor-a called [i] factor called [i] identifier called [i] mulop called [*] Comi [MUL] term called [10] factor-a called [1] Comi [NUM_INT] identifier called [1]		identifier called [k]
simpleexpr called [i] term called [i] factor—a called [i] factor called [i] identifier called [i] constant called [4] comi [ID] mulop called [**] Comi [MUL] term called [10] factor—a called [10] factor—a called [10] factor—a called [10] factor—a called [10] factor called [10] constant called [10] factor called [10] integerconst called [a] integerconst called [10] factor—a called [a] integerconst called [10] Comi [NUM_INT] Sai do assignstmt simpleexpr called [4] term called [a] factor—a called [a] factor called [a] Comi [NUM_INT] identifier called [a] Comi [ID]		Comi [ID]
term called [i] factor—a called [i] factor called [i] identifier called [i] Comi [ID] mulop called [**] Comi [MUL] term called [10] factor—a called [1] factor—a called [1] comi [PLUS] factor—a called [10] factor called [10] constant called [10] factor called [10] factor—a called [10] constant called [10] integerconst called [1] factor—a called [1] Comi [NUM_INT] identifier called [1] Sai do assignstmt Comi [ID]	Comi [ATRIB]	Comi [ATRIB]
factor—a called [i] factor called [i] identifier called [i] Comi [ID] mulop called [*] Comi [MUL] term called [10] factor—a called [10] factor—a called [10] factor—a called [10] factor called [10] constant called [10] factor called [10] integerconst called [a] factor—a called [10] constant called [10] factor—a called [a] factor—a called [a] factor—a called [a] Comi [NUM_INT] Sai do assignstmt factor—a called [a] Comi [ID]	simpleexpr called [i]	simpleexpr called [4]
factor called [i] identifier called [i] Comi [ID] mulop called [*] Comi [MUL] term called [10] factor-a called [10] factor called [10] constant called [a] factor called [10] factor called [10] constant called [10] integerconst called [a] factor-a called [a] foomi [NUM_INT] Comi [NUM_INT] factor called [a] factor called [a] factor called [a] Comi [NUM_INT] Sai do assignstmt factor called [a] Comi [ID]	term called [i]	term called [4]
identifier called [i] constant called [4] Comi [ID] integerconst called [4] mulop called [*] Comi [NUM_INT] Comi [MUL] addop called [+] term called [10] Comi [PLUS] factor—a called [10] simpleexpr called [a] factor called [10] term called [a] constant called [10] factor—a called [a] integerconst called [10] factor called [a] Comi [NUM_INT] identifier called [a] Sai do assignstmt Comi [ID]		factor-a called [4]
Comi [ID] integerconst called [4] mulop called [*] Comi [NUM_INT] Comi [MUL] addop called [+] term called [10] Comi [PLUS] factor—a called [10] simpleexpr called [a] factor called [10] term called [a] constant called [10] factor—a called [a] integerconst called [10] factor called [a] Comi [NUM_INT] identifier called [a] Sai do assignstmt Comi [ID]	factor called [i]	factor called [4]
mulop called [*] Comi [NUM_INT] term called [10] factor—a called [10] factor called [10] constant called [10] integerconst called [10] Comi [NUM_INT] Sai do assignstmt Comi [NUM_INT] Comi [NUM_INT] Comi [NUM_INT] Comi [NUM_INT] Comi [NUM_INT] Comi [NUM_INT] Comi [ID]		
Comi [MUL] term called [10] factor—a called [10] factor called [10] constant called [10] integerconst called [10] Comi [NUM_INT] Sai do assignstmt addop called [+] comi [PLUS] simpleexpr called [a] term called [a] factor—a called [a] identifier called [a] Comi [ID]		· ·
term called [10] factor—a called [10] factor called [10] constant called [10] integerconst called [10] Comi [NUM_INT] Sai do assignstmt Comi [PLUS] simpleexpr called [a] term called [a] factor—a called [a] factor called [a] Comi [NUM_INT] Comi [ID]	·	
factor—a called [10] simpleexpr called [a] term called [a] constant called [10] factor—a called [a] integerconst called [10] factor called [a] Comi [NUM_INT] identifier called [a] Sai do assignstmt Comi [ID]		
factor called [10] term called [a] constant called [10] factor—a called [a] integerconst called [10] factor called [a] Comi [NUM_INT] identifier called [a] Sai do assignstmt Comi [ID]		
constant called [10] factor—a called [a] factor called [a] comi [NUM_INT] identifier called [a] Comi [ID]		
integerconst called [10] factor called [a] Comi [NUM_INT] identifier called [a] Sai do assignstmt Comi [ID]		
Comi [NUM_INT] identifier called [a] Sai do assignstmt Comi [ID]		
Sai do assignstmt Comi [ID]		
stmt out [;] Sai do assignstmt	•	
	stmt out [;]	Sal do assignstmt

```
stmt out [;]
Comi [PVG]
stmt called [write]
writestmt called [write]
Comi [WRITE]
Comi [OPEN_PAR]
writable called [i]
simpleexpr called [i]
term called [i]
factor-a called [i]
factor called [i]
identifier called [i]
Comi [ID]
Comi [CLOSE_PAR]
stmt out [;]
Comi [PVG]
stmt called [write]
writestmt called [write]
Comi [WRITE]
Comi [OPEN_PAR]
writable called [j]
simpleexpr called [j]
term called [j]
factor-a called [j]
factor called [j]
identifier called [j]
Comi [ID]
Comi [CLOSE_PAR]
stmt out [;]
Comi [PVG]
stmt called [write]
writestmt called [write]
Comi [WRITE]
Comi [OPEN_PAR]
writable called [k]
simpleexpr called [k]
term called [k]
factor-a called [k]
factor called [k]
identifier called [k]
Comi [ID]
Comi [CLOSE PAR]
stmt out [stop]
stmtlist out [stop]
Comi [STOP]
```

execute called	Comi [CLOSE_PAR]
program called [app]	stmt out [;]
Comi [APP]	Comi [PVG]
identifier called [_teste5]	stmt called [if]
Comi [ID]	ifstmt called [if]
body called [integer]	Comi [IF]
decllist called [integer]	condition called [(]
decl called [integer]	expression called [(]
type called [integer]	simpleexpr called [(]
Comi [INTEGER]	term called [(]
type out [j]	factor-a called [(]
identlist called [j]	factor called [(]
identifier called [j]	Comi [OPEN_PAR]
Comi [ID]	expression called [k]
Comi [VG]	simpleexpr called [k]
identifier called [k]	term called [k]
Comi [ID]	factor-a called [k]
identlist out [;]	factor called [k]
decl out [;]	identifier called [k]
Comi [PVG]	Comi [ID]
decl called [real]	relop called [!=]
type called [real]	Comi [NOT_EQUAL]
Comi [REAL]	expression called [0]
type out [a]	simpleexpr called [0]
identlist called [a]	term called [0]
identifier called [a]	factor-a called [0]
	factor called [0]
Comi [ID]	constant called [0]
Comi [VG]	integerconst called [0]
identifier called [j]	Comi [NUM_INT]
Comi [ID]	Comi [CLOSE_PAR]
identlist out [start]	Comi [THEN]
decl out [start]	stmtlist called [a]
decllist out [start]	stmt called [a]
Comi [START]	assignstmt called [a]
stmtlist called [read]	identifier called [a]
stmt called [read]	Comi [ID]
readstmt called [read]	Comi [ATRIB]
Comi [READ]	simpleexpr called [j]
Comi [OPEN_PAR]	term called [j]
identifier called [j]	factor-a called [j]
Comi [ID]	factor called [j]
Comi [CLOSE_PAR]	identifier called [j]
stmt out [;]	Comi [ID]
Comi [PVG]	mulop called [/]
stmt called [read]	Comi [DIV]
readstmt called [read]	term called [k]
Comi [READ]	factor-a called [k]
Comi [OPEN_PAR]	factor called [k]
identifier called [k]	identifier called [k]
Comi [ID]	

```
Comi [ID]
Sai do assignstmt
stmt out [else]
stmtlist out [else]
Comi [ELSE]
stmtlist called [a]
stmt called [a]
assignstmt called [a]
identifier called [a]
Comi [ID]
Comi [ATRIB]
simpleexpr called [0]
term called [0]
factor-a called [0]
factor called [0]
constant called [0]
integerconst called [0]
Comi [NUM_INT]
Sai do assignstmt
stmt out [end]
stmtlist out [end]
Comi [END]
stmt out [;]
Comi [PVG]
stmt called [write]
writestmt called [write]
Comi [WRITE]
Comi [OPEN_PAR]
writable called [a]
simpleexpr called [a]
term called [a]
factor-a called [a]
factor called [a]
identifier called [a]
Comi [ID]
Comi [CLOSE_PAR]
stmt out [stop]
stmtlist out [stop]
Comi [STOP]
```

avanuta aslilad	stat out [.]
execute called	stmt out [;]
program called [app]	Comi [PVG]
Comi [APP]	stmt called [_maior]
identifier called [_teste6]	assignstmt called [_maior]
Comi [ID]	identifier called [_maior]
body called [integer]	Comi [ID]
decllist called [integer]	Comi [ATRIB]
decl called [integer]	simpleexpr called [0] term called [0]
type called [integer]	factor-a called [0]
Comi [INTEGER]	factor called [0]
type out [a]	constant called [0]
identlist called [a]	integerconst called [0]
identifier called [a]	Comi [NUM_INT]
Comi [ID]	Sai do assignstmt
Comi [VG]	stmt out [;]
identifier called [b]	Comi [PVG]
Comi [ID]	stmt called [if]
Comi [VG]	ifstmt called [if]
	Comi [IF]
identifier called [c]	condition called [(]
Comi [ID]	expression called [(]
Comi [VG]	simpleexpr called [(]
identifier called [_maior]	term called [(]
Comi [ID]	factor-a called [(]
identlist out [start]	factor called [(]
decl out [start]	Comi [OPEN_PAR]
decllist out [start]	expression called [a]
Comi [START]	simpleexpr called [a]
stmtlist called [read]	term called [a]
stmt called [read]	factor-a called [a]
readstmt called [read]	factor called [a]
Comi [READ]	identifier called [a]
Comi [OPEN_PAR]	Comi [ID]
identifier called [a]	relop called [>]
Comi [ID]	Comi [GREATER_THAN]
Comi [CLOSE_PAR]	expression called [b]
stmt out [;]	simpleexpr called [b]
Comi [PVG]	term called [b]
stmt called [read]	factor-a called [b]
readstmt called [read]	factor called [b]
Comi [READ]	identifier called [b]
Comi [OPEN_PAR]	Comi [ID]
identifier called [b]	mulop called [&&] Comi [AND]
Comi [ID]	term called [a]
Comi [CLOSE_PAR]	factor-a called [a]
stmt out [;]	factor called [a]
Comi [PVG]	identifier called [a]
stmt called [read]	Comi [ID]
readstmt called [read]	COULT [10]
Comi [READ]	
Comi [OPEN_PAR]	
COMIT [OFEN_PAR]	I

relop called [>] Comi [GREATER_THAN]	
Comi [GREATER_THAN] expression called [c]	
expression called [c] simpleexpr called [c]	
simpleexpr called [c] term called [c]	
term called [c] factor-a called [c]	
factor called [c]	
factor called [c]	
identifier called [c] Comi [ID] Comi [CLOSE_PAR]	
Comi [ID] Comi [THEN]	
Comi [CLOSE_PAR] stmtlist called [_maior]	
Comi [THEN] stmt called [_maior]	
stmtlist called [_maior] assignstmt called [_maior]	
stmt called [_maior] identifier called [_maior]	
assignstmt called [_maior]	
identifier called [_maior]	
Comi [ID] simpleexpr called [b]	
Comi [ATRIB] term called [b]	
cimpleaver called [a] factor-a called [b]	
tarm colled [c]	
factor-a called [a] identifier called [b] Comi [ID]	
factor called [a] Sai do assignstmt	
identifier called [a] stmt out [;]	
Comi [ID] Comi [PVG]	
Sai do assignstmt stmt called [else]	
stmt out [;] Not a valid statement, returning fals	е
Comi [PVG] stmt out [else]	
stmt called [else] stmtlist out [else]	
Not a valid statement, returning fal Comi [ELSE]	
ctmt out [e]ce]	
stmt called [_maior]	
Comi [ELSE] assignstmt called [_maior] identifier called [_maior]	
stmtlist called [if] Comi [ID]	
stmt called [if] Comi [ATRIB]	
ifstmt called [if] simpleexpr called [c]	
Comi [IF] term called [c]	
condition called [(] factor-a called [c]	
expression called [(] factor called [c]	
simpleexpr called [(] identifier called [c]	
term called [(] Comi [ID]	
factor—a called [/] Sai do assignstmt	
factor called [(] stmt out [;] Comi [PVG]	
Comi [OPEN_PAR] stmt called [end]	
expression called [b] Not a valid statement, returning fals	e
simpleexpr called [b] stmt out [end]	Ĭ
term called [b] stmtlist out [end]	
factor-a called [b] Comi [END]	
factor called [b]	
identifier called [b]	
Comi [ID]	

avanuta sallad	identifies colled [mi]
execute called	identifier called [_pi]
program called [app]	Comi [ID]
Comi [APP]	Comi [ATRIB]
identifier called [_testevii]	simpleexpr called [3.1415926535]
Comi [ID]	term called [3.1415926535]
body called [integer]	factor-a called [3.1415926535]
decllist called [integer]	factor called [3.1415926535]
decl called [integer]	constant called [3.1415926535]
type called [integer]	integerconst called [3.1415926535]
Comi [INTEGER]	Comi [NUM_REAL]
type out [r]	Sai do assignstmt
identlist called [r]	stmt out [;]
identifier called [r]	Comi [PVG]
Comi [ID]	stmt called [a]
identlist out [;]	assignstmt called [a]
decl out [;]	identifier called [a]
Comi [PVG]	Comi [ID]
decl called [real]	Comi [ATRIB]
type called [real]	simpleexpr called [0]
Comi [REAL]	term called [0]
type out [a]	factor-a called [0]
identlist called [a]	factor called [0]
identifier called [a]	constant called [0]
Comi [ID]	integerconst called [0]
identlist out [;]	Comi [NUM_INT]
decl out [;]	Sai do assignstmt
Comi [PVG]	stmt out [;]
decl called [real]	Comi [PVG]
type called [real]	stmt called [a]
Comi [REAL]	assignstmt called [a]
type out [_pi]	identifier called [a]
identlist called [_pi]	Comi [ID]
identifier called [_pi]	Comi [ATRIB]
Comi [ID]	simpleexpr called [r]
identlist out [start]	term called [r]
decl out [start]	factor-a called [r]
decllist out [start]	factor called [r]
Comi [START]	identifier called [r]
stmtlist called [read]	Comi [ID]
stmt called [read]	mulop called [*]
readstmt called [read]	Comi [MUL]
Comi [READ]	term called [r]
Comi [OPEN_PAR]	factor-a called [r]
identifier called [r]	factor called [r]
Comi [ID]	
	identifier called [r] Comi [ID]
Comi [CLOSE_PAR]	
stmt out [;]	mulop called [*]
Comi [PVG]	Comi [MUL]
stmt called [_pi]	term called [_pi]
assignstmt called [_pi]	factor-a called [_pi]

```
factor called [_pi]
identifier called [_pi]
Comi [ID]
Sai do assignstmt
stmt out [;]
Comi [PVG]
stmt called [write]
writestmt called [write]
Comi [WRITE]
Comi [OPEN_PAR]
writable called [{a area do circulo e: }]
literal called [{a area do circulo e: }] [STRING]
Comi [STRING]
Comi [CLOSE_PAR]
stmt out [;]
Comi [PVG]
stmt called [write]
writestmt called [write]
Comi [WRITE]
Comi [OPEN_PAR]
writable called [a]
simpleexpr called [a]
term called [a]
factor-a called [a]
factor called [a] identifier called [a]
Comi [ID]
Comi [CLOSE_PAR]
stmt out [;]
Comi [PVG]
stmt called [stop]
Not a valid statement, returning false
stmt out [stop]
stmtlist out [stop]
Comi [STOP]
```

```
execute called
program called [app]
Comi [APP]
identifier called [_teste8]
Comi [ID]
body called [start]
decllist called [start]
decl called [start]
decl out [start]
declist out [start]
comi [START]
stmtlist called [stop]
stmt called [stop]
Not a valid statement, returning false
stmt out [stop]
comi [STOP]
```

```
stmt out [end]
stmtlist out [end]
Comi [END]
stmt out [write]
stmt called [write]
writestmt called [write]
Comi [WRITE]
Comi [OPEN_PAR]
writable called [{maior idade: }]
literal called [{maior idade: }] [STRING]
Comi [STRING]
Comi [CLOSE_PAR]
stmt out [;]
Comi [PVG]
stmt called [write]
writestmt called [write]
Comi [WRITE]
Comi [OPEN_PAR]
writable called [_maior]
simpleexpr called [_maior]
term called [_maior]
factor-a called [_maior]
factor called [_maior]
identifier called [_maior]
Comi [ID]
Comi [CLOSE_PAR]
stmt out [;]
Comi [PVG]
stmt called [stop]
Not a valid statement, returning false
stmt out [stop]
stmtlist out [stop]
Comi [STOP]
```