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Enrollment No. : 2020CSB010

Subject: Compiler Design Lab (CS 4171)

Assignment No. : 5

Question:


Consider the following assignments on Type Checking. Using YACC, define the grammar rules and associated set of actions for checking following Type expressions:

- a) Types of all the sub-expressions in an expression must be of the same type otherwise show a type error message.
- b) Check whether or not the assignment statement is type correct. The type of left and right side of an assignment statement must be of similar type, if not similar show type-error with line number. Detect an illegal assignment.
- c) Expressions in conditional and while statement, type of all operands must be of the same type. For any type-error show the error message with line number.
- d) Identify memory errors, such as attempting to use

an integer as a pointer

e) Type checking for statements like Array declarations.

Answer:

gourav LAPTOP-868QQ3N0 ../lab/lab-06 master  ./lexer <source.c

Symbol not found

[SYMBOL TABLE]

Name	Data Type	Scope	Line Number
------	-----------	-------	-------------

a	292	1	4
---	-----	---	---

[line: 4] => assignment statement syntax is OK

Symbol not found

[SYMBOL TABLE]

Name	Data Type	Scope	Line Number
------	-----------	-------	-------------

b	292	1	5
---	-----	---	---

a	292	1	4
---	-----	---	---

[line: 5] => assignment statement syntax is OK

Symbol not found

[line: 6] => declaration statement syntax is OK

[SYMBOL TABLE]

Name	Data Type	Scope	Line Number
------	-----------	-------	-------------

c	292	1	6
---	-----	---	---

b	292	1	5
---	-----	---	---

a	292	1	4
---	-----	---	---

Symbol not found

[line: 9] => declaration statement syntax is OK

[SYMBOL TABLE]

Name	Data Type	Scope	Line Number
------	-----------	-------	-------------

d	293	1	9
---	-----	---	---

c	292	1	6
---	-----	---	---

b	292	1	5
---	-----	---	---

a	292	1	4
---	-----	---	---

SYNTAX ERROR: type mismatch LINE NUMBER: 10

PARSING ERROR (at line no: 10) 