Compiler Lab Tutorial

Declaration statement
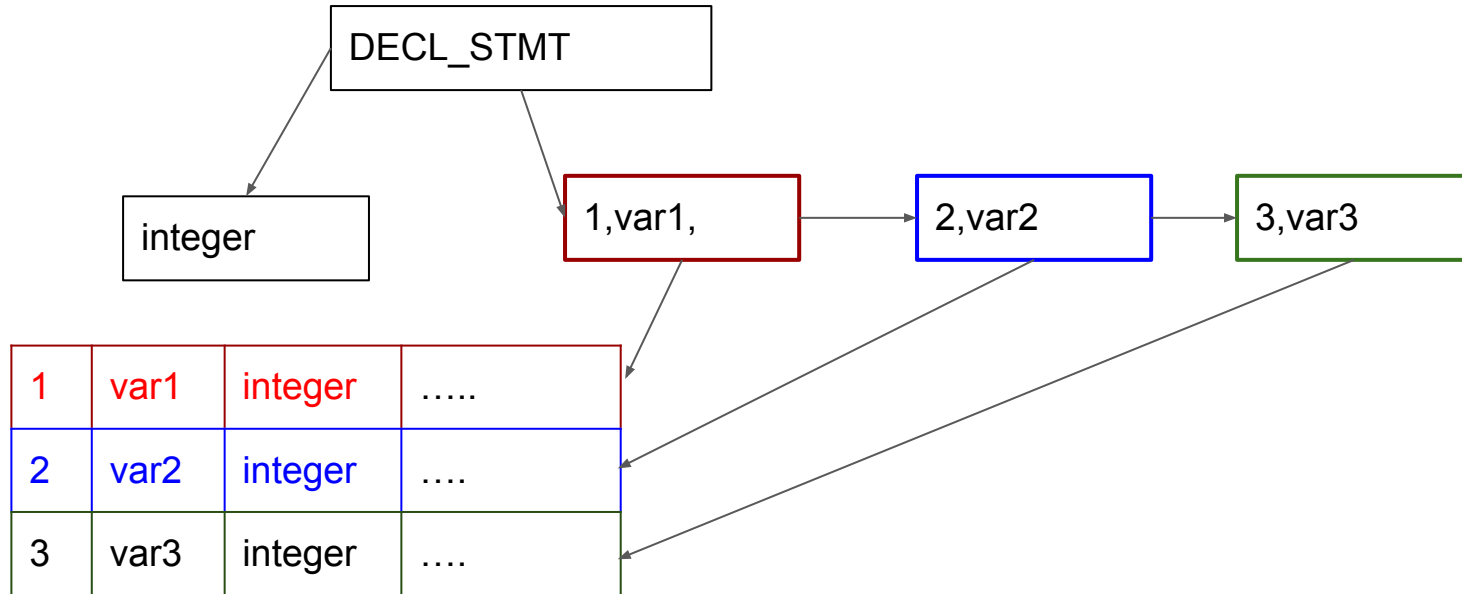
begindecl
   integer var1, var2, var3;
enddecl

Equivalent Declaration statement in Pascal Language
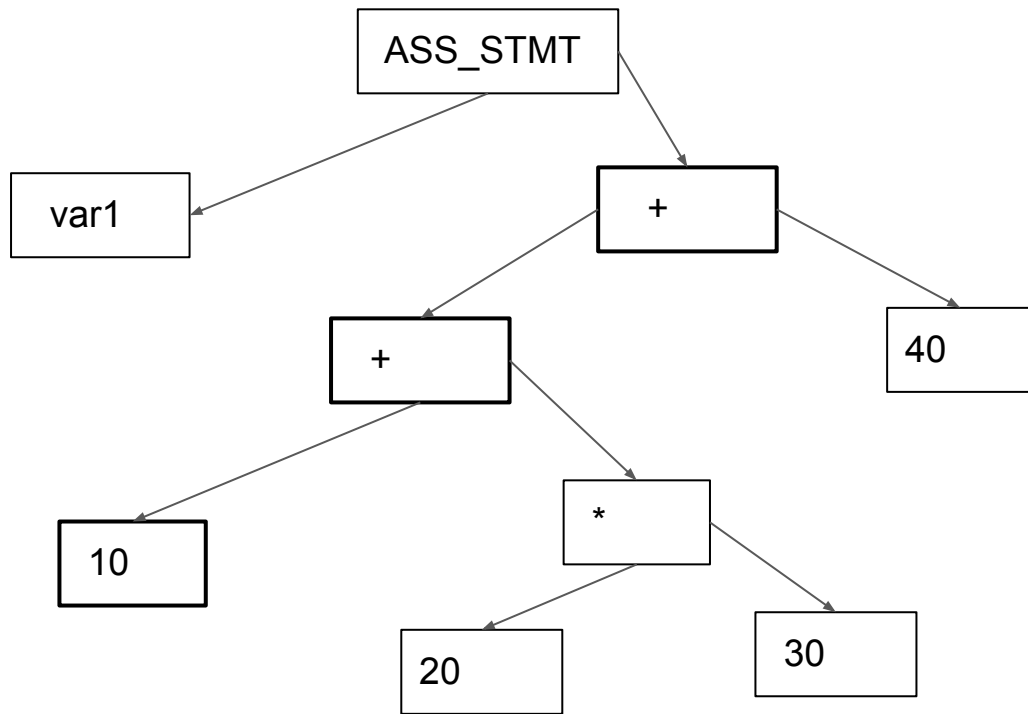 var var1,var2,var3: integer

Syntax declaration statement

var1= 10+20*30+40

Symbol Table

1	var1	integer	UNDEF	….
2	var2	integer	UNDEF	….
3	var3	integer	UNDEF	….

1	var1	integer	10	….
2	var2	integer	30	…
3	var3	integer	UNDEF	…

```
var1=10;
var2=30;
```

Symbol Table

1	var1	integer	10	…..
2	var2	integer	30	…..
3	var3	integer	UNDEF	…..

var3=var1+var2;

1	var1	integer	10	….
2	var2	integer	30	…..
3	var3	integer	40	…..

Syntax tree
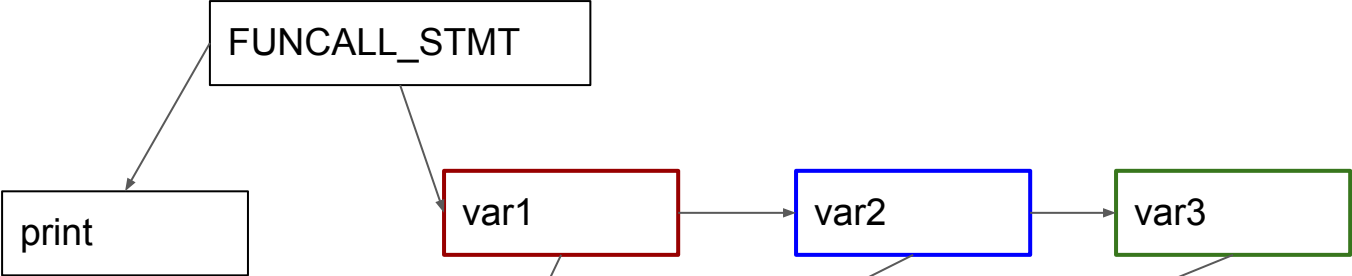
1	var1	integer	10	
2	var2	integer	30	
3	var3	integer	40	

A look at program

DECL_STMT	Tree
ASSIGN_STMT	Tree
ASSIGN_STMT	Tree
ASSIGN_STMT	Tree
FUNCALL_STMT	Tree
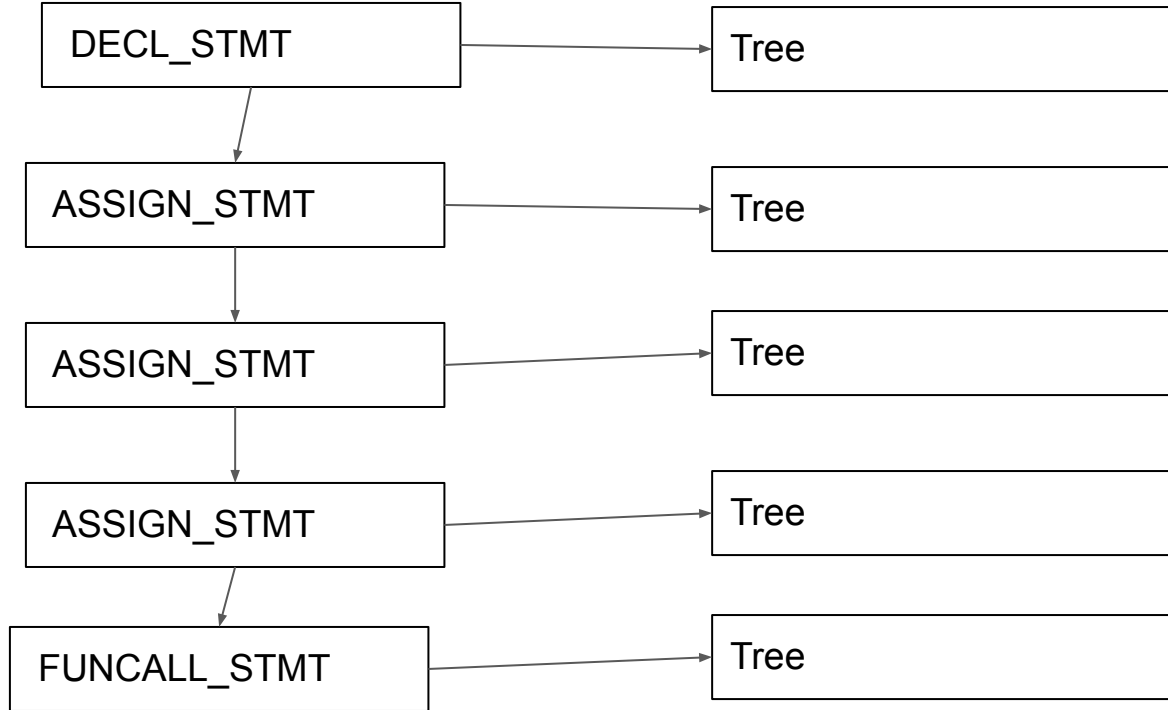
Semantics of print
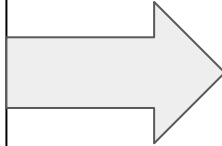
Accepts variables and integer numbers as input.

If variables have constant value print the value.

If the variables does not have constant value, print the string "UNDEF"

If it is a number print the value.

Sample Input Program and AST print output

```
begindecl

    integer  var1, var2,var3;

 enddecl

 var1=10;

  var2=30;

  var3=var1+var2;

  print(var1, var2, var3);
```

```
DECL  var1 var2 var3

  ASSIGN var1 10;

   ASSIGN var2 30;

   ASSIGN var3 PLUS var1 var2

   CALL print var1 var2 var3
```