

02/04/2021

A6: IMPLEMENTATION OF SYNTAX CHECKER USING YACC TOOL

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CSE C

CODE :

a6_v3.y:

```
%{
    #include <stdio.h>
    #include <math.h>
    #define YYSTYPE double
    void yyerror();

    int err_flag = 0;

}%

%token ID
%token IF
%token NUM
%token ELSE
%token RELOP
%token FOR
%token UNOP

%%
P : S {printf("Syntactically Correct!\n");}
S : D
    | '{B}'
    | F
    | I
B : B S
    | S
F : FOR '(' A ';' C ';' O ')' S
O : A
    | U
I : IF '(' C ')' S ELSE S
C : ID RELOP ID
```

```

| ID RELOP NUM
| NUM RELOP ID
| NUM RELOP NUM

```

```

A : ID='E

```

```

D : ID='E';

```

```

E : E+'T

```

```

    | E-'T

```

```

    | T

```

```

T : T'*F

```

```

    | T/'F

```

```

    | F

```

```

F : ID

```

```

    | NUM

```

```

U : ID UNOP

```

```

    | UNOP ID

```

```

;

```

```

%%

```

```

void yyerror()

```

```

{

```

```

    //err_flag = 1;

```

```

    return;

```

```

}

```

```

void main()

```

```

{

```

```

    printf("\n-----\nSyntax Checker\n-----\n\n");

```

```

    yyparse();

```

```

}

```

a6_v3.l:

```

%{

```

```

    #include <stdio.h>

```

```

    #include "y.tab.c"

```

```

    extern YYSTYPE yylval;

```

```

%}

```

```

relop "<"| "<="| "=="| "!="| ">"| ">="

```

```

unop "++"|"--"

```

```

%%

```

```

"if" {return IF;}

```

```

"else" {return ELSE;}
"for" {return FOR;}
{relop} {return RELOP;}
{unop} {return UNOP;}
([a-zA-Z])([a-zA-Z][0-9])* {return ID;}
[0-9]+ {return NUM;}
[\n] {}
[\t] {}
[' ']{ }
. return yytext[0];

%%

int yywrap(){
    return 1;
}

```

OUTPUT :

```

vanathi@vanathi-HP-Pavilion-x360:~/Desktop/Semester 6/Compiler Design/Lab/A6$ yacc -d a6_v3.y
vanathi@vanathi-HP-Pavilion-x360:~/Desktop/Semester 6/Compiler Design/Lab/A6$ lex a6_v3.l
vanathi@vanathi-HP-Pavilion-x360:~/Desktop/Semester 6/Compiler Design/Lab/A6$ gcc lex.yy.c -lm -w
vanathi@vanathi-HP-Pavilion-x360:~/Desktop/Semester 6/Compiler Design/Lab/A6$ ./a.out

-----
Syntax Checker
-----
int yywrap(){
    return 1;
}

for(i=0; i<10; i++)
{
    for(j=5; j>=0; --j)
        x=x/10;
    if(x>6)
    {
        a=b+c;
        b=c*5;
    }
    else
        a=0;
    c=x-4;
}

Syntactically Correct!
vanathi@vanathi-HP-Pavilion-x360:~/Desktop/Semester 6/Compiler Design/Lab/A6$

```